Artificial Intelligence

Introduction

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Contacts

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meeting: in person, on the phone, by email,
or by skype
any time (unless when out of office
for institutional duties), or by
appointment taken by email

Motivation

- Extracting knowledge from data
    - phenomena, events, processes, operating environment

- Understanding environment and events
  from real-world observation

- Automated construction of computational
  paradigms for problem solving

Approach

- Mimicking nature

  - How living beings observe and understand environment and events
  - How living beings express themselves and interact
  - How living beings evolve

  - How living beings live

  - Symbolic vs. sub-symbolic reasoning

Topics

- Neural Networks

- Fuzzy Systems

- Evolutionary Computing

Objectives

- Understand the theoretical foundations of artificial intelligence

- Learn the basic artificial intelligence methodologies and techniques

- Focus on
  – Neural networks
  – Fuzzy systems
  – Evolutionary computing

Organization

- Lectures

- Personal study

Reading Materials

- Textbook:

  R. Kruse, C. Borgelt, C. Braune,
  S. Mostaghim, M. Steinbrecher

  Computational Intelligence:
  A Methodological Introduction

  Springer, 2016

- Slides of the lectures
  - Support to lectures, not a textbook

Exam

- ## Written:
    - 3 essay questions on all topics covered by the course

    - High-level questions

    - Sufficient grade requires sufficient answers to all questions

- ## Maximum Time: 2h