**Simulating and Analyzing   
Complex Social Systems**

**kurs prowadzony w semestrze letnim na WMiI**

**Obraz zawierający wzór, ścieg

Opis wygenerowany automatycznie**This course introduces a social component into the formal analysis. We work with data, models and algorithms which describe human behaviour. By definition non-deterministic, heterogeneic and adaptive - this is core element common to all the addressed problems.

Understanding how a single human behaves is already a challenge, understanding how people (family, group, society, nation, etc.) behaves is even more challenging, when information, perception, learning and adaptation kick-in the system becomes truly complex. Importantly here we do not take the perspective of social sciences - this course is intended for mathematicians, physics, data scientists, AI/ML engineers and computer scientists (BA/MA/PhD students) - thus we always rely on hard empirical (big) data, statistical models, verified theories and frameworks.

**Topics:**

- behavioural profiling (Cambridge Analytica)

- recommendation systems (Youtube and TikTok)

- virus spreading (SIS, SIR models for pandemic)

- human vs AI in games (Starfcraft AlphaStar)

- social networks (fake news spreading in communities)

- complex adaptive systems (flock of birds)

- discrete choice models (McFadden’s Nobel 2000)

- voting theory (Democracy as a algorithm)

- community detection (Barabasi’s Network Science)

- game theory (Cuban Missile Crisis as a game)

- LLM to predict death (Life2Vec)

**Seminar + hands-on projects, 6 ECTS, code: WMI.II-SAACSS-S**

Obraz zawierający tekst, projekt graficzny, kolaż, design

Opis wygenerowany automatycznie

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