Kiel University
Christian-Albrechts-Universität zu Kiel
Faculty of Engineering

Intelligent Systems

Excersice 1- Organisation

Simon Reichhuber, Ingo Thomsen

11.11.2020

University of Kiel, Winter Term 2020

Table of Content

Intelligent Systems Group

Intelligent Systems – Lecture Staff

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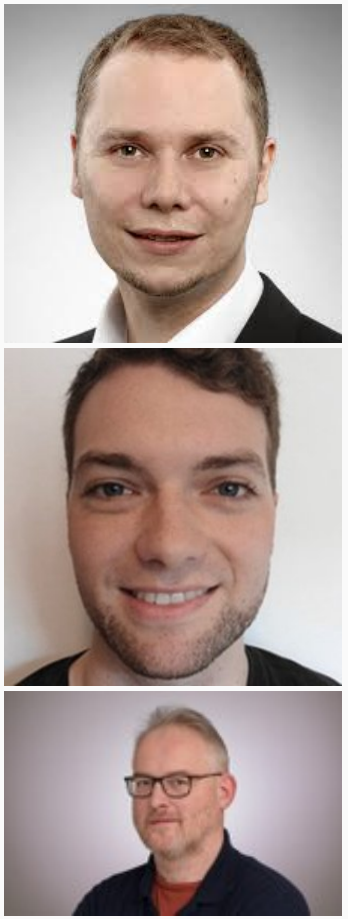

Intelligent Systems – Courses

Courses during the winter term 2020/21:

- Lecture "Intelligent Systems" (English)
- Lecture "Computational Intelligence" (German)
- Bachelor seminar ”Selbst-organisierte Systeme”
- Master project ”Intelligent Systems”
- Master seminar ”Deep Learning”
  (in cooperation with mit Prof. Reinhard Koch)

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Internal

- Prof. Dr.-Ing. Sven Tomforde (head of working group)
- Claudia Seewald (secretary)
- Simon Reichhuber, M. Sc. (research assistant)
- Dipl.-Ing. Ingo Thomsen (research assistant)
- Torge Storm (lab technician)

External

- Ghassan Al-Falouji (PhD student, OTH Regensburg)
- Michael Meyer (PhD student, Astyx GmbH)
- Martin Goller (PhD student, freelancer)
- Ferdinand von Tüllenburg (PhD student, Salzburg Research)

Exercise Organisation

Exercise Structure

- **Teams of 3** (exception of 2-4 members possible)
- Confirm your participation by signing up the OLAT list **until Sunday, November, 15th**
- Three components:
  1. Three sets of online quizzes (have to be passed individually)
  2. Regular exercises (from week to week) . . .
  3. . . . alternating with the Timeseries Forecasting Task:
     - Ongoing group challenge
     - Three parts
     - Final group presentation *tba*

Exercise Session

- **Wednesdays**, **10:15** - **11:45**
- Online on Zoom (no recording):
  https://uni-kiel.zoom.us/j/84515885442?pwd=b0Z1dGcwcHR0eEhyK3RtYVhPb2Nndz09
- Presentation and discussion about own solutions.
  Every group has to present at least once during the course.
- Preliminary discussion of the next exercise sheet.
- **No submission required!**
- Questions are very welcome – online during exercise or offline via OpenOLAT.

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Exercise 1	Organisation & Python Intro	✓	We, 11.11.2020, 10:15
Exercise 2	Design / Intro to **FT**		We, 18.11.2020, 10:15
FT I	**FT I** Preprocessing		Mo, 23.11.2020, 14:15
FT I	**FT I** Preprocessing Pres.		We, 25.11.2020, 10:15
Exercise 3	Preprocessing		We, 02.12.2020, 10:15
Exercise 4	Representation		We, 09.12.2020, 10:15
FT II	**FT II** Feature Selection		Mo, 14.12.2020, 14:15
FT II	**FT II** Feature Selection Pres.		We, 16.12.2020, 10:15
Exercise 5	Similarities / Segmentation		We, 06.01.2021, 10:15
Exercise 6	Clustering		We, 13.01.2021, 10:15
Exercise 8	Classification		We, 20.01.2021, 10:15
FT III	**FT III** Model Selection		We, 27.01.2021, 10:15
FT III	**FT III** Model Selection Pres.		We, 27.01.2021, 12:15
Exercise 9	Quantification/Eval.		We, 03.02.2021, 10:15
Exercise 10	RL / Quantification		We, 10.02.2021, 10:15

Table 1: Schedule of exercises incl. Forecasting Task (**FT**). The Quizzes are not scheduled yet, but will start in December.

