



Developing Algorithmic Methods for Fair Assignment and Agreement in Autonomous Decentralized Environments

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Grand Challenge and Goal:

Developing algorithmic foundations and frameworks for fair assignment and agreement in autonomous decentralized environments as the basis of a wide variety of cyberspace applications, through the interdisciplinary approach.

Summary:

- The project aims to developing methodologies and techniques for designing algorithms on fair assignment and agreement running in a variety of autonomous decentralized environments
- We tackle this challenge through the interdisciplinary collaboration among the fields of distributed systems, computational economics, and security. It consists of four research themes: local distributed assignment and agreement, matching theory addressing the constraints arising from decentralized environments, assignment and agreement in adversarial settings, and application-oriented understanding of assignment and agreement
- We also aims to interconnecting theory and practice about fair assignment and agreement, to the goal of the theoretical framework fitting into real systems

Social Impact:

- The development of a variety of cyberspace services which mathematically and theoretically ensures safety and fairness of users
- Establishing the theory of decision making in open decentralized environments
- Human resource development through strong research outcomes

