

Japan-US Research Collaboration Week 2025

Creating Japan-US Research Highway
July 28-30, 2025



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Join us at the Japan-US Research Collaboration Week from Monday, July 28th to Wednesday, July 30th, 2025. We look forward to engaging in transformative discussions around this year's theme: Building Sustainable Innovation Bridges Between Nations. Registration opens early July 2025. The conference will be held at Stanford University and welcomes researchers, industry leaders, government officials, venture capitalists, and students committed to advancing international scientific collaboration. Please check back for the latest program updates!

(Our Mission)

The Japan-US Research Collaboration Week (JURC) launched in 2021 to create a robust foundation for research exchange between Japan and the United States. Through our innovative "Research Highway" concept, expert symposiums, and hands-on collaboration workshops, we've built a dynamic community of 200+ internationally-minded researchers, policymakers, and industry leaders. Our participants range from Nobel Prize winners to emerging graduate students exploring cross-border collaboration for the first time. Our research portfolio spans cutting-edge fields from precision medicine and ME-BYO wellness technologies to next-generation semiconductors, AI agent, and sustainable innovation solutions.

(The Research Highway Vision)

JURC 2025 builds upon our proven track record of facilitating research partnerships that translate into real-world impact. Participants gain exclusive access to successful collaboration models, funding opportunities through programs like ASPIRE, and direct connections to research leaders who are actively shaping the future of international scientific cooperation.

(Why Attend JURC 2025)

- Exclusive Access: Direct engagement with ongoing successful research collaborations
- Concrete Opportunities: Meet potential partners for joint research projects and funding applications
- Policy Insights: Learn about new funding programs and international research initiatives
- Career Development: Network with leaders across academia, industry, and government
- Innovation Pipeline: Discover emerging technologies ready for commercialization

(Participant Profile)

Academic Researchers | Industry R&D Leaders | Government Program Officers | Entrepreneurs | Venture Capital Investors | Graduate Students & Postdocs | Technology Transfer Professionals

Japan-US Research Collaboration Week 2025 Program

Monday, July 28

- 9:00-11:00 **Opening Plenary**
Venue: Munzer Auditorium, Beckman Center for Molecular and Genetic Medicine
- 11:15-12:45 **ME-BYO® Industry Luncheon Seminar**
Venue: LK120, Li Ka Shing Center for Learning
- 13:00-15:00 **Implementation of IT and AI Technologies in Healthcare:
Toward a Model for the AI Hospital**
Venue: Munzer Auditorium, Beckman Center for Molecular and Genetic Medicine
- 13:00-15:00 **Space × Medicine**
Venue: LK120, Li Ka Shing Center for Learning
- 14:00-17:00 **Promoting collaboration between academia and the private sector in Japan and the
United States to realize practical disaster risk reduction solutions**
Venue: LK101/102, Li Ka Shing Center for Learning
- 15:30-18:00 **How to measure your “Well Being” by “Mebyo” scale and deep profiling**
Venue: Munzer Auditorium, Beckman Center for Molecular and Genetic Medicine

Tuesday, July 29

- 9:00-11:00 **Maximizing impact through strategic networking among established researchers:
Creating the leaders of tomorrow through Japan-US Talent Mobility**
Venue: Munzer Auditorium, Beckman Center for Molecular and Genetic Medicine
- 9:00-11:00 **Translation from cancer to Alzheimer disease and beyond**
Venue: LK120, Li Ka Shing Center for Learning
- 9:00-11:00 **Preparing for the Next Pandemic: Strategies, Challenges, and Innovations**
Venue: LK101/102, Li Ka Shing Center for Learning
- 11:15-12:45 **Luncheon Session : Deans' Talk**
Venue: LK120, Li Ka Shing Center for Learning

- 13:00-15 :00 **Accelerating Deep Tech Startups through Venture Studios Initiative and Cross-border parallel fund Creation**
Venue: LK120, Li Ka Shing Center for Learning
- 13:00-17:00 **Educating our next generation engineers on energy efficiency, startups and health monitoring**
Venue: Munzer Auditorium, Beckman Center for Molecular and Genetic Medicine
- 14:00-18:00 **Nigiwai: Placemaking Driven by Human Behavior in Urban Environments Toward an Improved Quality of Life and Advanced Technologies**
Venue: LK101/102, Li Ka Shing Center for Learning
- 15:30-18:00 **Soft Bioelectronics and the Future of Wearable Healthcare: Bridging Academia, Industry, and Investment**
Venue: LK120, Li Ka Shing Center for Learning

July 30 Wednesday

- 9:00-10:00 **Unlocking the Potential of the Brown Gems: Toward a Disease-Free Society**
Venue: LK120, Li Ka Shing Center for Learning
- 10:00-10:30 **From Innovation to Impact; An Entrepreneur's Ongoing Journey**
Venue: LK120, Li Ka Shing Center for Learning
- 11:00-11:30 **A new era of asset management for Long-Term Investors**
Venue: LK120, Li Ka Shing Center for Learning
- 13:00-14:00 **Fueling Global Growth: Japanese Startups Breaking Boundaries**
Venue: LK120, Li Ka Shing Center for Learning
- 14:15-16:00 **Growth of Deeptech startup**
Venue: LK120, Li Ka Shing Center for Learning

Sessions & Speakers

Opening Plenary

Remarks



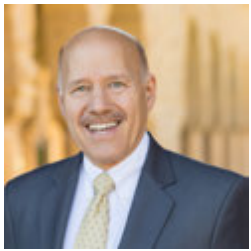
Lloyd B. Minor

Carl and Elizabeth Naumann
Dean of the School of
Medicine/ Vice President for
Medical Affairs, Stanford
University



Ryuta Nomura

CEO and Chairman of the
Board,
Central Institute for
Experimental Medicine and
Life Science (CIEM)



Ronald Pearl

Dr. Richard K. and Erika N.
Richards Professor and
former Chair, Anesthesia
Department, Co-Director of
SLDDDRS, Stanford University
School of Medicine



Kanako Watanabe

Chief Executive Director,
JETRO San Francisco



Takeshi Usami

Director, Washington, D.C.
Office, Japan Science and
Technology Agency



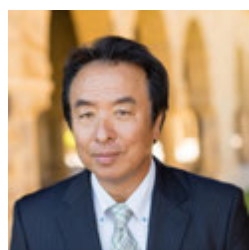
Jeff Chen

Professor,
National Yang Ming Chiao
Tung University



Yo Osumi

Consul General of Japan in
San Francisco



Toshihiko Nishimura

Director, Stanford / School of
Medicine, Anesthesia /
SLDDDRS



Kenichi Oki

Associate Director General
(Healthcare Innovation),
Policy Bureau, Kanagawa
Prefectural Government



Jonathan H. Chen

Associate Professor, Director
for Medical Education in
Artificial Intelligence, Stanford
Center for Biomedical
Informatics Research, Stanford
University

Opening Plenary Session

The symposium began with welcoming remarks from **Dean Minor** of Stanford University School of Medicine. He congratulated the organizers on the successful convening of this year's JURC, made possible through the dedicated efforts of many stakeholders, and expressed his anticipation for engaging and passionate discussions among the diverse participants.

Professor Pearl from the Anesthesia Department, Stanford University School of Medicine and **Dr. Usami** from JST Washington, D.C. Office, representing the co-hosts, welcomed the participants to the conference. They highlighted that this year's JURC covers not only medicine but also a broad range of critical technology fields, such as AI, space, disaster prevention, semiconductors, urban development, talent development, and startups. They expressed their appreciation to the organizers of these diverse sessions and underscored the significant contributions of JURC's Executive Planning Committee members to the symposium.

Mr. Osumi from the Consulate General of Japan in San Francisco expressed his admiration of the spirit of collaboration demonstrated at JURC. He emphasized the critical importance of US-Japan collaboration in driving innovation and highlighted the need for international talent mobility, citing the J-RISE Initiative by the Japanese government.

Mr. Oki from the Kanagawa Prefectural Government introduced a message from Governor Kuroiwa. In his message, Governor Kuroiwa congratulated the organizers on successfully holding JURC again, and reflected on the long-standing history of cooperation between Stanford University and Kanagawa Prefecture, and expressed his gratitude to everyone involved.

Mr. Nomura of CIEM also reflected on the more than 20-year history of cooperation between CIEM and Stanford University. He congratulated all involved on the growth of this partnership into JURC, now supported by a diverse range of stakeholders.

Ms. Watanabe from JETRO San Francisco Office highlighted her office's unique efforts to support Japanese startups expanding into the U.S. She introduced the Japanese government's five-year startup plan and announced that she would be hosting a session on Wednesday featuring presentations from Japanese startup companies.

Professor Chen of National Yang Ming Chiao Tung University, Taiwan, introduced Venture Studio, an initiative to bring innovative ideas to society. He also announced that he would be hosting a session on this topic on Tuesday.

Finally, **Dr. Nishimura**, from SLDDDRS, Stanford University School of Medicine, reflected on the history of collaboration between Japan and Stanford University highlighted by previous speakers. He emphasized the importance of continuing this partnership, noting that it has taken more than 20 years for these efforts to evolve into the form of JURC.

Opening Plenary Lecture: Jonathan Chen — Associate Professor, Director for Medical Education in Artificial Intelligence, Stanford Center for Biomedical Informatics Research, Stanford University

Dr. Jonathan Chen delivered an opening lecture, highlighting the transformative impact of artificial intelligence (AI) in healthcare. He emphasized that while AI systems now outperform humans in tasks like diagnosis and medical examinations, human roles remain essential in areas such as physical examination, empathy, complex decision-making, and professional responsibility. His talk explored how AI is reshaping medical education, clinical workflows, and patient interactions, and he urged educators and practitioners to rethink how knowledge is taught, assessed, and applied. Dr. Chen concluded that the future of medicine will be defined by collaboration between humans and AI, emphasizing that the responsible integration of these technologies is critical to improving both care and access.



ME-BYO® Industry Luncheon Seminar

Japan's population is aging at a faster rate than the rest of the world, leading to challenges such as increasing social security costs and a shrinking workforce. In response to this, Kanagawa Prefecture has defined a health concept ME-BYO, the transitional state of the body and mind between health and sickness, to promote self-management and precision health. Over the past decade, Kanagawa Prefecture has been collaborating with Stanford Medicine to actively pursue the creation of new industries in this field, aiming to achieve a healthier and higher quality of life. The luncheon seminar will showcase innovative technologies of the companies that promote ME-BYO initiatives through industry-academia-government collaborations. Topics among others include gut microbiome, a brand-new indicator for optimum exercise intensity for an individual using Oxygen Saturation Working Threshold, and networking with participants.

*Free lunch will be served.

Session Organizer

Kanagawa Prefectural Government

Facilitator



Toshihiko Nishimura

Director, Stanford
School of Medicine,
Anesthesia / SLDDDRS

ME-BYO® Industry Luncheon Seminar

Speakers



Kenichi Oki
Associate Director
General
(Healthcare
Innovation),
Policy Bureau,
Kanagawa
Prefectural
Government



Morikazu Nakagawa
General Manager,
Overseas Office
Management Office,
Overseas Business
Division,
FANCL CORPORATION



Yuya Kikukawa
CEO, ORPHE Inc.
Project Researcher,
The University of
Tokyo Sports
Science
Initiative(UTSSI)



Chiaki Ozeki
CEO
VISION IV Corporation

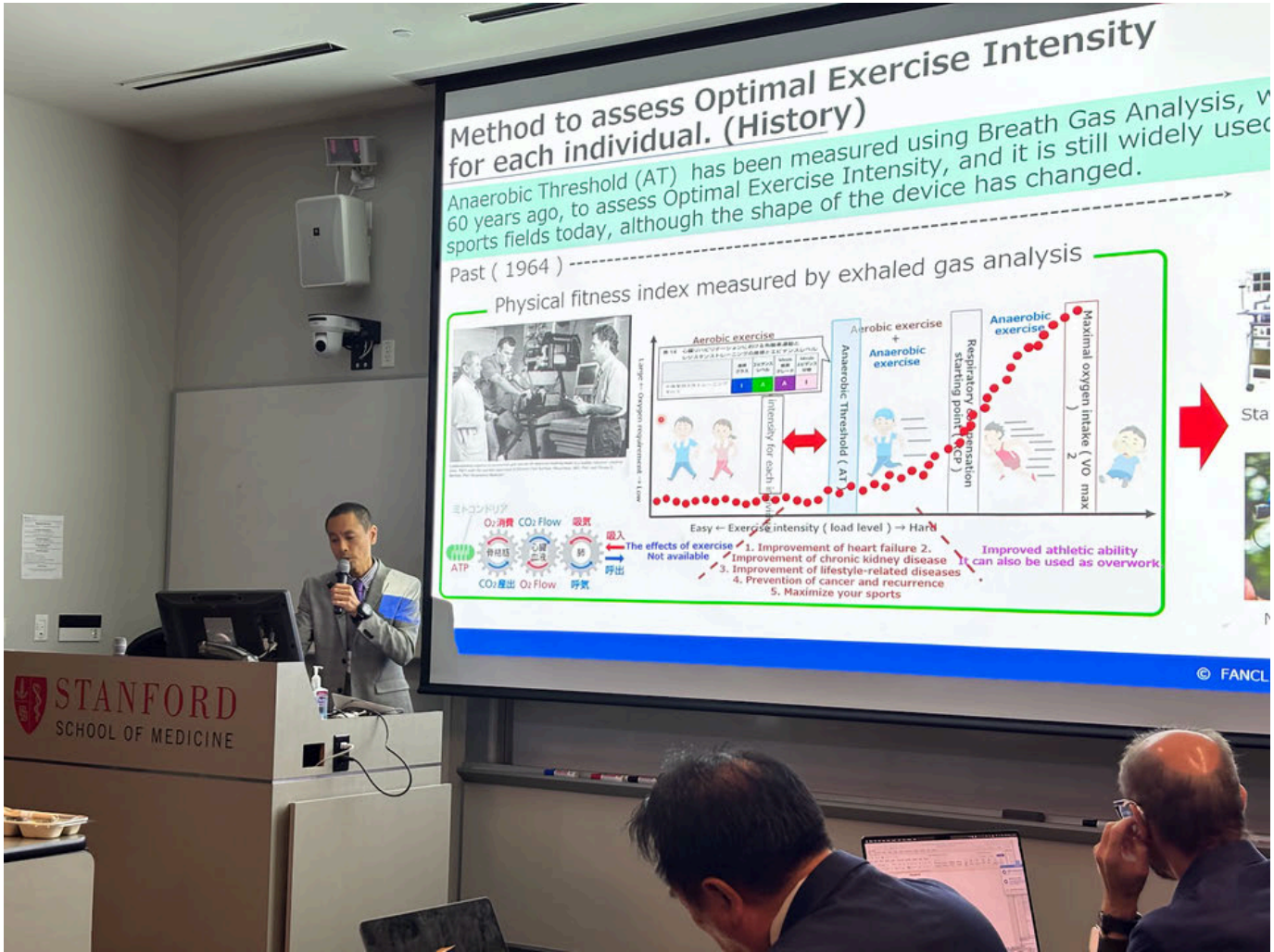


Michael Snyder
Professor/Director,
Stanford University

ME-BYO® Industry Luncheon Seminar
Organized by Kanagawa Prefectural Government

Japan's population is aging at a faster rate than the rest of the world, leading to challenges such as increasing social security costs and a shrinking workforce. In response to this, Kanagawa Prefecture has defined a health concept ME-BYO, the transitional state of the body and mind between health and sickness, to promote self-management and precision health. This session focused on the innovative technologies of companies from Kanagawa that promote ME-BYO initiatives.

