



# FORMELA LAB SEMINAR ON STRATEGIC AI

## About

CivRealm is a **reinforcement learning** (RL) environment inspired by the classical **Civilization turn-based strategy games**. In this seminar (**IV125, 3 credits**), you will have the opportunity to build your own **AI agents** playing this challenging game.

The seminar will have a flexible, open-ended structure. Participants will work individually or in a team throughout the semester. The initial focus will be on **understanding** the mechanics of CivRealm, exploring its implementation, and **experimentally evaluating** existing baseline agents. The next step will be to **design and train** as strong agents as possible, applying state-of-the-art — and potentially novel — reinforcement learning methods.

We will **meet periodically** to consult the progress of work and **share what you have learned**. Depending on the scope of the projects, the seminar may continue into the spring semester. Promising outcomes may also lead to interesting thesis topics.

## Prerequisites

The key prerequisites are:

- Genuine **interest in AI agents** and **reinforcement learning**, and the ability to commit **sufficient time** to the seminar.
- Solid **mathematical aptitude**, sufficient to study relevant RL literature.
- **Prior knowledge** corresponding to bachelor-level **AI and ML** courses at FI.

Previous exposure to deep reinforcement learning and relevant libraries (e.g., PyTorch, Gym,...) is advantageous. If not passed already, simultaneous enrollment in PV021 and PA230 might be beneficial. If unsure about whether you meet the prerequisites, contact us via the channels below.

## Contact Us

If you are interested, please **contact Petr Novotný** ([petr.novotny@fi.muni.cz](mailto:petr.novotny@fi.muni.cz)) or **visit the Formela lab** (A416). The seminar has limited capacity. **Feel free to reach out also if you are interested in reinforcement learning in general and would like to discuss potential research collaboration.**