University of Guilan

Computational Intelligence

Introduction

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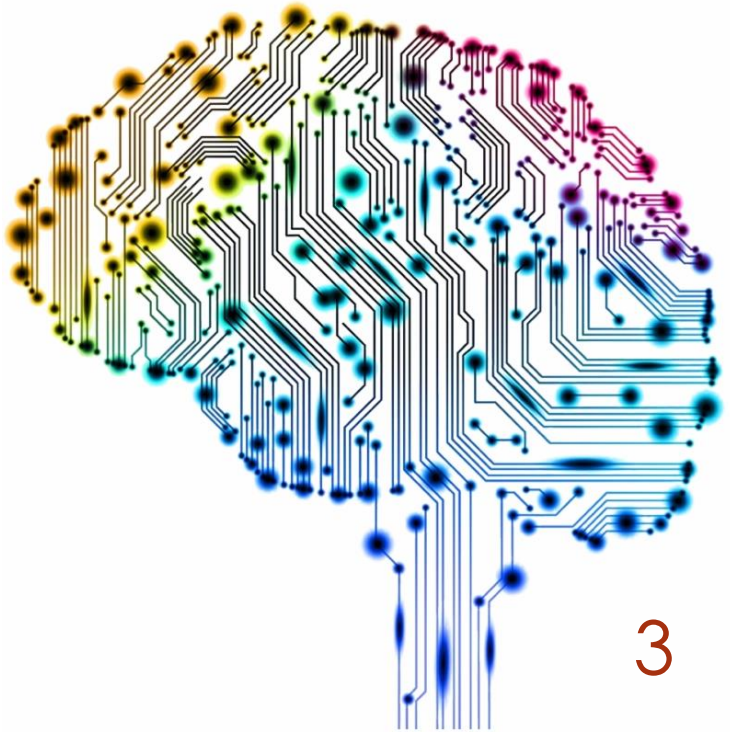
Agenda

- Introduction to the course
- Headlines
- Course materials
- Evaluation
- Additional notes

Introduction to the course

University of Guilan

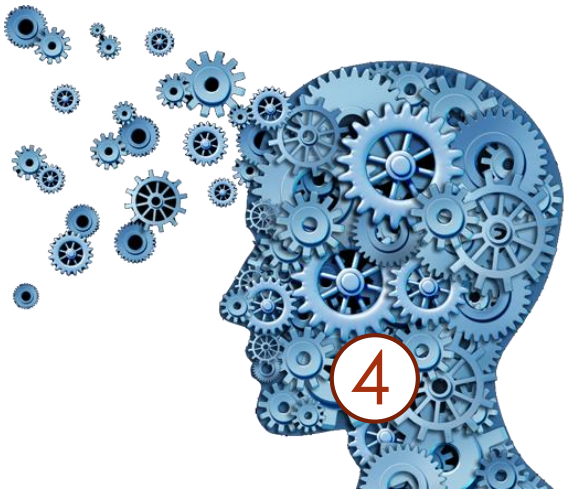
- Fundamentals of Computational Intelligence
  - Computer Science – Artificial Intelligence
- Previous knowledge:
  - Advanced Programming
    - You will need it to work on projects!
  - Artificial Intelligence
  - Algorithm Design (recommended)
  - Machine Learning (recommended)



Introduction to the course

University of Guilan

- Learning outcome
  - Being able to evaluate basic Machine Learning (ML) techniques
  - Being able to formulate specific algorithms for a given problem
  - Understanding the theories, methods, and algorithms of ML
  - Being able to apply the most appropriate ML algorithms in various applications
  - Getting familiar with Deep Learning as a great tool



