

# Game Informatics with Diverse Computer Players

## Project Leader

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## 1. Objective

### This project is aimed at:

Developing appropriate diversity measurement methods in game AIs and evaluating their impact on the performance of the diverse game AIs by them. A group of game AIs emerge in multiplayer games, majority voting systems, rating systems, and so on. It is thought that the diversity of the group influences the performance of the game AI, however, the measurement of diversity and its effects have not yet been studied. In this project, we will try to develop measurement methods of the diversity in game AIs and methods to generate diverse game AIs.

## 2. Project Outline

### To that end, the project will consist of the following phases:

- (a) Development and evaluation of the measurement methods of the diversity in game AIs
- (b) Development of the methods to generate diverse game AIs using the diversity measurement developed in step (a)
- (c) Experimental verification of the impact of the diversity on the performance by applying the game AIs created in step (b) to voting systems, rating systems, and other applications

## 3. Expected Performance

### In this project, the successful candidate would be expected to:

- (a) work independently, develop (strong) computer game players
- (b) read related journal and conference papers
- (c) publish research results in international journal papers, and present them at international conferences

## 4. Required Skills and Knowledge

### The successful candidate for this project will have the following knowledge and skills:

- (a) Background in computer science
- (b) Strong interest in game informatics
- (c) Programming skill in C++, Java, Python, and similar programming languages
- (d) Ability to communicate and discuss in English

## References

- [1] Marcolino, Leandro Soriano, et al. "Multi-agent team formation: Diversity beats strength?" Twenty-Third International Joint Conference on Artificial Intelligence. 2013.
- [2] Silver, David, et al. "A general reinforcement learning algorithm that masters chess, shogi, and Go through self-play." Science 362.6419 (2018): 1140-1144.

## See our admission guidelines:

[https://www.kochi-tech.ac.jp/english/admission/ssp\\_aft19oct/ssp\\_application\\_guideline.html](https://www.kochi-tech.ac.jp/english/admission/ssp_aft19oct/ssp_application_guideline.html)

## Contact

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