AI Drone Pilot

- An European Master Team Project in Cooperation with Babeș-Bolyai University Cluj

Supervisor: Lars Hoffmann and Noah Metzger
Reviewer: Prof. Dr. Heiner Stuckenschmidt
Goal

Gain hands-on experience with drone software systems in combination with current AI concepts in a playful environment

Task

• Develop a flight control system
• Automatically detect and avoid obstacles to safely maneuver through different parcours
• Quality levels for evaluation:

   - Crashed
   - Safe stop/hovering
   - Finished
Technical Environment - Demonstration

Video source: https://www.youtube.com/watch?v=-WTr1-OBGQ&feature=youtu.be
Technical Environment - Overview

Environment simulation

Microsoft Research

"AirSim"
Drone simulation plugin

API

Python
Java
C++
Organization

- M.Sc. Business Informatics or Data Science
- Language: German/English
- Start: Monday 28.09.2020
- Duration: 6 months (1 semester)
- Team members: 4 Mannheim students and 4 Cluj students

Internal Competition:
- Split into 2 teams with 4 students each (Mannheim and Cluj mixed)
- Same evaluation parcour(s) for everyone
- Best drone AI wins (according to quality criteria)
Requirements

- Programming skills mandatory (e.g., Python)
- Experience in version control systems (e.g., Git)
- Beneficial: Know-How in Machine Learning and Computer Vision
- Desirable soft-skills:
  - Open-minded character
  - Outstanding teamwork
  - Great communication skills
- Last but not least: High motivation and interest in the topic!
Thank you for your attention!

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Interested? References for more information

- Unreal Engine

- Microsoft AirSim
  - GitHub: [https://github.com/microsoft/AirSim](https://github.com/microsoft/AirSim)
  - Doku: [https://microsoft.github.io/AirSim/](https://microsoft.github.io/AirSim/)
  - Demo Video: [https://www.youtube.com/watch?v=-WfTr1-OBGQ&feature=youtu.be](https://www.youtube.com/watch?v=-WfTr1-OBGQ&feature=youtu.be)

- Others:
  - Dronecode: [https://www.dronecode.org/projects/](https://www.dronecode.org/projects/)