The first speaker, **Mr. Morikazu Nakagawa** from FANCL Corporation, presented on the wearable medical device called ST DEVICE which FANCL has newly developed. The ST technology enables simple, accurate and quick assessment and real-time monitoring of optimal exercise intensity for each individual at a significantly low cost compared to the conventional methods. Since the maximum optimal exercise intensity varies for each person based on factors such as gender, age, body type, and exercise habits, it cannot be calculated using basic criteria such as mileage, time, or age. The conventional measurement method using the respiratory gas analysis was developed approximately 60 years ago, and while it continues to be widely used in medical and sports settings, the respiratory gas analyzers are expensive medical devices, and the testing method requires physical, financial, time, and human resource burdens. To address these challenges, FANCL developed the SpO₂ Threshold (ST), which uses the decrease in SpO₂ and increase in PR that occur as exercise intensity increases. This allows for simple, accurate, rapid, and affordable measurement of optimal exercise intensity. Furthermore, FANCL developed the wearable devices and an app, which enables real-time monitoring without the need for specialized expensive equipment only available at medical or research facilities. This technology will be a game-changer with broad applicability not only in medical and sports fields such as rehabilitation and athletic performance but also in areas such as health improvement and beauty industry. FANCL plans to expand the ST DEVICE technology to the U.S.



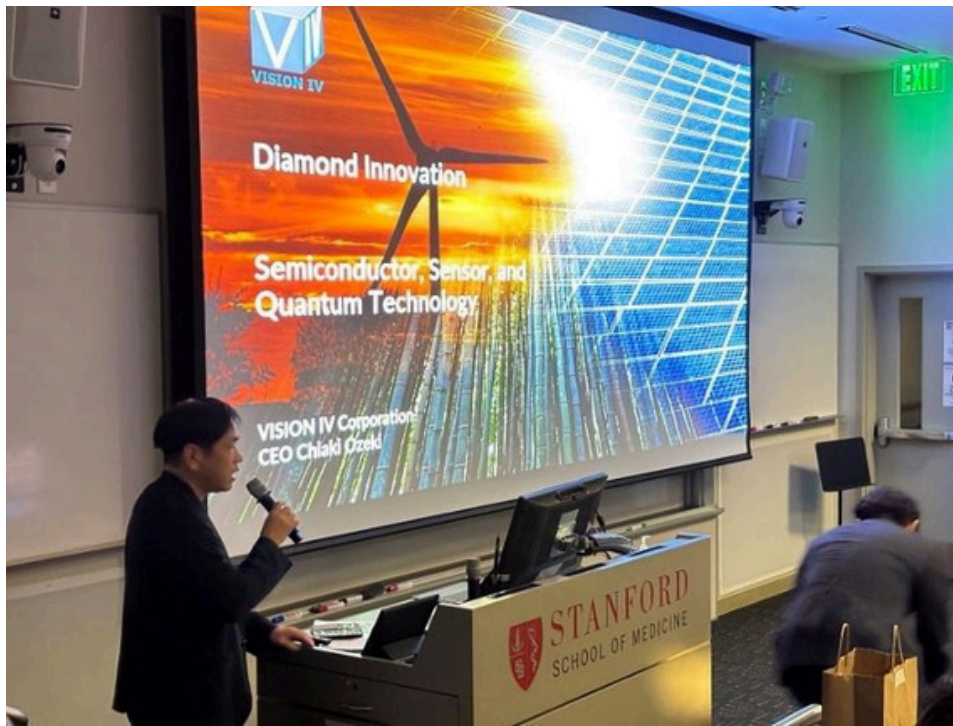
Next, **Mr. Yuya Kikukawa** from ORPHE Inc., a Tokyo-based startup specializing in smart footwear technology, presented its contributions to Kanagawa Prefecture’s ME-BYO initiatives within the Japan-US Research Collaboration framework. The company has developed motion-sensing platforms such as ORPHE CORE and ORPHE CORE MEDICAL, which are utilized in rehabilitation, clinical gait assessment, and municipal health events. These solutions, certified as a ME-BYO Brand, illustrate how gait analysis can be integrated into daily healthcare and preventive medicine, positioning ORPHE as a leading innovator in foot-based sensing.

Building on this foundation, ORPHE announced the upcoming release of the “ORPHE INSOLE β,” a smart insole equipped with motion and pressure sensors with over 24 hours of battery life. The device enables continuous measurement of gait and balance, with indicators such as step symmetry and fall detection. By enabling daily monitoring, it supports early intervention and healthy longevity.

Finally, ORPHE emphasized open innovation as a pathway for collaboration. By providing open-source libraries, the company enables researchers and developers to co-create applications for analysis, visualization, and rehabilitation. Through these efforts, ORPHE seeks to foster Japan-US partnerships that advance the ME-BYO concept and contribute to next-generation healthcare solutions worldwide.



Next, **Mr. Chiaki Ozeki** from VISION IV Corporation, presented on “Diamond Innovation; Semiconductor, Sensor, and Quantum Technology”. VISION IV aims to contribute to global energy issues by overcoming the limitations of silicon semiconductors through diamond substrate development. Leveraging its proprietary crystal growth technology and world-leading high-concentration boron doping technology, he aims to enter the power semiconductor, sensor, and quantum technology markets. VISION IV is advancing this development in collaboration with multiple research institutions and companies, including the University of Tokyo, with the goal of commercializing power semiconductors by 2030.



The final speaker, **Prof. Michael Snyder**, Stanford W. Ascherman Professor of Genetics, Stanford Medicine, delivered a talk on "Starting Companies," to overview the trend of the health sector and his lab research activities.

Firstly, Prof. Snyder outlined the enormous opportunities in the current health sector in the U.S. such as emerging new technologies, including AI, which had made it possible to generate and analyze data at levels that were not possible previously. He also highlighted the growing aging population with substantial wealth as well as challenges in the current healthcare system, such as the inefficacy of the modern pharmaceuticals and the underlying conservatism of the medical system.

Next, he discussed his lab research and the initiatives of the seventeen startup companies he co-founded. His approach "Longitudinal Personal Omics Profiling", which involves measuring genes, cells, gait, and other parameters using various methods, has led to a number of major discoveries in the fields of metabolism, cardiovascular and infectious diseases among others.

Furthermore, how new technologies such as wearable devices, AI, and big data can be effective in diseases prevention was discussed, based on examples from advanced products and services of his startup companies.

Prof. Snyder concluded by commenting on the essential elements for the success of startup companies, including the choice of the fields where the opportunities are abundant, how to handle intellectual property rights, and the importance of co-founders, investors, and team members.

Dr. Toshihiko Nishimura of Stanford Medicine and the facilitator of the session commented, “Kanagawa Prefecture and Stanford Medicine have collaborated for over a decade in healthcare, life sciences, and medicine through various approaches. We hope that the innovative ME-BYO initiatives presented today by these wonderful speakers will further advance through strong public-private-academic partnership between Japan and the US.”



Implementation of IT and AI Technologies in Healthcare: Toward a Model for the AI Hospital

(Description)

While academic interest in medical AI is growing, clinical implementation remains limited. Despite the increases in approved AI software, widespread adoption in hospitals faces challenges. Barriers include strict data privacy, difficulties in collecting high-quality datasets, overfitting, and the “black box” nature of deep learning. From an implementation perspective, cost-effectiveness, lack of insurance reimbursement, and difficulty in integration into clinical workflows are significant issues. At Keio University Hospital, we consider “implementation” a central theme and have developed the AI Hospital model with this focus, aiming to deliver safe and secure medical care to patients while alleviating the workload of healthcare staff. Recognizing the limited utility of AI in multitask, high-responsibility domains like diagnostic radiology, we have focused on applying AI/IT to universal tasks shared across various professions and departments rather than to highly specialized work. To achieve this project, we believe it is essential to build an organization with a small central leadership and a broad base, enabling rapid decision-making and easy horizontal deployment across departments.

Session Organizers



Masahiro Jinzaki

Professor, Department of Radiology,
Keio University School of Medicine /
Vice president, Keio University Hospital

Speakers



Yusuke Tanoue

CEO,
Yamato Medical Group



Curtis P. Langlotz

Professor of
Radiology
and Biomedical Data
Science / Director,
Center for Artificial
Intelligence in
Medicine and
Imaging (AIMI),
Stanford University

Session Organizers



Motoaki Yasui

Vice President,
National Institute of Information and Communications Technology
(NICT)

Speakers



Masayuki Yamamoto

Executive Director and
Professor,
Tohoku Medical Megabank
Organization



Nobuhiko Shimura

CEO, Skye Investment
Managers Co. Ltd



Nobuyasu Shiga

Senior Researcher,
National Institute of
Information and
Communications
Technology (NICT)



Naoto Nishizuka

Senior Researcher,
National Institute of
Information and
Communications
Technology(NICT)
/ Board director, co-
founder, Space Weather
Company

Space × Medicine

Masayuki Yamamoto, Naoto Nishizuka, Nobuyasu Shiga, Nobuhiko Shimura, and Motoaki Yasui

1. Introduction

Humanity's advance into outer space is expected to accelerate significantly over the next several years. To operate safely and effectively in space, it is essential to consider conditions that affect human health, such as radiation exposure and the effects of microgravity. Furthermore, properly managing time systems and spatiotemporal synchronization in space is critically important for maintaining operational control and coordination.

As space is rapidly becoming a new frontier for business and economic development, a fundamental question emerges: How can science, technology, medicine, and business intersect and evolve in a systematic and sustainable manner within the context of space exploration?

Experts at the forefront of each field gathered to share insights and discuss how space may emerge as a platform for interdisciplinary growth.

2. Key Points from the Session Talks

Yamamoto presented findings from experiments comparing the behavior of wild-type mice and Nrf2-deficient mice sent to the International Space Station (ISS). These studies revealed that the transcription factor Nrf2 plays a protective role against stress in the space environment. He introduced research efforts aimed at clarifying the conditions that determine biological degradation (aging) under extreme environments such as microgravity and space radiation.

Shiga described the current state and prospects of spatiotemporal synchronization technologies using electromagnetic waves, suggesting that adaptable local synchronization systems are expanding their applications from terrestrial environments into outer space.

Nishizuka discussed disturbances and threats posed by space weather phenomena, such as solar flares, to terrestrial infrastructure and objects in Earth's orbit, emphasizing the importance of forecasting technologies incorporating advanced tools such as AI.

Shimura then addressed, from a financial perspective, the ripple effects created by investment and the importance of systems that support the cycle of science and technology. Against a backdrop of innovations in market environments such as extended trading hours on the New York Stock Exchange and recent regulatory reforms enabling unprecedented ETFs targeting single stocks or indices, he explained that the number and scale of active ETFs are rapidly increasing, making them more accessible to previously cautious investor groups.

3. Summary: A Future Shaped by Interdisciplinary Integration

Synthesizing the discussions, a shared future vision emerges scientific and technological fields that have matured within their individual domains are beginning to “mash up” their achievement on a common stage, ushering in a phase where grand challenges such as space development and healthy longevity can be addressed as practical issues.

Yamamoto’s mouse experiments suggest that in a future where humanity expands into space, the knowledge gained will not only address the challenge of maintaining mental and physical health in space but may also provide benefits for life on Earth.

To accurately understand these conditions and translate them into technologies, it is indispensable to precisely capture and respond to electromagnetic disturbances and radiation environments emanating from the Sun. Space weather forecasting enables this. Moreover, in an era when humanity’s sphere of activity spans from Earth to outer space, it becomes crucial to maintain not only local time synchronization but also highly accurate time systems that integrate wide-scale technological networks. Spatiotemporal synchronization technologies form the foundation of such systems.

4. Sustainable Development Through the Cycle of Science, Technology, and Finance

For these technologies and even larger technological ecosystems to evolve autonomously and sustainably within the economic sphere, a healthy circulation of capital is essential. In the chain where science produces technology and technology generates wealth, the source of future economic value is shifting toward the vast quantities of data generated in cyberspace, whose value is expected to grow even more rapidly.

By integrating this data-value system with financial systems, science, technology, services, and economic effects can reinforce one another, generating resources for further research and development.

Establishing this virtuous cycle requires investment perspectives and value systems aligned with international standards. If Japan whose financial culture tends to be cautious updates its financial literacy to global norms and builds mechanisms for stable returns that exceed conventional expectations while maintaining conservatism, then a sustainable cycle can be realized:

Science → Technology → Creation of data/information space → Profit generation → Investment → Funding for science and technology.

This framework can evolve into a “scientific systems theory” in which science, technology, data space, and finance are interconnected.

5. Conclusion: The Horizon Revealed by the JURC Session

The JURC session demonstrated that combining medicine, information and communication technology, and broader financial technologies in a multilayered manner can generate new insights that point toward the future. This perspective is broadly applicable to all areas of scientific and technological development and should be emphasized as a key outcome of the session.

Summaries of each presentation are provided on the following pages.



Summary of Talk

Toward the Utilization of Space Environment for Medical Research Masayuki Yamamoto, Tohoku Medical Megabank Organization

- In the era of human space exploration, space mouse missions are expected to help overcome health risks during human stays in space
- In the space mouse MHU3 mission, we demonstrated the contribution of NRF2 to the cytoprotection during space travel
- We have developed ibSLS database to facilitate data sharing and integrated analysis with the vast human database accumulated through population-based research of TMM
- It is expected that the knowledge gained in the space mouse study will be useful for disease/ageing research on the ground

The space environment imposes various stresses, including microgravity and cosmic radiation.

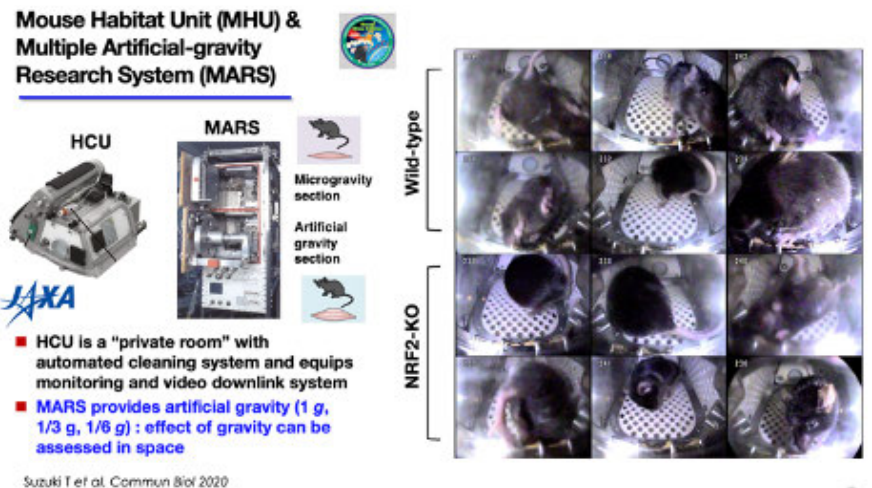
In a microgravity environment, unused bones and muscles rapidly deteriorate and atrophy. We hypothesized that the transcription factor NRF2, which senses oxidative and electrophilic stresses,

plays a protective role against such space-related stresses. To test this hypothesis, we sent six wild-type and six Nrf2-deficient mice to the ISS for 31 days. All mice returned safely to Earth. NRF2 target genes were upregulated in these space-exposed mice, indicating that NRF2 is acts to protect our body from the space stress. Model animal

research in space allows us to investigate physiological changes in preparation for the era of space travel not only for elite astronauts but also for the general public.