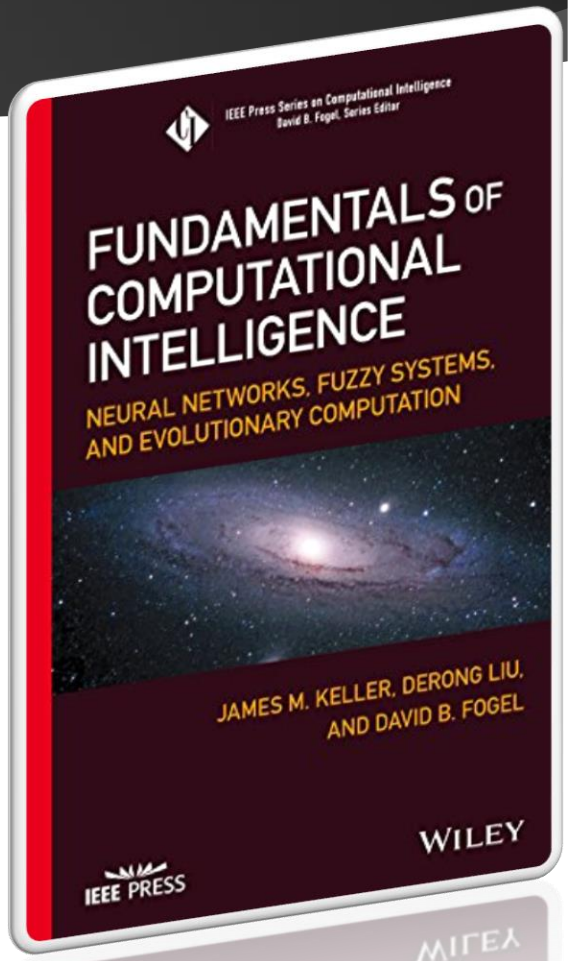
Headlines

- Soft Computing
- Artificial Neural Networks
- Fuzzy Logic
- Evolutionary Computation
- Swarm Intelligence

Course materials

[1] David B. Fogel, Derong Liu, and James M. Keller (2016) "Fundamentals of Computational Intelligence: Neural Networks, Fuzzy Systems, and Evolutionary Computation," *IEEE Press,* ISBN: 1119214343. See Link

[2] Andries P. Englebrecht (2007) "Computational Intelligence: An Introduction", ISBN: 978-0-470-03561-0. See Link



Evaluation

- Lecturing methods and activities:
  - Lectures + Homework + Final project

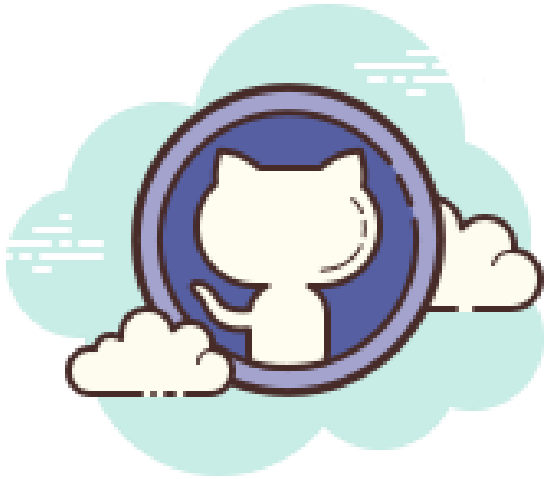
- Final Exam: 7/20
- Homework: 5/20
- Final Project: 8/20

Might change due to COVID-19

Evaluation

- Computational Intelligence final projects (Current Semester)
  - You will need to upload your final projects here

https://github.com/alitourani/computational-intelligence-class-9901



Evaluation

- Computational Intelligence final projects (Fall 2019-2020)

https://github.com/alitourani/computational-intelligence-class-9801

Evaluation

- Computational Intelligence final projects (Spring 2019-2020)

https://github.com/alitourani/computational-intelligence-class-9802

Additional notes

- Download files, slides, chapters, etc. from http://www.alitourani.ir

Computational Intelligence (lectured at Guilan University)

Note: Slides are in Persian and protected with a password.

Slide intro – Main concepts and overview
Slide#1 – An introduction to Computational Intelligence
Slide#2 – Artificial Neural Networks (ANN)
Slide#3 – Famous Artificial Neural Networks
Slide#4 – Fuzzy Basics
Slide#5 – Fuzzy Logics
Slide#6 – Evolutionary Computing: Overview
Slide#7 – Famous Evolutionary Algorithms
Slide#8 – Swarm Intelligence
Slide#9 – Algorithms in Code
Spring 2020: (GitHub – Datasets – Google Colab – scores)
Fall 2019: (midterm results – GitHub – deployment hint – final)

What's Next?

- What is Computational Intelligence?

Questions?