

Intelligent Systems and Dynamic Models

The seminar is open to **bachelor students across all computer science programs**.

We will independently design and simulate dynamic models of real-world systems, apply intelligent techniques to system design, evaluate system structures, feedback loops, and resilience, and communicate system insights to technical and non-technical audiences. Students will learn about foundational concepts in systems thinking such as complexity, feedback loops, and causality. Furthermore, they will learn about system dynamics modeling and simulation methodology including concepts of stocks, flows, and feedback structures, modeling tools, behavior over time graphs, and simulation methods and scenario analysis. The foundations established early in the course will be contextualized within intelligent systems and computation fields in order to teach students how to model real-world systems and design intelligent simulations. Finally, the students will be equipped with tools and languages necessary to complete a course project where they independently build and simulate an intelligent dynamic system.

Grading: The grade achieved in the seminar results from 1) active participation and contribution to seminar work and discussions and 2) presentation of independently developed system dynamics model.

Prerequisites: The course will be conducted in English. Consequently, participants should be able to express themselves in English. Therefore, an adequate level of English skills (i.e., at least B2) is required.

Contact:

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