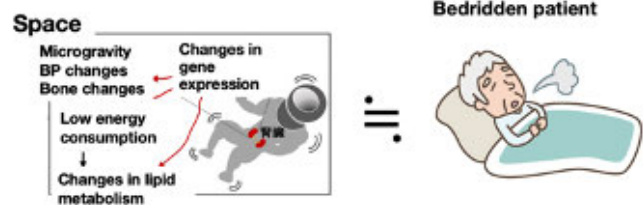
Detailed transcriptomic and metabolomic data obtained from various organs of the space mice are publicly available through the Integrated Biobank for Space Life Science (ibSLS), jointly developed by JAXA and the Tohoku Medical Megabank Organization

(<https://ibsls.megabank.tohoku.ac.jp/>).



Extrapolation of Space Stress Study to Aging Study on the Ground NRF2 Plays Important Roles in These Processes

- Space stress provokes severe damage in the bone and muscle, which mimics aging phenotype of human on the ground, including sarcopenia, osteoporosis, and frailty
- NRF2 acts to protect our body against the space stress and aging phenotypes
- International Space Station provides excellent environment for the study of aging and prevention of aging phenotype on the ground



Integrated Biobank for Space Life Science



ibSLS Integrated Biobank for Space Life Science

- We are now in the **Decade of Space Mouse**
- Detailed analyses using rodent models not only allow us to elucidate and avoid the risks in space but also produce important insights for human pathology research on Earth
- ibSLS is a platform that enhances data/sample sharing related to space biology
- ibSLS enables association of space mouse data with those in large scale human biobank; Tohoku Medical Megabank
- One small step for mouse opens one giant leap for mankind



Afshinnekoo E et al. Cell
Otsuki et al. submitted

<https://ibsls.megabank.tohoku.ac.jp/>

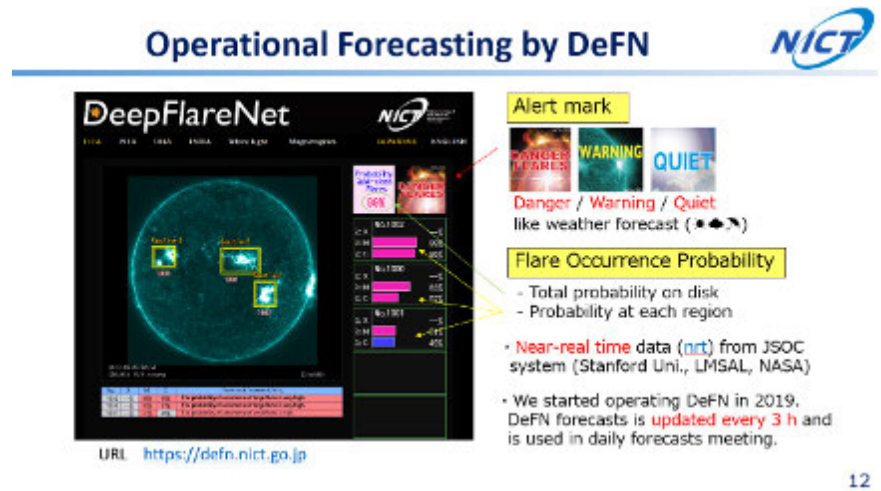
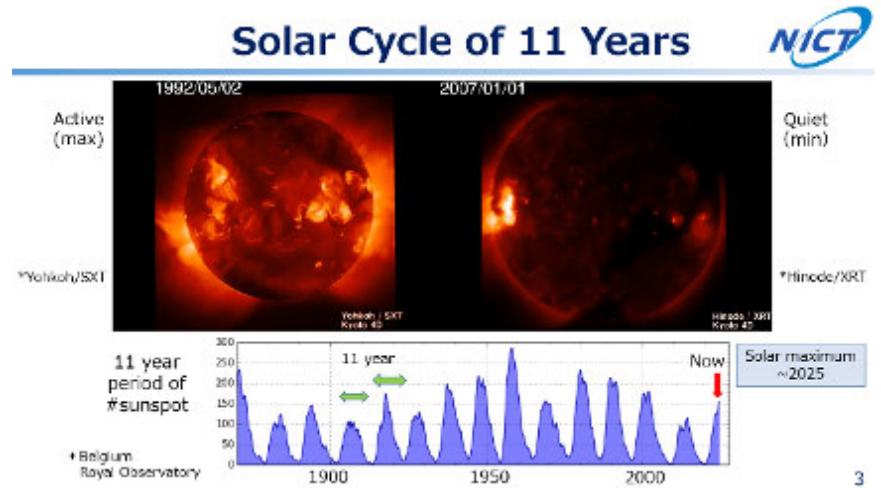
Summary of Talk

The Role and Business of Space Weather Forecasting in Human Space Exploration

Naoto Nishizuka, National Institute of Information and Communications Technology (NICT)

- In the era of space utilization, the importance of space weather forecasting is increasing. 2025 marks the peak of the 11-year solar cycle, and space weather is impacting our society.
- Solar flares can be predicted with higher accuracy using AI technology, and we have developed a model named Deep Flare Net for use in space weather forecasting.
- AI-powered space weather forecasting also benefits business. We founded Space Weather Company, a startup that leverages space weather AI to solve social problems.
- It is expected to help prevent communication failures and human radiation exposure during future manned space exploration, both in orbit and on the lunar surface.

Solar flares release electromagnetic radiation such as X-rays and radio waves, high-energy protons and electrons, and coronal mass ejections (CMEs), impacting social infrastructure. The solar activity fluctuates in an 11-year cycle, with solar activity predicted to peak between 2024 and 2025. Recurrent solar flares released multiple CMEs, causing a major geomagnetic storm on May 11, 2024. High-energy protons above 100 MeV increased to 1 PFU, but ISS astronauts did not need to evacuate this time. Solar flares are predicted manually, but AI can improve prediction accuracy. Deep Flare Net is an AI prediction model for flares occurring within 24 hours, successfully predicting flares with an accuracy of TSS=0.80, higher than human predictions. It has been operational since 2019 and used in daily space weather forecasts (<https://defn.nict.go.jp>). AI space weather forecasting models can also be applied to business. The startup Space Weather Company Inc. was founded to solve social problems, and its model is currently being used to improve satellite orbit prediction in LEO. Furthermore, in the future, it plans to launch services to prevent space communication outages in orbit and on the lunar surface, and to avoid human radiation exposure.



SWx.ai Space Weather Company

- Dr. Hiroyuki Takasaki**
CEO, Co-founder
Kyoto University, Associate Professor
- Dr. Taro Morimoto**
COO, Co-founder
Kyoto University
- Dr. Naoto Nishizuka**
CTO, Co-founder
NICT, Senior Researcher

SWx.ai is a startup from NICT, founded in 2024 to solve social issues by using space weather AI forecasts.



Summary of Talk

Wi-Wi: Space-Time Synchronization for Space, Medicine and Beyond

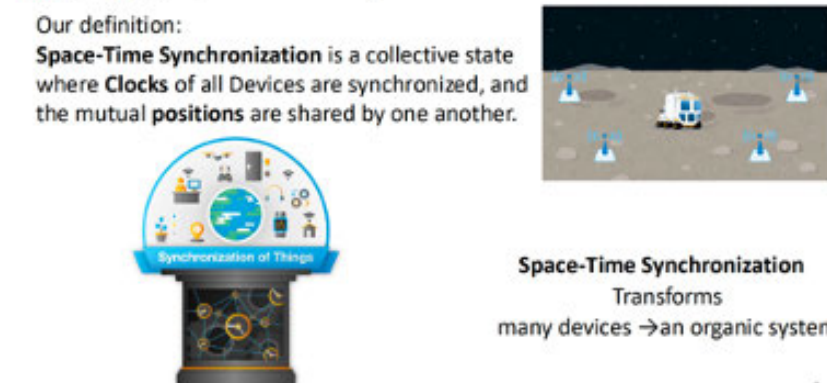
Nobuyasu Shiga, National Institute of Information and Communications Technology (NICT)

- Concept: Space-Time Synchronization integrates devices by aligning clocks and sharing positions, enabling reliable operations in GNSS-denied environments.
- Technology: Wi-Wi (Wireless Two-Way Interferometry) delivers picosecond-level phase sync and millimeter-accurate ranging, demonstrated with compact 920 MHz modules (30 ns time accuracy, 16 ps jitter).
- Applications: Supports satellite constellations, lunar positioning, astronaut health monitoring, data centers, factories, drone swarms, and IoT networks.
- Vision: Roadmap toward scalable synchronization (2025), PNT infrastructures (2035), and platform (2040), commercialized via Wi-Wi STAMP Inc. with global standardization.

The Space exploration requires precise synchronization for spacecraft operations, communications, and sensor fusion. We proposed Space-Time Synchronization, where device clocks are aligned, and positions are mutually shared, creating an integrated and resilient system. Our technology, Wireless Two-Way Interferometry (Wi-Wi), is precision time-transfer methods to wireless networks. Prototype 920 MHz modules demonstrated picosecond-level phase alignment and millimeter-accurate ranging with compact, low-cost devices. Applications include space missions (satellite constellation formation, lunar positioning, astronaut and animal monitoring) and terrestrial domains (data centers, factories, autonomous vehicles, drones, IoT networks). The roadmap foresees network synchronization by 2025, pilot PNT infrastructures by 2035, and advanced applications such as indoor positioning and authentication by 2040. Through Wi-Wi STAMP Inc., we aim to commercialize the technology and advance international standardization (ITU, 3GPP, IEEE).

WiWi Space-Time Synchronization

Our definition:
Space-Time Synchronization is a collective state where **Clocks** of all Devices are synchronized, and the mutual **positions** are shared by one another.



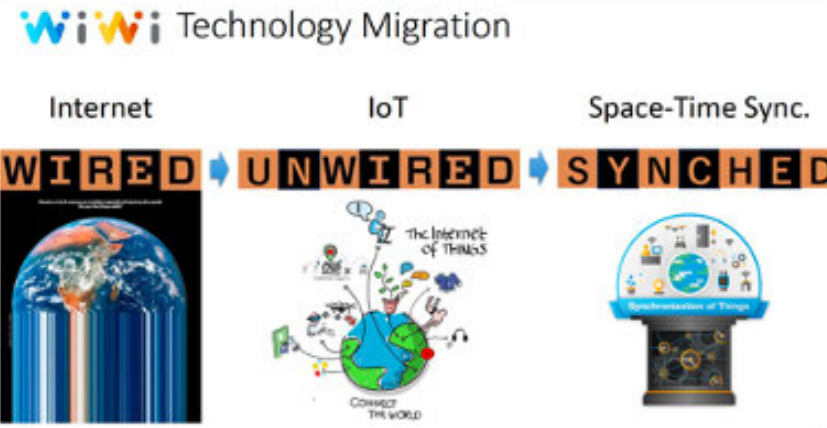
Space-Time Synchronization
Transforms
many devices → an organic system

1

WiWi Technology Migration

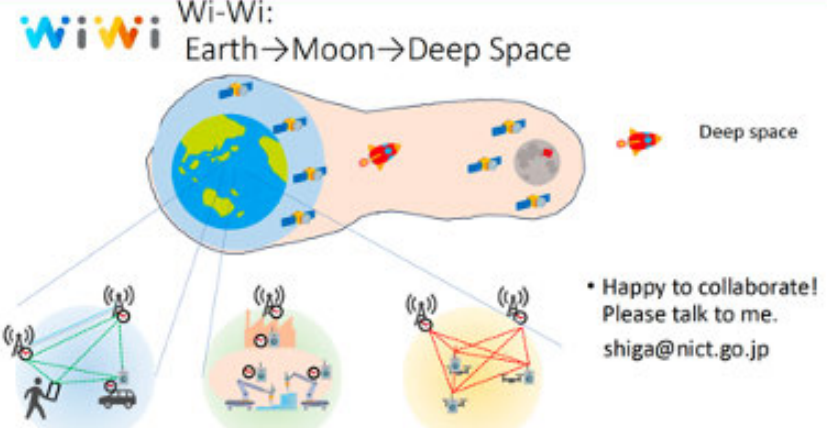
Internet IoT Space-Time Sync.

WIRED → **UNWIRED** → **SYNCHED**



2

Wi-Wi: Earth → Moon → Deep Space



• Happy to collaborate!
Please talk to me.
shiga@nict.go.jp

4

Summary of Talk

Finance for the sustainable development of science and technology

Nobuhiko Shimura, Skye Investment Managers Co. Ltd

Investor literacy differs significantly between Japan and the United States, and the proportion of Japanese individuals investing in equities remains low compared to the U.S. In the U.S., however, the rise of mega-IT companies such as Google, Apple, and NVIDIA has driven an expansion in equity participation. At the same time, initiatives aimed at improving the trading environment—such as the extension of trading hours on the New York Stock Exchange—are also progressing. In addition, recent regulatory reforms concerning the creation of ETFs based on single stocks or new index-linked structures have led to a rapid increase in both the number and scale of actively traded ETFs.

In the United States, even ordinary retail investors routinely engage in options trading on individual stocks and active ETFs. For example, as of July 29, investors could execute the following trade using Tesla shares: By selling a 52-day put option with a strike price of USD 290—approximately 10% below Tesla's spot share price of USD 321—an investor could earn an annualized premium yield of 22%. The maximum risk when selling a put option is simply being required to purchase the underlying shares; no risk beyond that of holding the stock arises. Moreover, by repeatedly selling put options, investors can indefinitely postpone the actual purchase of the stock. For investors wishing to buy Tesla at a lower price, selling put options instead of placing a traditional limit order allows them to earn an annualized return of over 15%, even in a declining market.

This investment method is effective regardless of whether the stock market is rising or falling. Even in market conditions that typically feel challenging for most investors, it enables stable, steady accumulation of returns without being swayed by market fluctuations. For that reason, it is well suited to long-term wealth building.

Because this approach allows investors to grow their assets steadily while effectively preserving principal, it may also contribute to technological development in Japan. If wealthy investors can earn an annualized return of around 10% while maintaining principal protection, they can channel the resulting profits into fundamental scientific research aimed at supporting the future of Earth. The outcomes of such research could then be sold to large U.S. IT companies, providing funding for further advancement.

Updating financial literacy in Japan to global standards and establishing mechanisms for achieving higher, conservative, and stable returns should ultimately support the continued development of science.

Promoting collaboration between academia and the private sector in Japan and the United States to realize practical disaster risk reduction solutions

(Description)

In this session, we would like to provide a session for Japanese and American scientists and practitioners to present specific solutions for reducing the damage caused by disasters that have the potential to be catastrophic. This year, wildfires have shaken Los Angeles and Ofunato on both sides of the Pacific Ocean, and we would like to pursue what the specific known risks and new risks posed by climate change are in Japan and the United States, and what the prescriptions are for reducing these risks based on the most accurate assessment possible. Furthermore, even if we have the best possible prescriptions, they will be meaningless if the general public does not understand and take them, so it is also important to consider how to make this possible from a socio-economic perspective. Here are several potential benefits.