Python Introduction and Installation

Python

- High-level programming language
- Object-oriented
- Features simple syntax and readability
- Dynamically, inheritance, strong typing
- Large number of libraries available

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Anaconda

- Anaconda is a toolkit for data science and machine learning in Python and R on a single machine.
- Roughly spoken: a distribution of hundreds of packages handled by the package manager Conda.
- Helps to manage various Python environments, like e. g. **Jupyter Notebooks**:
  - Easy coding and kernel availability within a browser
  - Python code can be enriched with . . .
    - normal (possibly marked-up) text
    - mathematical formulas
    - other types of media (like pictures)
- Will be installed through Anaconda installation

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1. Install Anaconda ($\rightarrow$ *Install_Anaconda_en.pdf*)
2. Download also the file *PythonTutorial.ipynb* from OpenOlat
3. Start a Jupyter notebook in the shell with either of . . .
   - *jupyter-notebook* (in the downloaded folder)
   - *anaconda-navigator* ($\rightarrow$ Launch Jupyter Notebook)

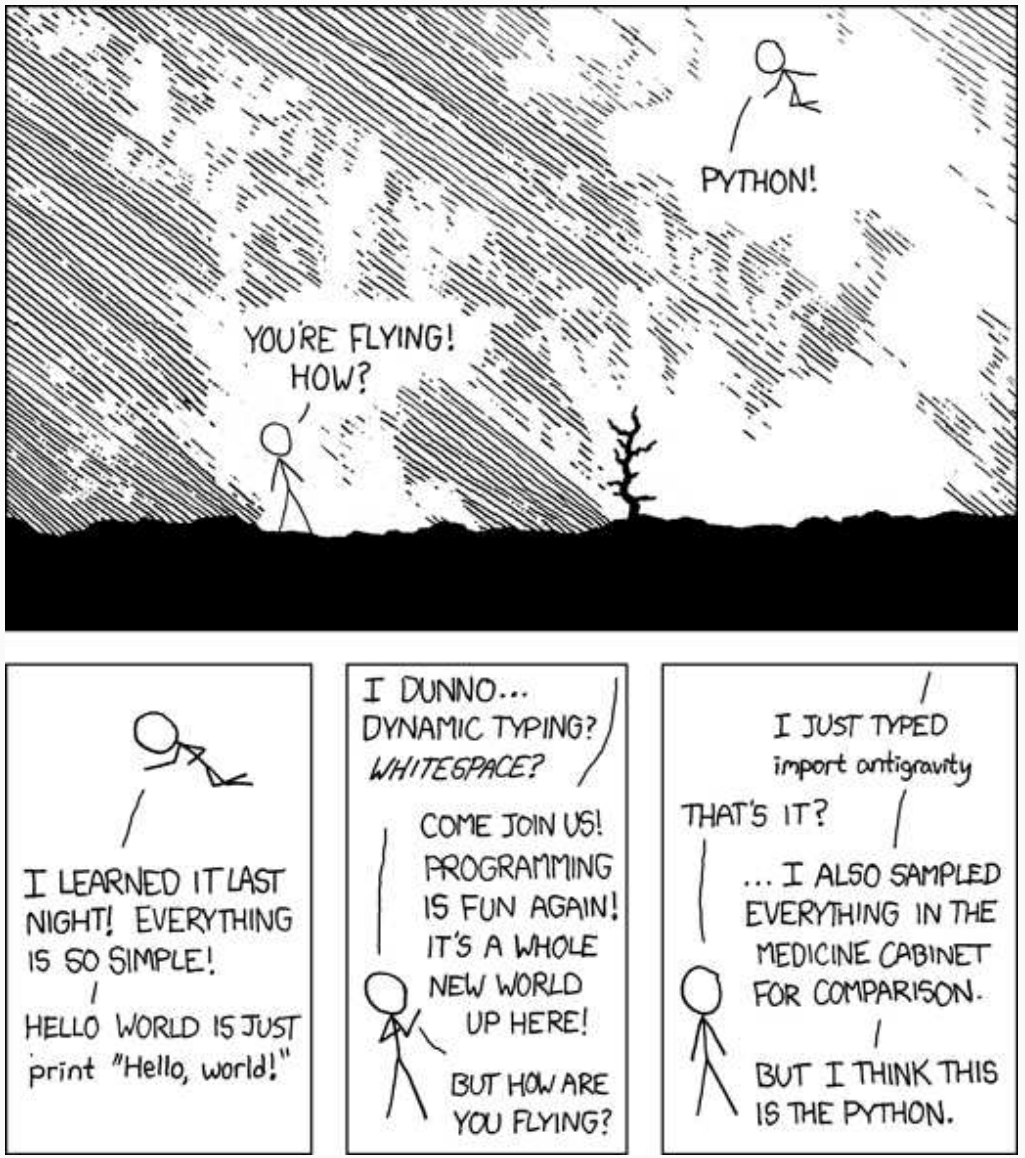

Figure 1: https://xkcd.com/353/