- 1) Knowledge & Technology Exchange:
- 2) Collaboration on Early Warning Systems
- 3) Resilient Infrastructure Development
- 4) Disaster Response & Recovery Best Practice
- 5) Climate Change Adaptation Strategies
- 6) Enhancing Public Awareness & Education

Session Organizers



Yuichi Ono

Professor,
International Research Institute of Disaster
Science,
Tohoku University



John Rundle

Distinguished Professor,
University of California, Davis, CA
<https://physics.ucdavis.edu/directory/faculty/john-rundle>

Promoting collaboration between academia and the private sector in Japan and the United States to realize practical disaster risk reduction solutions

Speakers



Hironori Hayashi

Assistant Professor,
Division of Infectious Diseases,
International Research Institute of Disaster Science, Tohoku
University



Daan Liang

Professor,
University of Alabama
<https://eng.ua.edu/eng-directory/dr-daan-liang/>



Ahmed Elbanna

Professor / Director Designate of SCEC,
University of Southern California / University of Illinois Urbana
Champaign
<https://central.scec.org/user/aettaf>



Shusaku Nakamura

General Manager of Disaster risk reduction and Digital
transformation Sec.,
PACIFIC CONSULTANTS CO., LTD.

Introduction

This session was held as part of the initiatives by the World Bosai Forum Foundation to promote international dialogue and practical solutions for disaster risk reduction (DRR). Bringing together experts from both Japan and the United States, the session focused on strengthening collaboration between academia and the private sector to develop practical DRR measures.

World Bosai Walk Presentation

As one of the highlighted initiatives by the World Bosai Forum Foundation, the “World Bosai Walk” was introduced. This unique project involved walking along the coastal areas of Tohoku, Japan, that were severely affected by the 2011 Great East Japan Earthquake and Tsunami. The walk was part of a broader effort to communicate Japan’s “Build Back Better” initiatives to the global community.

The presentation included interviews with local residents encountered during the walk, offering firsthand insights into recovery efforts and community resilience. These voices underscored the human dimension of disaster recovery and the importance of long-term, community-based support.

Keynote Presentation

The keynote speech was delivered by Assistant Professor Hironori Hayashi from the International Research Institute of Disaster Science (IRIDeS), Tohoku University. He presented on “Efforts to Develop Drugs to Reduce the Risk of Emerging and Re-Emerging Infectious Diseases.”

He emphasized the importance of pharmaceutical development as part of disaster risk reduction, especially in preparing for and responding to infectious disease outbreaks. Such efforts not only help reduce health risks during disasters but also strengthen the overall medical response system. From a BOSAI perspective, drug development was positioned as a critical tool in managing disaster-related health risks.

Presentation: Disaster Risk Reduction Ratings for Local Governments

Professor Yuichi Ono from Tohoku University presented a feasibility study on creating a disaster risk reduction (DRR) rating system for local governments. The goal is to assess and promote disaster preparedness by using a standardized national index.

The rating system supports the Sendai Framework and encourages municipalities to improve resilience through positive and healthy competition. It also aims to attract businesses and public services to disaster-ready regions. In the first year, the project developed a platform, held stakeholder meetings, and identified key challenges. The work continues with refining the rating system and exploring future applications, including international use.

防災格付 Bosai Rating

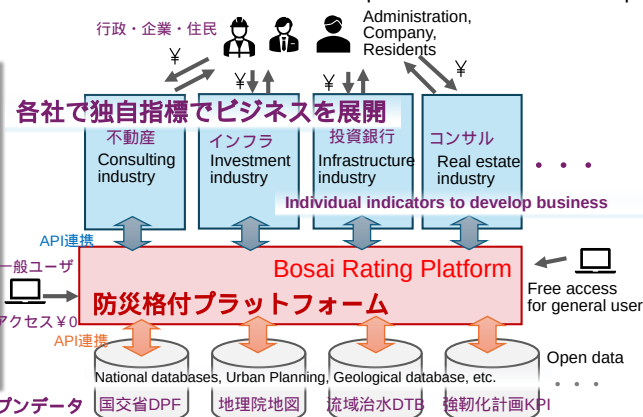


- 東北大学災害科学国際研究所・小野教授を統括者とする研究組織を設置
- 防災格付 = 全国共通の指標により、自治体の地域防災力を評価する仕組み
- 重点目標 = 防災格付プラットフォームの構築（案）

Establish a research organization led by Professor Ono from IRIDeSat Tohoku University
Bosai Rating: A system to evaluate the regional disaster resilience of municipalities using a common national index
Key Objective:
Propose the construction of a platform to rate DRR efforts

【狙い】

- 頑張っている自治体にスポットライトをあてたい
- 統計データ等の基盤整備化や、オープンデータ化を加速させたい
- 地域防災力を向上したいと願う自治体を支援したい
- 様々な業界にとって、ビジネスチャンスの拡大や地域防災へ貢献する機会を創出したい



Aims

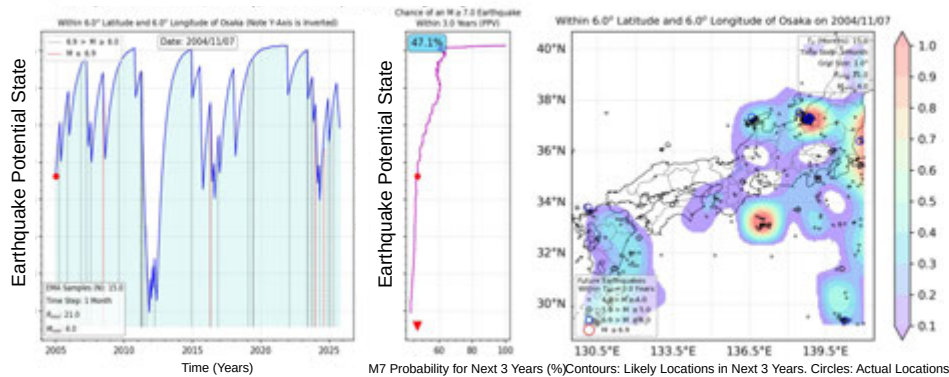
- Spotlight on municipalities that are making efforts on Bosai
- Accelerate the establishment of statistical data infrastructure and the promotion of open data
- Support municipalities that want to improve their resilience
- Create opportunities for industries to support disaster-resilient communities and grow their business

Presentation: Disaster Risk Reduction from Earthquakes Using AI

Professor John Rundle from the University of California, Davis, presented on the use of artificial intelligence to enhance earthquake prediction. He introduced “QuakeGPT”, a generative model designed to nowcast and forecast earthquakes using historical data and simulations.

The approach combines machine learning techniques with physical models to improve prediction accuracy, particularly in high-risk areas like the Nankai Trench. The project highlights the potential of academia-industry collaboration in advancing AI-driven tools for disaster risk reduction.

Nankai Trench Megaquake? Nowcast Movie



Presentation: Local and Scalable Solutions for Disaster Risk Reduction

Professor Daan Liang from the University of Alabama discussed the challenges and opportunities in creating disaster risk reduction (DRR) solutions that are both locally relevant and scalable. He noted the rising trend of insured losses from disasters and emphasized the need for diverse strategies—such as building codes, hazard protection, insurance, and land use planning.

Innovative approaches were also introduced, including adaptive buildings, on-demand insurance, and the transformation of urban underground infrastructure. The presentation highlighted the role of AI and research collaborations in enhancing the resilience of complex infrastructure systems.

Presentation: A Vision for System Science in Disaster Reduction

Professor Ahmed Elbanna presented on the role of the Statewide California Earthquake Center (SCEC) in advancing earthquake system science. SCEC integrates research and technology to improve predictive models and seismic hazard assessment.

He emphasized the importance of high-performance computing, combining AI with physics, and realistic simulations. The presentation highlighted a trans-disciplinary approach to disaster reduction involving science, engineering, computing, and policy to build a more resilient society.

Presentation: A Cutting-Edge Digital Approach to Visualizing Disaster Hazards, Risks, and Impact Analysis

Mr. Nakamura, from Pacific Consultants, the Japanese construction consulting firm, introduced the situation of natural disasters in Japan and some disaster management services using digital technology, such as the Real-time AI Detection Service, GFIA3D (Global Flood Disaster Instant Analysis 3D), and services provided by i-Probe (A U.S. joint venture leveraging connected-vehicle sensor data to analyze and map real-time road surface deterioration). Pacific Consultants’ objective is to enhance safety and security and to contribute to building cities resilient to disasters. He emphasized the company’s willingness to collaborate on these technologies in the U.S. and expressed anticipation of future cooperative opportunities.

Summary of Q&A Session

Potential of AI:

AI holds a significant promise in disaster recovery, with capabilities to integrate heterogeneous data sources, accelerate simulations, and generate personalized behavioral models that reflect how individuals and communities might respond under various scenarios. These applications can enhance predictive accuracy and support faster, more informed decision-making, thereby strengthening preparedness and response systems.

Limitations and Risks:

Despite its potential, AI faces notable limitations, particularly its reduced reliability when dealing with scenarios beyond the distribution of its training data. Ethical concerns, risks of misuse, and the difficulty of regulating increasingly autonomous systems remain unresolved issues. Trust in AI-generated outputs is fragile and shaped by social, cultural, and psychological factors, making it difficult to ensure effective communication during crises.

Human Behavior and Trust:

Disaster response behavior is highly dependent on subjective factors such as trust in information sources, emotional reactions, and individual value systems. These dynamics cannot be fully replicated by AI alone. The effectiveness of warnings, whether from AI systems or traditional sources, depends on perceived credibility and the social relationships embedded in communication channels.

Scientific and Model Challenges:

A purely data-driven approach risks overlooking the evolving nature of scientific understanding. As new physical principles or insights into human behavior emerge, rigid or opaque AI models may struggle to adapt. Maintaining flexibility, interpretability, and scientific alignment within models is essential, particularly when transitioning from physical systems to more uncertain domains like human decision-making.

Role of Regulation and Governance:

Clear frameworks are needed to define the roles and responsibilities of public and private actors in the deployment of AI for disaster risk management. Coordination is essential to prevent conflicting signals during emergencies and ensure accountability, especially when private entities engage in forecasting or alerting functions traditionally reserved for governmental bodies.

Innovation and Startups:

While disaster response has typically been the domain of public institutions, new avenues are opening for startups to contribute technical innovations and localized solutions. However, commercialization challenges persist, including low public demand for disaster-related products and the difficulty of scaling systems that must adapt to context-specific conditions.

Future Directions:

A shift in focus from damage prevention to rapid functional recovery is gaining momentum, emphasizing the need for infrastructure and communities to resume operations quickly after disasters. Cross-disciplinary collaboration and the establishment of shared evaluation benchmarks are viewed as crucial for accelerating the responsible application of AI in disaster resilience and recovery.

Conclusions and Ways Forward

This session brought together researchers, practitioners, and private sector representatives from Japan and the United States to explore innovative and scalable approaches to disaster risk reduction (DRR). Held in Silicon Valley, the discussions highlighted the importance of cross-sector collaboration, the integration of cutting-edge technologies such as AI, and the need for ongoing reflection and continuous dialogue to address emerging challenges.

The session underscored the growing potential of AI in DRR, while also recognizing its limitations and the importance of trust, clear roles between public and private actors, and ongoing alignment with scientific understanding. Looking ahead, there is a shared commitment to advancing resilient and adaptable DRR systems, and to fostering environments where academia, industry, and communities can co-create practical solutions.

The World Bosai Forum will continue to serve as a platform to promote these international and cross-sector dialogues.





How to measure your “Well Being” by “Mebyo” scale and deep profiling

Session Organizer



Toshihiko Nishimura

Director, Stanford / School of Medicine, Anesthesia /
SLDDDRS

Speakers



Michael Snyder

Professor/Director,
Stanford University



Yasue Mitsukura

Professor, Keio University



Takeo Nagura

Professor,
Keio University



Naoko Okumoto

Founder & Managing
Partner, NIREMIA Collective

Maximizing impact through strategic networking among established researchers: Creating the leaders of tomorrow through Japan-US Talent Mobility

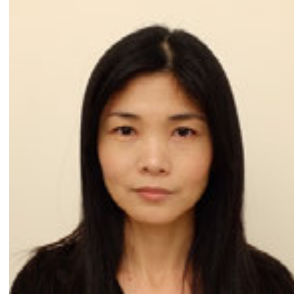
Purpose:

- To promote the development of young Japanese researchers by leveraging connections with top researchers involved in ASPIRE.
- To showcase the current status of the “Japan-US collaboration to develop advanced science and technology and foster future leaders,” supported by ASPIRE
- To establish JURC as a networking platform for both Japanese and US researchers contributing to the advancement of science and technology.

Content:

1. Presentations by PIs involved in Japan-US joint research projects under ASPIRE, introducing their current research activities and collaborations.
2. From the perspective of fostering young researchers in advanced science and technology, we will feature a round table discussion with early-career Japanese and US researchers who have just started or already built careers in the US where participants from both countries can exchange ideas and share experiences in an open and interactive setting.

Session Organizer



Kaoru Toyofuku

Senior Program Coordinator, Japan Science and Technology Agency

Facilitator

■ Dai Minowa

Deputy Manager,
Japan Science and Technology Agency



Maximizing impact through strategic networking among established researchers: Creating the leaders of tomorrow through Japan-US Talent Mobility

Speakers



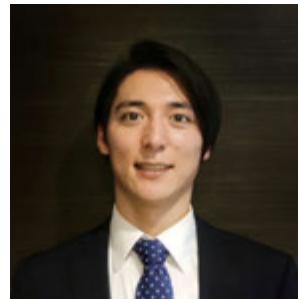
Hiroshi Amano
Professor, Nagoya University / Director, CIRFE, IMaSS
https://profs.provost.nagoya-u.ac.jp/html/100001778_en.html



Aila Koch
Undergraduate, Purdue University



Srabanti Chowdhury
Professor, Stanford University / Visiting Professor, Nagoya University
<https://profiles.stanford.edu/srabanti-chowdhury>



Shun Yokoi
Visiting Scholar, Stanford University



Atsutake Kosuge
Lecturer, The University of Tokyo



Tomoya Nakamura
Associate Professor, The University of Osaka



Ayami Hiramoto
Visiting Scholar, Northwestern University



Soichi Wakatsuki
Professor, Stanford University

ASPIRE Session at Japan-US Research Collaboration Week 2025

Adopting Sustainable Partnerships for Innovative Research Ecosystem (ASPIRE)

<https://www.jst.go.jp/aspire/en/index.html>

From Monday, July 28 to Wednesday, July 30, 2025, Japan-US Research Collaboration Week (JURC) 2025 was held at Stanford University in the United States. During the event, ASPIRE held a two-hour morning session on July 29 at the Beckman Center, one of the event's venues. It was rather chilly in the San Francisco Bay Area—a stark contrast to Japan's scorching heat.

The ASPIRE session, titled "Maximizing Impact through Strategic Networking among Established Researchers - Creating the Leaders of Tomorrow through Japan-US Talent Mobility," introduced ASPIRE projects and featured a wide range of speakers, from top-level researchers to undergraduate students, who exchanged views on the results of their daily efforts and research in the United States.

In the first half, three principal investigators (PIs) from ASPIRE projects presented their international collaborative research and researcher mobility initiatives, along with their achievements to date.

Dr. Hiroshi Amano (Nagoya University), a PI in the materials field, spoke online and introduced unique systems such as the "3 + 3 model" and the "1,000-day plan" that enable long-term stays in the United States and other countries by maximizing ASPIRE support mechanisms. Dr. Srabanti Chowdhury (Stanford University), a PI on the U.S. side (and a partner of Dr. Amano's joint research), said that there is a culture that welcomes joint research because important laboratories such as SLAC National Accelerator Laboratory (SLAC)* are located near the university and in Silicon Valley, and that collaboration with Japan has produced results. Dr. Atsutake Kosuge (University of Tokyo), a PI in the field of semiconductors who is conducting research at Stanford University, spoke enthusiastically on the value of living in and conducting research at such a location surrounded by cutting-edge technology startups and Big Tech.

*Founded in 1962, the SLAC is now sponsored by the United States Department of Energy (DOE) and is administered by Stanford University.

In the second half, four early career researchers, ranging from an associate professor to students, who are pursuing careers in the United States, gave presentations on their activities and future prospects. The audience raised many insightful and inquisitive questions, such as why so few young people in Japan pursue opportunities abroad, and how STEM education is also being provided to female students. The discussion was so engaging that attendees wished for more time. It was apparent that there was a high level of interest in the opinions of early career researchers.

Next, in the round-table discussion, several participants pointed out that the U.S. research environment is characterized by a relaxed atmosphere and cultural openness. It was agreed that this made it easier to build teams and generate new ideas and cross-sector collaboration. Prof. Soichi Wakatsuki (Stanford University) welcomed one of the speakers, Dr. Shun Yokoi, a visiting scholar from the University of Tsukuba, into his laboratory at Stanford. Dr. Wakatsuki was introduced to Dr. Yokoi by Dr. Ayori Mitsutake (at that time, Keio University), whom he met when he was a research supervisor at CREST. Dr. Yokoi expressed his desire to actively support the overseas orientation of young Japanese researchers.

Participants expressed the importance of young researchers studying abroad at an early stage of their career, as well as the need for better support systems. ASPIRE's objectives regarding the networking of researchers and the development of early-career researchers are hard to achieve overnight, but these exchanges are being seen as encouraging. For this session, a preliminary meeting was held with the speakers to carefully coordinate how the roundtable would be facilitated. Connections were also formed among the participants, and this became a successful example of the support provided by ASPIRE.

JURC program: <https://www.jst.go.jp/inter/washington/stanford2025/docs/program2025.pdf>



Scene from the discussion

From left: Dr. Wakatsuki (Stanford University), Ms. Koch (Purdue University), Dr. Yokoi (Stanford University), Dr. Hiramoto (Northwestern University), Dr. Nakamura (Stanford University), and Mr. Minowa (facilitator, JST)

Translation from cancer to Alzheimer disease and beyond

Session Organizer



Makoto Suematsu

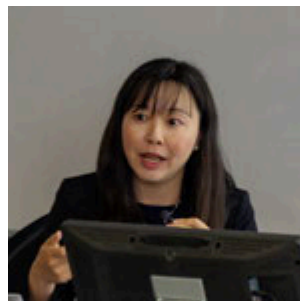
Director,
Central Institute for Experimental Medicine and Life
Science (CIEM)

Speakers



Takashi Sasaki

Project Associate
Professor,
Center for
Supercentenarian
Medical Research,
Keio University School
of Medicine



Shan Riku

Chief Product Officer,
BillionToOne



**Ramasamy
Paulmurugan**

Professor,
Stanford University



Spencer Foust

Managing Director,
Sozo Ventures

Translation from cancer to Alzheimer disease and beyond

Talk Summary:

Imaging metabolomics for translation of anti-cancer reagents to treat Alzheimer disease

Makoto Suematsu

Director, Central Institute for Experimental Medicine and Life Science (CIEM)
Professor Emeritus, Keio University, Japan

Utilization of glucose in cells results in delivery of varied metabolites derived from glucose biotransformation, while regulatory mechanisms for determining the directional metabolism remain unknown. Imaging metabolomics (e.g. imaging MS) allowed us to reveal that protein arginine methylation of multiple enzymes (mPFKFB3, mPKM2 and mPHGDH) via PRMT1 determines directional delivery of C1 units into serine-synthesizing pathway to accelerate synthesis of fatty acids and reactive sulfur species in triple-negative breast cancer (TNBC) to generate chemoresistance with worsening prognosis (1). On the other hand, under collaboration with Professor Kati Andreasson's lab in Stanford, we reported that activation of tryptophan metabolism increases the downstream metabolite kynurenine (KYN) and suppress generation of lactate via mechanisms involving aryl hydrocarbon receptor and HIF in astrocytes (2). Inhibition of indolamine dioxygenase (IDO)- 1 by PF-068, an anti-cancer reagent, improved generation of lactate by astrocytes that benefits for neuronal ATP maintenance. The results indicated that impaired hippocampal glucose metabolism and memory disturbance were improved in AD model mice. At the same time, the anti-cancer drug can be repurposed for AD treatment.

Whether these results are extrapolated to human diseases or even to non-human primate disease models remains unknown and underway to uncover. Thus, we developed common marmoset models of Familial AD through gene-editing technology of presenilin-1 mutations (3), and observed time-dependent alterations in regional brain volume and metabolism. To further characterize spatio-temporal alterations in brain development and metabolism, we have applied ultrahigh field MRI (11.7T with 22-cm bore). Not only to visualize anatomical alterations of the brain with higher spatial resolution, but does the machine allows us to collect regional changes of metabolites (UHF-MRS). Combination of non-human primate disease models with imaging metabolomics may serve as a promising strategy to understand molecular mechanisms and to develop new drugs to control human diseases.

1. Yamamoto T, et al. Cancer Res (2024)

2. Minhas PS, et al. Science (2024)

3. Sato K, et al. Lab Anim (2024)

Talk Summary:

Shan Riku

Chief Product Officer, BillionToOne

BillionToOne is a precision diagnostics company founded with the belief that molecular diagnostics should not only be more accurate, but also more actionable. Born out of Stanford's StartX space and Y-combinator, our journey began by asking a fundamental question: What is the most impactful healthcare problem that physics and engineering can help solve? Our answer led us to develop a new class of molecular counting technologies that enabled high-resolution non-invasive testing, first in maternal health and now in oncology.

In the talk, I covered BillionToOne's founding story and reflected on what it takes to build successful diagnostics products.

1. **Clinically Useful Product:** A test isn't useful simply because it's biologically possible or analytically precise. Clinical utility—whether it improves patient outcomes—is the ultimate test.
2. **Solves problems for patients, providers, and payers:** Beyond clinical utility, a clinical test must make providers' lives easier- by making their workflow simpler or saving time from their day. Providing total healthcare cost savings to payors is also an important consideration.
3. **Foundational Research (from academia):** After identifying the right product opportunity with clear clinical utility, the journey begins—but development is just the first 1%. The remaining 99% lies in commercialization and adoption, which carries enormous risk for startups. This reality limits how much biological risk companies like ours can take. We deeply rely on academic research for early biomarker discoveries and disease characterization. The importance of basic science cannot be overstated for any biotech ventures including diagnostics.



Preparing for the Next Pandemic: Strategies, Challenges, and Innovations

Session Organizer



Toshihiko Nishimura

Director, Stanford / School of Medicine, Anesthesia /
SLDDDRS

Speakers



Hideki Ueno

Professor,
Graduate School of
Medicine, Kyoto University



Jeffrey Glenn

Joseph D. Grant Professor and
Professor of Microbiology and
Immunology,
Stanford University School of
Medicine



Andrew Farquharson

Managing Director,
InCube Ventures



Satoshi Uchida

Professor, Institute of Science
Tokyo / Chief Medical Officer,
CraftonBiotechnology Co., Ltd.



Luncheon session : Deans' Talk

Organizer

Central Institute for Experimental Medicine and Life Science (CIEM)

Speakers



Ruth O'Hara

Senior Associate Dean for Research, Stanford University School of Medicine



Makoto Suematsu

Director, Central Institute for Experimental Medicine and Life Science (CIEM) /
former Dean, School of Medicine, Keio University



Masayuki Yamamoto

Executive Director and Professor, Tohoku Medical Megabank Organization /
former Vice President/Dean of the School of Medicine, Tohoku University



Accelerating Deep Tech Startups through Venture Studios Initiative and Cross-border parallel fund Creation

(Description)

Deep tech holds the potential to transform the world, but it often faces significant challenges in commercialization due to its complexity and risk. A Deep Tech Venture Studio addresses these challenges by providing the structure, speed, and support necessary to efficiently and responsibly bring groundbreaking research to market. Focused exclusively on launching startups from cutting-edge science, it works closely with universities, scientists, and engineers to translate deep research into real-world applications. By bridging the “valley of death” — the critical gap between lab discovery and commercial viability.

Session Organizer



Jeff Chen

Professor,
National Yang Ming Chiao Tung University

Speakers



Miwako Waga

Senior Director for
International Innovation
Outreach,
University of California
San Diego
[https://www.linkedin.com/
in/miwako-w-04587a6/](https://www.linkedin.com/in/miwako-w-04587a6/)



Michael Huang

Vice President, Development Center for Biotechnology Director,
Biotechnology and Pharmaceutical Industries Promotion Office,
MOEA, Taiwan



Robert Hill

Investor/Mentor, UCSD IGE Investor/Mentor, NuFund
<http://linkedin.com/in/robert-hill-5848aaa>

Accelerating deep tech startups through venture studios initiative and cross-border parallel fund creation

Session Summary:

Professor Jeff Chen of National Yang Ming Chiao Tung University, Taiwan, introduced the concept of a Venture Studio—an innovative framework that transforms cutting-edge scientific research into ventures with real-world impact. He shared several practical examples, including the joint venture fund between Kyoto University and Taiwan's National Development Fund, to illustrate the growing trend of global collaboration in deep tech venture creation.

The International Deep Tech Venture Studio Seminar highlights a new model of entrepreneurship centered on AI, semiconductors, quantum computing, clean energy, and biotechnology. Unlike traditional accelerators, this model originates from university research breakthroughs, integrating long-term funding with cross-disciplinary teams of scientists, engineers, entrepreneurs, and financial experts.

By bridging science and market, the Venture Studio seeks to accelerate commercialization, reduce investment risks, and promote transnational collaboration across Asia, North America, and Europe—ultimately driving industrial transformation, sustainable growth, and innovative solutions to global challenges such as climate change, energy transition, and healthcare advancement.

Talk Summary:

UC San Diego: A Research and Innovation Powerhouse

Miwako Waga, Senior Director for International Innovation Outreach
Office of Research and Innovation, University of California San Diego

Established in 1960, UC San Diego is a relatively recent addition to the University of California system, which oversees 10 campuses, 6 academic health centers, and 3 national laboratories. Presently, UC San Diego accommodates over 45,000 students and employs more than 41,000 faculty and staff members. We pride ourselves on being a student-centered, research-focused, and service-oriented public university.

UC San Diego has an annual research expenditure exceeding \$1.7 billion in 2024. The National Institutes of Health (NIH), National Science Foundation (NSF), and Department of Defense (DOD) are among the leading agencies funding research at UC San Diego. The 2024 Highly Cited Researchers list features 56 UC San Diego faculty, the highest in the UC system and 9th worldwide. The Association of University Technology Managers (AUTM) ranks UC San Diego 4th in the nation for innovation and start-ups.

The statistics show that UC San Diego is effective in research and focuses significantly on commercialization initiatives. The Office of Innovation and Commercialization support UC San Diego researchers throughout the innovation and commercialization process. There are approximately 14 incubation and acceleration programs across the campus, including those provided by the Institute for the Global Entrepreneur (IGE).

As the Senior Director for International Innovation Outreach, my foremost duty is to establish and nurture research collaborations with international industry and academic institutions, working in conjunction with campus stakeholders including the Jacobs School of Engineering, Scripps Institution of Oceanography, and UC San Diego Health. My primary focus has been on developing partnerships in Japan.

I have worked with colleagues to create various entrepreneurial and innovation programs in partnership with Japanese universities and funding agencies. One example is JETRO-LA's "Beyond JAPAN" program, which supports Japanese startups in the life science and MedTech sectors in developing business strategies for the U.S. and global markets. IGE has executed this and other entrepreneurial programs effectively.

Partnering with UC San Diego's startup development programs offers international participants numerous benefits. They will learn from experienced lecturers and mentors how to enhance their business propositions for the U.S. market. These mentors, often seasoned executives, will offer practical advice and connect them with key business leaders. The university setting also provides access to domain experts and a broader regional innovation ecosystem. UC San Diego works closely with regional economic development organizations such as CONNECT, EvoNexus and Biocom California.

UC San Diego is closely linked with the Pacific Rim region. We maintain a Tokyo office to connect with our Japanese partners. Through industry collaborations, academic partnerships, and startup initiatives, UC San Diego fosters innovation and excellence locally and globally.

Talk Summary:

Innovation and Entrepreneurship at the Development Center for Biotechnology

Michael Huang, Vice President, Development Center for Biotechnology, Taiwan / Director, Biotechnology & Pharmaceutical Industries Promotion Office, MOEA, Taiwan

Development Center for Biotechnology (DCB) is a non-profit organization established in 1984 by the Ministry of Economic Affairs (MOEA) of Taiwan. The mission is to facilitate the growth of Taiwan's biotech industry through technology innovation, development, acquisition, licensing, and transferring. With over more than four decades of endeavors, DCB created the largest biologics CDMO company in Taiwan, licensed out more than 17 drug candidates, spun off 6 companies, cultivated more than 3000 former employees as biotech professionals to the industries, and trained annually thousands of scientific and business workforces.

In the past two decades, DCB recognized that innovation and entrepreneurship are the driving forces for rapid growths in biotech industry and had since dedicated itself to creating and accelerating startups through the following means:

1. Incubation Center

DCB's Nankang Biotech Incubation Center (NBIC) was established in 2004. It has incubated more than 80 companies among those there have been 17 companies becoming public listed. NBIC works with accelerators such as MassChallenge to help startups receive training and mentorship from experts of the targeted market countries.

2. DCC

Drug Commercialization Center (DCC) is a group working closely with academia to explore, screen, and assist good seeds turning into commercialized products. It provides rich information to university professors and startups from patent strategy, market analysis, value estimation, business mentoring, etc.

3. BPIPO

Biotechnology & Pharmaceutical Industries Promotion Office (BPIPO) is a one-stop service shop for startups to locate various resources from fundraising, regulatory affairs to governmental incentive programs. It also offers great international connections to foreign markets. Annually BPIPO leads Taiwan company delegations to USBIO, BIO Japan, AusBIO, Bio Asia-Pacific, etc.

4. IEC

Innovation & Entrepreneur Core (IEC) group forms talent pools of business champions and leaders with expertise in technology, business development, regulatory affairs, manufacturing, etc. It recruits talents through various sources for venture studio and has signed Strategic Partnership Agreement (SPA) with venture capitals by providing the talent pools, startup incubators, etc. IEC has engaged with 5 projects and been successfully spun off 3 companies.

DCB offers a wide spectrum of assistance to startups: from the building up of a pre-company team, to the establishment of a startup, to accelerated growth, and to IPO. It walks with the startups through fundraising, regulatory approval, marketing, etc. with an intention to be a trusted partner to the biotech industry.

POC in Taiwan - Proposal for Cross-Border Collaboration on Venture Studio

1. DCB serves as an intermediate hub for Japan-US-Taiwan international biotech innovation & startups as a part of their Proof of Concept (POC) journey. DCB will provide the talent pools and connection to public and private resources for the venture studios.

2. International new startups may continue their POC progress via partnership with DCB or Taiwan's companies for fast development with high efficiency and cost-effectiveness.

With strong governmental supports and proactive style of ecosystems, Taiwan's capital market welcomes internationalization of biotech industry. DCB will serve as a portal for footing and rooting of international teams in Taiwan.

Talk Summary:

US-Japan Cross-Border Startup Formation

Robert Hill, Investor/Mentor, UCSD IGE Investor / Mentor, NuFund

This presentation, delivered at the Japan–US Research Collaboration Symposium on July 29, 2025, by Robert Hill, outlines a strategy for bridging the gap between Japanese R&D and successful US startup formation. Drawing from interviews with 35 founders, mentors, and investors, it makes the case for coordinated support models, especially Venture Studio and LaunchBridge approaches.

Key Observations:

- Japan is globally strong in research output but lags in startup creation and commercialization.
- There is a persistent 'valley of death' post-R&D where promising technologies fail to scale.
- Japanese startups come to the U.S. for customer access, clinical trials, and to engage investors.
- Founder, Mentor, and Investor Insights:
 - Founders prioritize U.S. partnerships, POCs, and payor validation more than IP/legal help.
 - Mentors value long-term engagement, coach-ability, and readiness for U.S. market norms.
 - Investors demand evidence of U.S. traction, IP defensibility, and strong teams; they screen for MOIC (Multiple on Invested Capital), looking for 10x potential.

Support Models Compared:

1. Existing Support Models:

- Incremental upgrades to JETRO, JST, GTIE, etc.
- Technical coaching, U.S. market orientation, and pilot matchmaking.
- Limited traction due to short-termism and weak founder matching.

2. Bridge Model :

- Co-investment strategy blending Japan R&D agency support with U.S. angel capital to fund pre-seed formation and early U.S. market access.
- Integrated JP–US launchpad including founder readiness, U.S. incorporation, pilot partnerships, and regulatory alignment (e.g., IRB, FDA prep).
- Syndicated soft landing platform that pairs JP-side incubation with U.S.-based capital, partnerships, and founder matching.

3. Venture Studio Model:

- Studio sources IP, forms Newco, and executes MVP development and validation.
- Co-founders hired, equity-aligned, with support from in-house funds.
- Studio retains 30–70% equity; founders work as salaried operators.

Conclusion:

There is a clear opportunity to refine and invest in new JP-US startup formation models. These models must bridge research and commercialization, align incentives across borders, and reduce friction in the startup lifecycle. The presentation concludes with a strong case for an integrated, cross-border investment and mentoring structure to unlock economic value and social impact.



Educating our next generation engineers on energy efficiency, startups and health monitoring

(Description)

Discussion will include efforts and prospects for university-based ventures in nitride semiconductors and human body monitoring, as well as attempts to establish an R&D city.

Session Organizer



Hiroshi Amano

Professor, Nagoya University / Director,
CIRFE, IMaSS

https://profs.provost.nagoyau.ac.jp/html/100001778_en.html



Srabanti Chowdhury

Professor, Stanford University / Visiting
Professor, Nagoya University

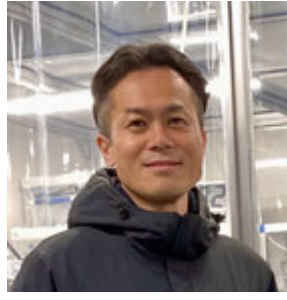
<https://profiles.stanford.edu/srabanti-chowdhury>

Educating our next generation engineers on energy efficiency, startups and health monitoring

Speakers



Mihoko Maruyama
Professor,
Osaka University
<https://researchmap.jp/marumarumi?lang=en>



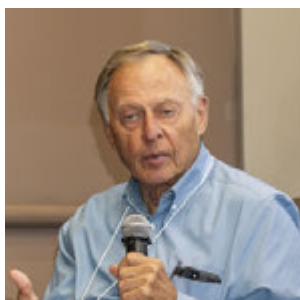
Takayuki Suzuki
CEO,
Photo electron Soul Inc.



Hiroshi Saigusa
Fellow,
Mitsui Fudosan Co.,
Ltd



Akihiko Soyama
CEO, LINK-J /
Specially Appointed
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<https://www.linkedin.com/in/akihiko-soyama-b4687952/>
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Jim Plummer
Fluke Professor of
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Umesh Mishra
Dean of the College of
Engineering / Richard A.
Auhll Professor,
University of California,
Santa Barbara
<https://engineering.ucsb.edu/people/umesh-mishra>

Educating our next generation engineers on energy efficiency, startups and health monitoring

This session convened leaders from academia, industry, and ecosystem builders to examine how deep-tech—spanning biomineralization for human health, advanced photoelectron sources for semiconductor manufacturing, and innovation platforms that connect space, community, and capital—can be translated into real-world impact. Speakers traced the path from fundamental discovery to application. Discussion among the speakers addressed cultural attitudes to risk and failure, university policies that either constrain or enable faculty entrepreneurship, and the need for bilateral U.S.–Japan platforms that blend patient capital with interdisciplinary teams. Across the session, one theme dominated: breakthroughs require not only excellent science and engineering but also the complementary architecture of policy, people, place, and sustained funding to carry ideas from lab to marketplace.

Mihoko Maruyama — Professor, Osaka University

Prof. Maruyama presented an interdisciplinary biomineralization study that treats kidney stones as historical records of the body's internal environment. By preserving crystal microstructure and proteins in thin sections, her team can map protein localization and observe the sequence of mineral formation—showing that calcium phosphate often appears at the core and promotes rapid calcium oxalate crystallization. The group is translating these insights into clinical practice by refining urine sediment analysis (cooling improves fidelity) and by developing a point-of-care device to predict stone risk. Her presentation also covered the following topics;

- Gentle sectioning protocol preserves crystal architecture and embedded proteins for analysis.
- Immunofluorescence on intact sections reveals spatial protein patterns within stones.
- Calcium phosphate aggregates act as nucleation sites that accelerate calcium oxalate growth.
- Cooling urine samples enhance early detection of calcium phosphate crystallites.
- Higher calcium phosphate-positive rates in high-risk patients support calcium phosphate as a predictive biomarker.

Takayuki Suzuki — CEO, Photo electron Soul Inc.

Dr. Suzuki outlined a photoelectron source packaged in a vacuum chamber for direct-write and inspection use-cases. The system reduces unnecessary scattering and surface charging, enables per-pixel intensity control and timing sync, and improves visibility at the bottoms of high-aspect-ratio features—pain points for conventional e-beam tools. Offerings include upgrade kits for existing tools as well as integrated systems for advanced fabs. He also pointed out the following important aspects; Hardware-centric gains: source properties plus beam control, not merely software compensation.

Precise dose placement enables ‘write where you want, avoid where you don’t’.

Back-side illumination design leverages an ultra-thin active layer for efficient emission.

Srabanti Chowdhury — Professor, Stanford University / Visiting Professor, Nagoya University

As moderator, Prof. Chowdhury framed the session at the intersection of technology and entrepreneurship, probing how deep-tech moves from lab to line. She contrasted the relative ease of funding fashionable software with the long, capital-intensive cycles of hardware, and called for bilateral platforms to align investors, founders, and universities across the U.S. and Japan. She moderated technical and commercialization Q&A across device physics and manufacturing readiness, and discussions on the highlighted policy and cultural frictions—especially around failure, tolerance and mobility.

Hiroshi Saigusa — Fellow, Mitsui Fudosan Co., Ltd.

Mr. Saigusa emphasized the role of place: specialized lab-ready buildings, hazardous-materials compliance, and proximity to hospitals and universities are prerequisites for deep-tech success in the field of life science. He argued that Japan must replicate and adapt proven cluster models through academia-industry-government coalitions backed by patient capital. He also emphasized the following points;

Purpose-built infrastructure lowers startup friction and accelerates collaboration.

District-scale planning and long-term investment horizons are essential for semiconductors and biotech.

Akihiko Soyama — CEO, LINK-J / Specially Appointed Professor, Tohoku University

Dr. Soyama introduced LINK-J as a nonprofit orchestrator that combines space, community, and funding connections. Through multi-site facilities and global partnerships, LINK-J supports accelerators, university alliances, and corporate-startup engagement, reducing the cost and complexity of starting R&D companies. He also introduced the following key features of LINK-J;

Operates multi-tenant labs near clinical and research hubs; plans for additional nodes.

Runs programs and events that connect founders with investors and enterprise partners.

Jim Plummer — John M. Fluke Professor of Electrical Engineering, Emeritus, Stanford University

Prof. Plummer stressed that solving the energy challenge requires tackling both supply and demand, with efficiency improvements offering as much impact as renewable generation. He highlighted universities' role in mobilizing students and fostering interdisciplinary research, calling for academic incentives to value real-world impact rather than narrow specialization. Prof. Plummer pointed to data centers and industrial heating as major opportunities for reducing energy use and advocated for simple, focused international collaborations to accelerate progress.

Umesh Mishra — Dean of The Robert Mehrabian College of Engineering; Richard A. Auhll Professor, Electrical and Computer Engineering, University of California, Santa Barbara

Prof. Mishra argued that energy efficiency is essential for sustaining the growth of AI and electrification. He traced gallium nitride's rise from lighting to power conversion in EVs and data centers, noting that about ten percent of global electricity is lost in conversion. Prof. Mishra emphasized UCSB's work on high-efficiency devices and system-level optimization, while urging outreach to get support from the population, workforce retraining, and clear policies to make efficiency a driver of economic and technological advancement.

Hiroshi Amano — Professor, Nagoya University / Director, CIRFE, IMaSS

Prof. Amano anchored the session with a talent-first strategy for a net-zero 2050. He described a doctoral program that pairs students with dozens of mentors from companies and public research labs, blends overseas immersion with long internships, and supports IP creation and pitching. Outcomes include awards, venture formation momentum, and even differentiated salaries for Ph.D. hires—a marked shift from uniform pay norms in Japan. The program advocates cross-appointments and policy levers that free faculty time for venture building and calls for risk-embracing teams to join early-stage deep-tech in Japan's traditionally risk-averse culture.

Cross-cutting Takeaways:

Across the discussions, three points were repeatedly raised. First, interdisciplinarity turns scientific insight into usable tools—from crystal engineering techniques that reveal clinical biomarkers to novel electron sources that improve semiconductor yield. Second, platforms matter: fit-for-purpose space, vibrant communities, and patient capital must arrive together to reduce time-to-impact. Third, policy and culture are not afterthoughts; hiring, cross-appointments, visas, and failure-tolerant norms directly influence whether talent can translate ideas into companies. Durable U.S.–Japan collaboration can combine complementary strengths to meet these needs.



Nigiwai: Placemaking Driven by Human Behavior in Urban Environments Toward an Improved Quality of Life and Advanced Technologies

(Description)

In the quest to build environments enriched by diversity, the concept of "Nigiwai" offers a captivating lens. Traditionally signifying bustling spaces where people and ideas converge, "Nigiwai" also embraces the ability of places to welcome diverse individuals, fostering harmony and unexpected discoveries. This session transcends conventional notions of diversity merely as demographic representation; it focuses on cultivating environments where individuals thrive amidst creativity, cooperation, and stimulating challenges.

Our cross-cultural dialogue invites experts from Japan, the U.S., and beyond to explore the design and integration of "Nigiwai" through varied disciplines—data science, urban planning, social system design, social psychology, and political science. By interconnecting global insights, this collaborative forum aims to lay the groundwork for innovative social diversity.

Session Organizer



Yukio Ohsawa

Professor,
The University of
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Sae Kondo

Associate Professor,
The University of Tokyo /
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Kazuyoshi Shimada

Manager,
Japan Science and
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<https://jp.linkedin.com/in/kazusmd>

Nigiwai: Placemaking Driven by Human Behavior in Urban Environments Toward an Improved Quality of Life and Advanced Technologies

Speakers



Sae Kondo

Associate Professor,
The University of Tokyo / Mie University
https://researchmap.jp/kondo_sae



Abby C, King

David and Susan Heckerman Professor, and Professor of
Epidemiology & Population Health and of Medicine / Director,
Stanford Health Enhancing Action Research & Technology
Solutions Laboratory Stanford University School of Medicine
<https://www.ncbi.nlm.nih.gov/myncbi/1-US-bAnj8MAE/bibliography/public/>



Vivian Wong

Assistant Professor, University of Florida
<https://dcp.ufl.edu/faculties/vivian-wong/>



Licia Amichi

Researcher, Oak Ridge National Laboratory

Nigiwai: Placemaking Driven by Human Behavior in Urban Environments Toward an Improved Quality of Life and Advanced Technologies



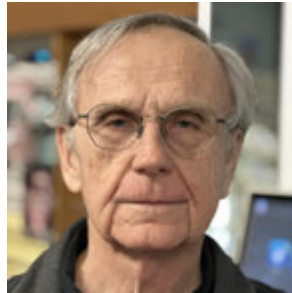
Keiko Murayama

Lecturer, Mie University / (Former) Associate Principal, Studio Head, Skidmore, Owings & Merrill LLP
<https://www.linkedin.com/in/keikonkgw/>



Naohiro Matsumura

Professor, The University of Osaka, Graduate School of Economics



Session Advisor

Pat Langley

Principal Research Scientist, Georgia Tech Research Institute / Director, Institute for the Study of Learning and Expertise
<http://www.isle.org/~langley/>



**Post-workshop
chair**

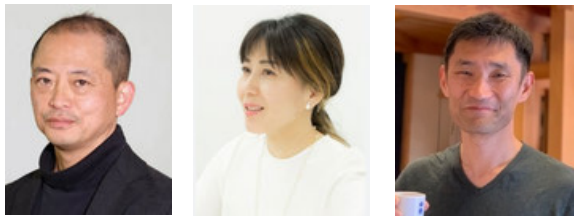
Kaira Sekiguchi

The University of Tokyo

Session Title: Nigiwai: Placemaking Driven by Human Behavior in Urban Environments Toward an Improved Quality of Life and Advanced Technologies

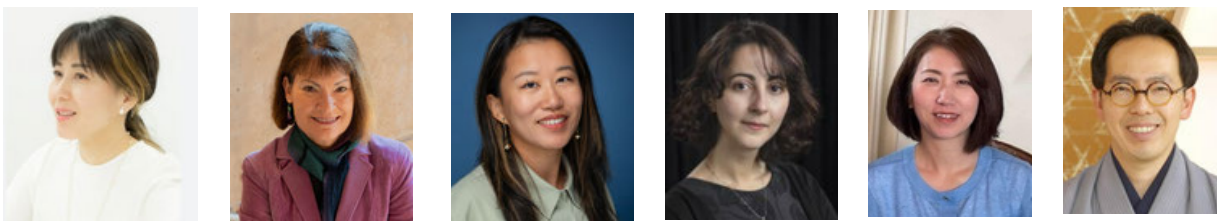
Session Organizers

- Yukio Ohsawa: The University of Tokyo and Teikyo University
- Sae Kondo: Mie University, and The University of Tokyo
- Kazuyoshi Shimada: Japan Science and Technology Agency



Speakers:

- Sae Kondo: Mie University, and The University of Tokyo
- Abby King (Professor, Stanford University School of Medicine)
- Vivian Wong (Assist. Professor, University of Florida)
- Licia Amichi (R&D Scientist, Oak ridge National Lab)
- Keiko Murayama (Assoc. Director of Skidmore Owings & Merrill LLP till 2023, currently Board Member of C5 Children's School)
- Naohiro Matsumura (Professor, The University of Osaka)



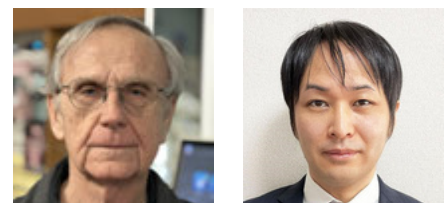
Advisor:

- Pat Langley (Principal Research Scientist, Georgia Tech Research Institute, and Director, Institute for the Study of Learning and Expertise)

Post-workshop chair

- Kaira Sekiguchi (The University of Tokyo)

Summary for Proceedings:



Summary for Proceedings:

Session Outline:

We discuss technologies and approaches to design places where diverse people can live in harmony and enjoy a comfortable and pleasant environment with opportunities for discoveries and creativity - minimizing discord, infections, crime, and anxiety.

"Nigiwai" refers not only to a "bustling" or "lively" state or place where many people gather and money flows, but also to the characteristics of a place that attract and accept diverse people to gather and continue to gather. In a place with Nigiwai, people live with each other and enjoy a comfortable and pleasant environment embracing the potential of unexpected discoveries, evolutions of knowledge, and innovations of living - through communication and interaction.

In this session, we shall link the knowledge of experts in various fields in Japan and U.S interested in joining discussions about methods for designing a Nigiwai place. Relevant domains could be:

- (a) designing and making places - both real and virtual - where humans in the future would live finely and gather to create values and profits,
- (b) designing/collecting/using data about humans for analyzing, improving, and sustaining wellbeing in human life, and
- (c) designing society for surviving the new age where humans may live with AIs which are more intelligent than present and may go partially beyond the intelligence of humans.

The Session Agenda

(1) Introduction (brief introduction to Nigiwai following up the outline above)

Yukio Ohsawa, The University of Tokyo, Teikyo Univ., and Os' Lab Co. Ltd

(2) Keynote by Sae Kondo: City with a Hidden Meaning

Amid regional decline from low birthrates and aging, art and narratives that reveal local DNA can transform residents and spur regeneration. GPS analysis of MDE data around stations shows greater diversity in movement patterns before and after development. Kondo proposes combining MDE as a vitality indicator with population metrics to design station cores and express regional meaning as a sustainable strategy.

(3) Visionary presentations:

Abby King, in her talk “Technology-enabled Citizen Science to Promote Inclusive Placemaking, Health & Well-being,” presented “Our Voice” which collects residents’ photos, audio, and GPS evaluations to map hotspots. Through the process of sharing, consensus, proposals, and action, sidewalk improvements were achieved in senior housing and schools, increasing walking. Now active in over 100 locations across 25 countries, the project integrates sensors, VR, generative AI, and big data with storytelling to strengthen policy impact, credibility, and citizens’ participation in sciences, supporting physical and mental well-being.

Vivian Wong says it is crucial to acknowledge the associated risks associated with dense crowd gatherings, as we contemplate the concept of Nigiwai. She presented “ST-DIF Python Package: Spatio-temporal Data Integration Pipeline for Pedestrian Crowd Flow,” where she centered around a publicly available Python package and toolbox that employs a spatio-temporal deep learning approach to predict future pedestrian crowd congestion for public safety.

Licia Amichi is based on belief that urban liveliness arises from how people move and connect to places; placemaking must foster belonging. She presented “Visit characterization framework for understanding human-place interactions,” where she used GPS data from Singapore and Beijing with PoI semantics to evaluate movement reliability and quantify trajectories by visit frequency and dwell time. Adding visit intention to LSTM/GRU improves predictions, offering evidence for adaptive, responsive cities and establishing liveliness, engagement, and belonging.

Keiko Murayama defined Nigiwai as “a vibrant, walkable urban environment designed to catalyze human interaction through a wide range of programs, activities, and spatial choices.” Using Tokyo and San Francisco —two walkable yet culturally distinct cities— as case studies, she highlights the essential ingredients of Nigiwai design: walkability, diversity, affordability, well-being, and safety.

The last talk was Naohiro Matsumura’s “Shikake Design for Creating Memorable Places.” Shikake Design -- using playful physical and psychological triggers -- can turn ordinary places into memorable ones and foster Nigiwai. Through Shikake-based events -- the Ebisu race on Handai Slope, Nagashi-somen on Mount Machikane and Handai Slope, and rowing boat on Nakayama Pond – spaces gain shared experiences and meaning. The core message: places become truly shared not through crowd size, but through the richness of memories people carry away.

(4) Visual panel discussion

A one-hour panel discussion shared a map of connectivity among technologies and knowledge.

Here panelists, involving other participants, discussed that Nigiwai is a multifaceted Japanese concept, difficult to interpret internationally, but quite important for social design. It is not simply about crowd size but about transformations in human behavior, as shown by diverse movement directions. Shikake can generate Nigiwai, and Nigiwai itself can act as Shikake.

At its origin may lie the Region's DNA, tied to ancient culture. This shapes interactions, respect, and networks, fostering belonging and motivating people to improve communities, explore, and even influence politics. Designing Nigiwai should enable diverse forms of enjoyment and inspiration. Placemaking must create places with context, not just spaces. This enhances belonging and creates memorable places. Even if Nigiwai faces threats, context remains. Its strength lies in overcoming challenges through inclusivity and acceptance of differences.

Research on Nigiwai involves deep, non-quantifiable contexts. Studying it scientifically requires uniting evidence-based methods with design principles, establishing a field that cultivates both.

(5) Remarks by session advisor Pat Langley

When pioneering a new field, researchers should introduce terms with care. Established sciences like ecology can serve as good role models. For example, we should start by constructing a taxonomy for varieties of Nigiwai and people. This will give a vocabulary for stating links between types of places and those attracted to them, just as ecological niches draw certain organisms. Initial qualitative laws will provide scaffolding for more precise quantitative ones. Later, researchers can move beyond empirical descriptions to deeper explanations involving structures (e.g., spatial layouts) that support given types of Nigiwai and interacting processes (e.g., activities) that they enable. Such models will clarify why some places offer better Nigiwai than others and inform community design of improved urban settings.

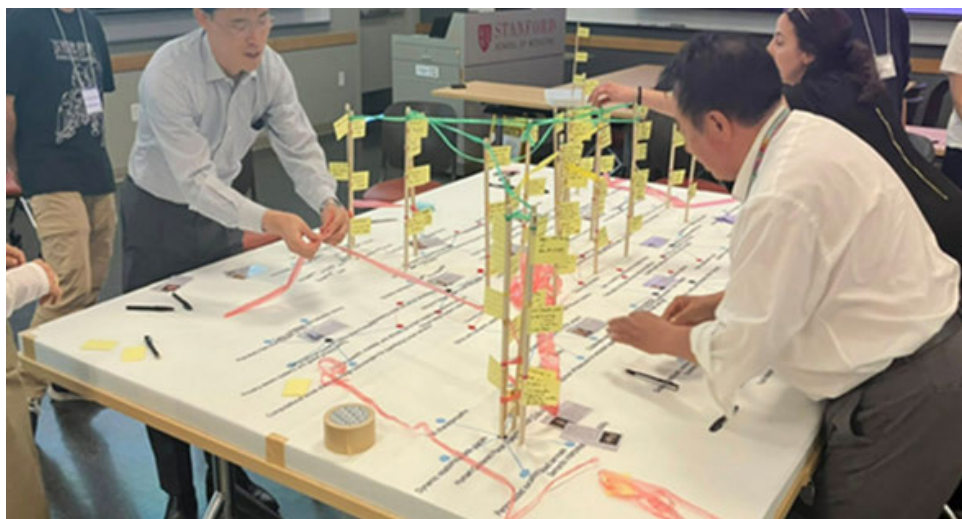
(6) Remark of the organizer toward the future work and session(s)

Let us not “conclude” but plan collaborations: (1) Analysis: design and collect data on locations likely (or unlikely) to generate Nigiwai in both Japan and the U.S. (e.g., mobility including foot/car/bike traffics, Our Voice, etc.), then model the findings (2) Synthesis: interventions with technologies for locations in both countries where Nigiwai is desired, then verify the effectiveness.



Post-workshop (Given by Os' Lab, an institute independent of Univ. Tokyo)

On 31st July, we examined scenarios spanning technical innovation and social impact of Nigiwai while clarifying data-use applications in a workshop moderated by Kaira Sekiguchi. We had 16 participants from diverse backgrounds including computer science, urban planning, education, healthcare, and business relevant to these. Participants exchanged ideas by attaching notes at appropriate heights on flag poles, representing their hierarchical nature - technologies, actions, and the resultant values of proposed design of Nigiwai - and stuck the flags on the BaleeGraph representing the contextual relevance of speakers' topics.



Soft Bioelectronics and the Future of Wearable Healthcare: Bridging Academia, Industry, and Investment

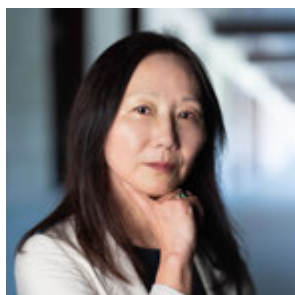
The emergence of soft and flexible electronic materials has opened a new frontier in bio-integrated devices. These materials enable the creation of electronics that conform intimately to the human body, allowing for safe, long-term interaction with living tissues. As a result, wearable devices that can acquire medical-grade physiological data continuously during daily life are rapidly becoming a reality—transforming healthcare from episodic intervention to continuous monitoring and prevention. This technological breakthrough is driving real progress in clinical applications. Long-term tracking of vital signs such as heart rate, respiration, and body temperature—once limited to hospital settings—is now possible in everyday environments. These innovations are expected to play a critical role in managing lifestyle-related diseases, chronic illnesses, and even early-stage or pre-disease conditions through digital health platforms. To fully unlock the potential of soft bioelectronics, collaboration between academia, industry, and venture capital is essential. Researchers are pushing the limits of material science and device engineering, while companies and investors are working to scale and translate these innovations into real-world impact. This session will gather thought leaders from all three sectors to explore the current state and future potential of wearable medical technologies based on soft bioelectronics. Key topics will include device design for biocompatibility, strategies for reducing noise and dark current, challenges in large-scale manufacturing, regulatory and clinical validation, and emerging business models. By fostering cross-sector dialogue, this session aims to envision the future of healthcare—one where personalized, preventative, and real-time care becomes the norm, empowered by next-generation wearable technologies.

Session Organizer



Takao Someya

Executive Director and Vice President, Professor, The University of Tokyo
<https://www.ntech.t.u-tokyo.ac.jp/en/profile/index.html>



Zhenan Bao

K. K. Lee Professor of Chemical engineering, director of Stanford, wearable, electronics initiative, Department Chair of chemical engineering, Stanford University
<https://baogroup.stanford.edu/>

Speakers



Koki Uchiyama

Chief Executive Officer, Socialgist



Unlocking the Potential of the Brown Gems: Toward a Disease-Free Society

Speaker



Shinji Fukuda

Project Professor, Institute for Advanced Biosciences, Keio University / President CEO, Metagen, Inc.

Panelists



Ronald Pearl

Dr. Richard K. and Erika N. Richards Professor and former Chair, Anesthesia Department, Co-Director of SLDDDRS, Stanford University School of Medicine



Toshihiko Nishimura

Director, Stanford / School of Medicine, Anesthesia / SLDDDRS

Unlocking the Potential of the Brown Gems~Toward a Disease-Free Society~

Summary:

Gut microbial metabolites act as systemic mediators linking the gut ecosystem to diverse aspects of host physiology. Notably, *Bacteroides uniformis*-derived short-chain fatty acids (SCFAs) have been implicated in augmenting hepatic beta-oxidation, gluconeogenesis, and glycogen degradation thereby enhancing endurance exercise performance, while fever-range elevations in body temperature remodel the microbiota-bile acid axis to bolster resistance against respiratory viruses such as influenza A and SARS-CoV-2. We propose a unified model in which gut microbiota and their metabolites serve as convergent regulators of both endurance exercise performance and antiviral immunity, integrating nutritional, thermal, and microbial cues into coherent host adaptations.

To interrogate this nexus, we combined human, murine, and in vitro approaches. In humans, fecal *B. uniformis* abundance and 3000 m race times were correlated in male long-distance runners, and a 9-week, randomized, double-blind trial tested daily 200 mg α -cyclodextrin (α CD) supplementation for effects on *B. uniformis* levels and 10 km bike pedaling performance. In mice, endurance was assessed by swim-to-exhaustion following (i) dietary α CD or flaxseed lignan (5% w/w) and (ii) daily oral *B. uniformis* (2×10^8 CFU), with SCFA profiling and hepatic gene expression.

Parallel antiviral studies housed mice/hamsters at 4, 22, 36 °C, then challenged with influenza A/PR8 or SARS-CoV-2, with or without antibiotic/low-fiber diets to deplete microbiota. Secondary bile acids were quantified, and FXR and TGR5 agonists were administered in drinking water. Outcomes included survival, viral lung titers, cytokines, and neutrophil influx.

Higher fecal *B. uniformis* inversely correlated with 3000 m times ($r \approx -0.53$, $P < 0.01$) and α CD shortened 10 km bike pedaling times by 10% ($P < 0.01$) while reducing post-exercise fatigue. In mice, α CD or *B. uniformis* extended swim endurance 1.5-fold ($P < 0.05$), maintained cecal SCFAs during exercise, up-regulated hepatic gluconeogenic/ β -oxidation genes, and lowered glycogen stores (Figure 1). High-heat (36 °C) exposure increased systemic secondary bile acids, and conferred 80–100% survival against lethal influenza and SARS-CoV-2, effects lost upon gut microbiota depletion. Oral deoxycholic acid or TGR5 and FXR agonists improved survival ($P < 0.01$), reduced early lung viral loads, inhibited viral replication in vitro, and attenuated IL-1 β /CXCL1–driven neutrophilia in vivo.

Our integrated data support a model wherein gut microbial metabolites form a “metabolic–immune axis” that underlies both enhanced endurance and antiviral defense. SCFAs from *B. uniformis* likely fuel hepatic glucose output to sustain prolonged exercise, whereas gut microbiota-derived secondary bile acids, engage FXR/TGR5 signaling to concurrently suppress viral replication and damaging inflammatory cascades. Therapeutically, prebiotic strategies or targeted bile acid receptor agonists offer dual benefits for athletic performance and infectious disease resilience.

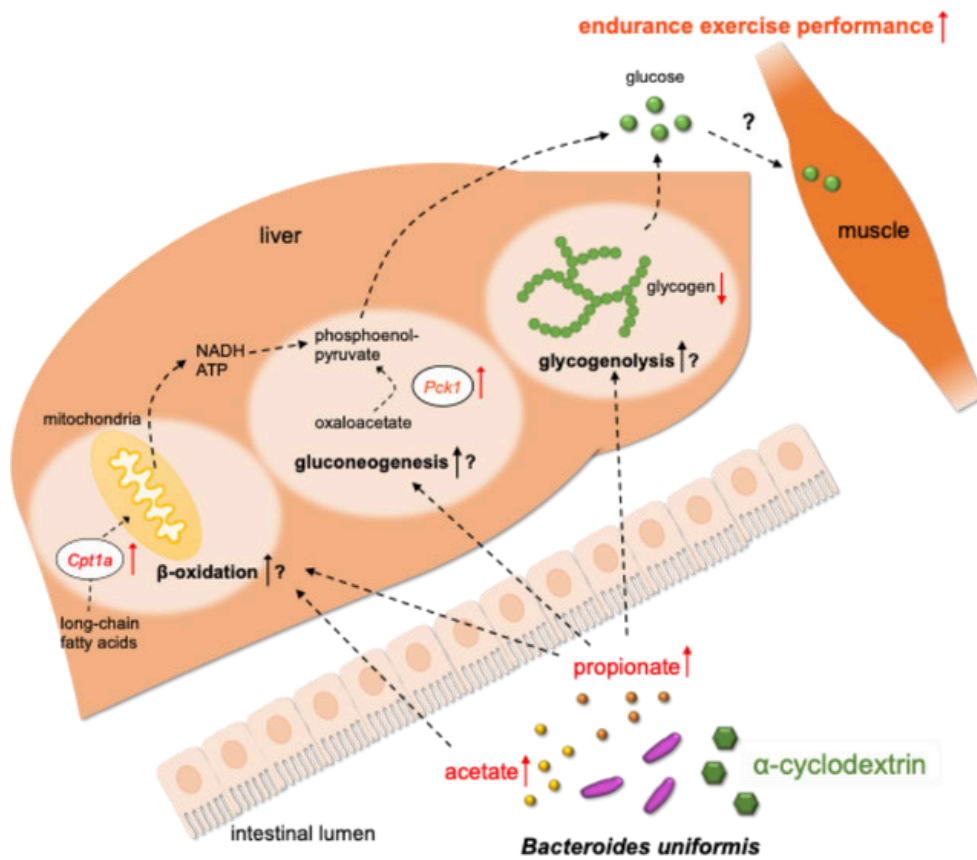


Figure 1: *B. uniformis* improves exercise performance via SCFA production.



a pre-packed, single-dose, oral administration
Clostridiaceae difficile



Approved by FDA on 30th November, 2022

<https://genengines.com/press-releases-receives-us-fda-approval-for-rebyota-fecal-microbiota-live-plan-a-novel-first-in-class-microbiota-based-live-biotherapeutic>



Vowst can restore balance to the gut microbiome — without the need for an invasive colonoscopy.

Approved by FDA on 26th April, 2023

(Seres Therapeutics)

From Innovation to Impact; An Entrepreneur's Ongoing Journey

Speaker



Koki Uchiyama
Chief Executive Officer,
Socialgist

Panelist



Hideaki Akimoto
CEO,
AMS, Inc.

From Innovation to Impact – An Entrepreneur's Ongoing Journey

1. Presentation Summary

In this lecture, the speaker reflected on his journey as an entrepreneur from his university days to the present, sharing practical knowledge on mindset, management, and business operations for university researchers to launch startups and guide them to success.

2. The reason he started my business

During his graduate school years, working on the America's Cup gave him the thrill of combining different technologies to compete on the world stage. This became the foundational experience for his entrepreneurship. Later, after developing one of Japan's earliest search engines, he resolved to pursue a career as an entrepreneur who leads and integrates technology. He withdrew from my doctoral program to found a search engine venture.

3. His First Venture and Failure

Starting without understanding the basics of business plans or business models, the venture failed alongside the rise of Google and Yahoo. This experience became a lesson for future entrepreneurship.

4. Rebound and Listing

In his second venture, he launched a social media analytics SaaS platform. It achieved industry-leading market share with over 2,700 client implementations in Japan. The company went public on the Tokyo Stock Exchange, with its market capitalization exceeding ¥55 billion at one point.

5. Global Expansion and Challenges

Leveraging stock market, the company acquired U.S. firms to challenge overseas expansion. However, managing local operations proved immensely difficult, leading to significant challenges.

To validate his capabilities as a global corporate leader, he participated in Stanford University's executive program and a leadership program at a global entrepreneurship organization, realizing that Japanese entrepreneurs' skills and knowledge are no less than those of Silicon Valley entrepreneurs. He dismissed the management team of an acquired company and, through direct oversight, achieved a V-shaped recovery in performance within a short period.

6. Insights and Lessons Gained from his Entrepreneurial Journey

- Excitement is the driving force behind both challenge and persistence.
 - Startups require not just product development, but the ability to seamlessly integrate team building, sales, fundraising, and operations.
 - The importance of operations (execution and management) is equal to or greater than product development.
- Management demands 24/7 focus and learning speed, like being constantly in exam mode.
- Prioritize team-based management, leveraging others' strengths to compensate for your own weaknesses.
 - Innovation arises from the intersection of different fields.
 - Commercializing technology requires bridging the gap between ideal and reality, along with identifying appropriate use cases and scalable models.
 - Global management demands the growth of top leadership capacity. Beyond language skills and networks, Japanese entrepreneurs are in no way inferior.
 - The most crucial factor is the confidence and resolve of the leader.

7. Conclusion

Innovation resides not in technology itself, but in the people, organizations, systems, and will that harness it. This lecture aims to help aspiring entrepreneurs and researchers develop a more practical perspective and challenge the future.



A new era of asset management for Long-Term Investors



Speaker
Nobuhiko Shimura
CEO,
Skye Investment
Managers Co. Ltd



Panelist
Sota Miyake
CEO,
Tsukuru Co. Ltd

Next-Gen Wealth Building: A New Era of Asset Management

Nobuhiko Shimura (CEO, Skye Investment Managers Co Ltd / Visiting Scholar, Stanford University)

Together with Sota Miyake (CEO, Tsukuru, LLC)

- When examining demographic trends in both Japan and the United States, it is evident that the working-age population is in decline. At the same time, the wealth gap between affluent households and the general population continues to widen. Consequently, in both countries, the need for long-term wealth accumulation has become increasingly pressing. Investor literacy varies significantly between Japan and the United States. Compared with the U.S., Japanese households still allocate a relatively small portion of their assets to equities.
- By contrast, in the U.S., equity participation has been expanding, fueled by the rise of mega-cap technology firms such as Google, Apple, and NVIDIA. Furthermore, initiatives such as the extension of trading hours at the New York Stock Exchange are enhancing the overall trading environment. In addition, regulatory reforms regarding the creation of single-stock and leveraged ETFs have accelerated growth in both the number and size of actively traded ETFs.



- In the United States, even retail investors commonly engage in options trading on individual stocks and active ETFs. For example, as of July 29, an investor could sell a put option on Tesla stock at a strike price of \$290—approximately 10% below its spot price of \$321—for a maturity of 52 days. This transaction would generate an annualized option premium yield of roughly 22%. The maximum risk in selling such a put option is simply the obligation to purchase the stock, with no downside risk beyond outright ownership. Moreover, by rolling option positions, investors can effectively defer equity purchases. Thus, for investors seeking exposure to Tesla at lower entry levels, selling puts offers a means to achieve annualized returns of 15% or higher, even in declining markets—returns that would otherwise be unattainable with conventional limit orders.

Put Selling Strategy with TSLA (TESLA) 32

- Sell puts offer higher instant cash and better entry position
- If you change your mind, the entry price can be lowered



Ticker	Bid	Ask	Puts	Last
19-Sep-25 (52d); CSize 100; R 4.57; IFwd 323.81				
TSLA 9/19/25 P280	6.60	6.65		6.68
TSLA 9/19/25 P285	7.70	7.80		7.71
TSLA 9/19/25 P290	9.00	9.10		9.10
TSLA 9/19/25 P295	10.45	10.55		10.51
TSLA 9/19/25 P300	12.10	12.25		12.20

Sell 52 days put on TSLA
Strike \$290, premium \$9.1

⇓

22.1% income/year

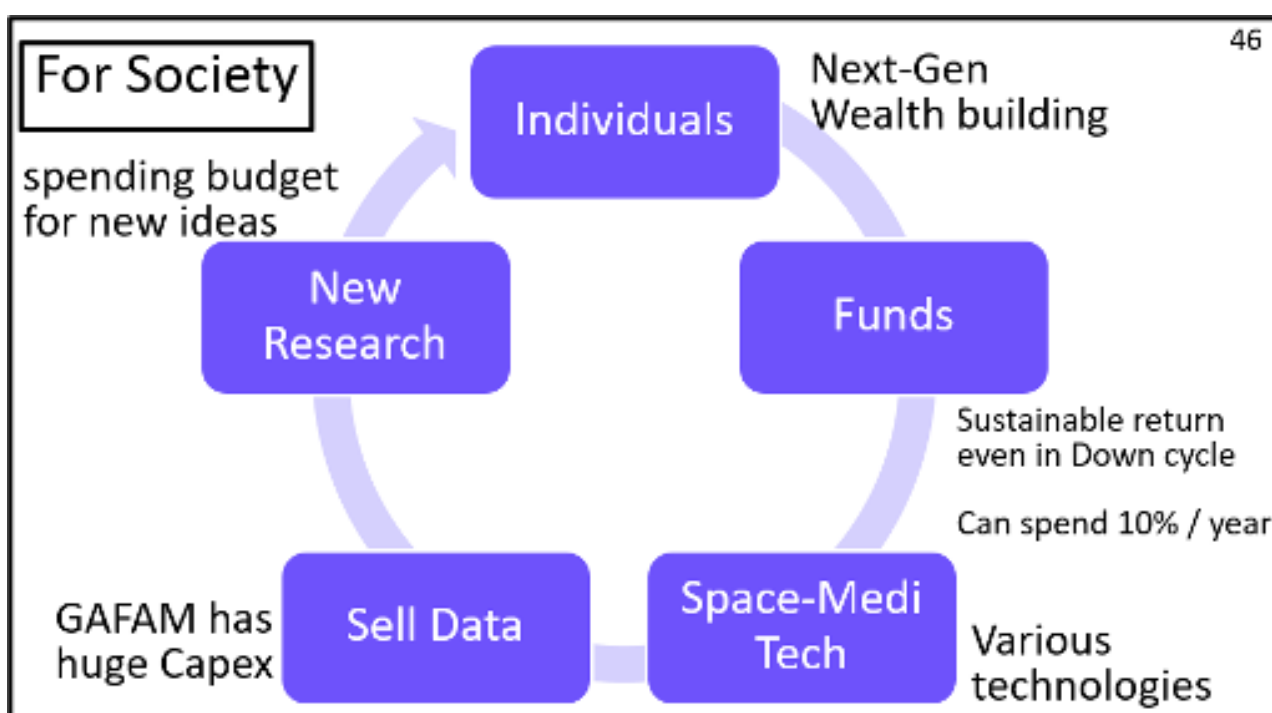
If assigned, buy at net \$290
or
Lower the entry price

(Source: Bloomberg)

- This method can be considered a strategy designed to accommodate moderate market declines. It enables investors to accumulate returns steadily and systematically, even under adverse market conditions. Because it reduces stress and provides consistent outcomes regardless of market direction, it is particularly well-suited for long-term investment horizons.

- **Enjoy Stable Returns**
 - **No need to worry about perfect timing—consistency matters more.**
- **Make Idle Cash Work**
 - **Put next year's funds to work today.**
- **Innovation Drives Flexibility**
 - **Soon, trading will be available 22 hours a day.**
- **Scalable Structure**
 - **Built on a flexible and expandable fund framework.**

- The steady accumulation of wealth under such strategies effectively preserves principal while generating incremental gains. In the Japanese context, this framework could support technological advancement. If high-net-worth investors were able to secure annualized returns of around 10% while preserving their principal, the resulting profits could be allocated toward fundamental scientific research aimed at shaping the planet's future. By monetizing these research outcomes through partnerships or sales to leading American technology companies, a self-reinforcing cycle of innovation and reinvestment could be created.





Fueling Global Growth: Japanese Startups Breaking Boundaries

This session will spotlight the efforts of the Japan Innovation Campus (JIC) and its member startups as they expand their presence in Silicon Valley and beyond.

To illustrate these initiatives, three startups from JIC—Qlay Technologies, SONIRE Therapeutics, and JUNTEN BIO—will each present an overview of their business and share insights from their experiences in the U.S. market.

The session will also explore the unique challenges Japanese startups face when entering global markets, the role of multi-layered collaboration in accelerating international growth, and how organizations like JIC and JETRO can better support Japan's next generation of global innovators.

Session Organizer

JETRO San Francisco
(Japan External Trade Organization)



Moderator Genta Ando

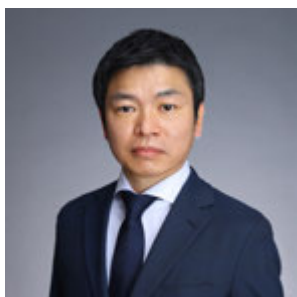
Executive Director,
JETRO San Francisco

Speakers



Tokumasa Yamashita

Co-founder &
COO/CTO,
Qlay Technologies



Tohru Satoh

Founder, President & CEO,
SONIRE Therapeutics



Roy Kimura

Advisor,
JUNTEN BIO



Will Ferguson

Program Manager,
JETRO San Francisco

Session Title: Fueling Global Growth: Japanese Startups Breaking Boundaries

Session Organizer:

Genta Ando, JETRO San Francisco, Executive Director

Speakers:

1. Tokumasa (Toku) Yamashita, Qlay Technologies, Co-founder & COO/CTO
2. Tohru Satoh, SONIRE Therapeutics, Founder, President & CEO
3. Roy Kimura, JUNTEN BIO, Advisor
4. Will Ferguson, JETRO San Francisco, Program Manager

Summary:

This session spotlighted the efforts of the Japan Innovation Campus (JIC) in Palo Alto and its member startups as they expand their presence in Silicon Valley and beyond.

The session began with a brief introduction to JIC and JETRO's ongoing initiatives to support Japanese startups in their global expansion. A presentation by Will Ferguson highlighted JIC's vital role in bridging Japan's innovation ecosystem with that of Silicon Valley. JETRO also provides acceleration programs, mentorship, and strategic connections to key stakeholders.

Our first speaker, **Tokumasa (Toku) Yamashita**, Co-founder & COO/CTO of Qlay Technologies, introduced their AI-automated recruiting platform designed to streamline hiring processes. He demonstrated a conversation between an AI interviewer and a human interviewee, showcasing the platform's capabilities.

Next, **Mr. Tohru Satoh**, Founder, President & CEO of SONIRE Therapeutics, presented their cutting-edge ultrasound device for cancer treatment and shared updates on their clinical trial efforts.

Mr. Roy Kimura, Advisor at JUNTEN BIO, concluded the presentations by highlighting their work in cell therapy and the company's approach to its initial stage of global expansion.

The moderated talk session began with a discussion on the challenges Japanese startups face when entering the U.S. market. All speakers emphasized the importance of building strong networks within local communities. Each speaker shared different strategies based on their unique entry points into the U.S. ecosystem.

Another key topic was how Japanese startups can leverage their international background. Speakers noted that technological expertise developed in Japan often serves as a valuable asset when navigating the U.S. startup landscape. One speaker explained how past professional experience and academic partnerships helped bridge the gap between research and commercialization.

border collaboration in driving the success of Japan's next generation of global innovators.

A recurring theme throughout the session was the value of multi-layered collaboration and the support of mentors and advisors. Building strong ties with American stakeholders—such as universities, customers, and investors—was seen as essential. Speakers also shared how JIC and JETRO’s services have benefited their growth, and how entrepreneurs support each other through their own networks.

Overall, the session offered a rich exchange of ideas and experiences, reinforcing the importance of cross-border collaboration in driving the success of Japan’s next generation of global innovators.



Growth of Deeptech startup

In this session, we will explain how university-launched startups receive support from venture capitalists to grow and aim for the global market, from the perspectives of both entrepreneurs and investors.

Session Organizer



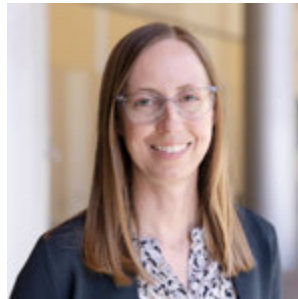
Spencer Foust

Managing Director, Sozo Ventures

Speakers



Andrew Farquharson
Managing Director,
InCube Ventures



Jenny Hamilton
CEO & CSO, Azalea
Therapeutics



Chihiro HOSOYA
Rx+ Open Business Creation
Lead, Astellas Pharma US
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Other Photos





Hosts



Stanford University School of
Medicine



Japan Science and Technology
Agency

Co-organizers and Supporters



Central Institute for Experimental
Medicine and Life Science



Kanagawa Prefecture



Data Federation for Innovation Literacy,
The University of Tokyo (DFIL)



東京大学 先端科学技術研究センター
Research Center for Advanced Science and Technology
The University of Tokyo

