Jonáš Kulhánek

https://jkulhanek.github.io
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EDUCATION

Charles University
MSc in Artificial Intelligence
Expected Jun 2021
Faculty of Mathematics and Physics
Cum. GPA: 4.00 / 4.00
Major GPA: 4.00 / 4.00

Czech Technical University
BSc in Computer Science
Jun 2019
Faculty of Electrical Engineering
Summa cum laude
Cum. GPA: 3.64 / 4.00
Major GPA: 3.74 / 4.00
Final exam grade: A

Sungkyunkwan University
Dec 2017
College of Sciences and Engineering
One semester visiting student
Cum. GPA: 4.00 / 4.00

LINKS

Github:// **jkulhanek**
LinkedIn:// **jonaskulhanek**
Twitter:// **jonaskulhanek**
StackOverflow:// **kulhanek**
Google Scholar:// **Jonáš Kulhánek**
Research Gate:// **Jonas_Kulhanek**

TEACHING

Introduction to Artificial Intelligence
Teaching assistant | Summer 2020
zero-sum games, CSP, MDP, EA, ...
FEL, Czech Technical University

SKILLS

PROGRAMMING
Over 50 000 lines:
C# • Python • JavaScript • C++
Java • React • PyTorch • LaTeX
Over 5 000 lines:
Haskell • Scheme • SQL
Bash • TensorFlow
Familiar:
TypeScript • YAML • Lua • Docker

LANGUAGES

English   C1
French   B1
Czech   native

EXPERIENCE

CIIRC | RESEARCHER
Jul 2019 – Now
- Visual navigation using deep reinforcement learning (DRL)
- Implementing SoTA DRL algorithms including **Rainbow, PAAC, AlphaZero**
- Publishing an open-source 3D environment simulator to train DRL agents
- Working with **Tomas Mikolov** on cellular automata applied on NLP
- Researching dialogue systems with pre-trained LMs (GPT2, BERT)
- Running large distributed GPU trainings
- Achieving **3rd place** in the DSTC9 dialogue state tracking shared task
- **PyTorch**, Slurm, Numpy, ROS, ...

TU DELFT | RESEARCHER
Jan 2019 – Nov 2019
- Visual navigation using deep reinforcement learning (**DRL**)
- Working under Prof. dr. **Robert Babuska** at 3me
- Publishing open-source DRL PyTorch library
- Evaluating navigation algorithms on real **mobile robots**
- **PyTorch**, TensorFlow, ROS, Numpy, ...

VALATRON | BACKEND DEVELOPER
Jun 2018 – Jan 2019
- Architecturing Node.js API backend and .NET Core backend
- Working on SPA frontend (React.js)
- Creating Azure Functions
- Node.js, .NET Core, Azure Functions, React.js, ...

CENTER FOR MACHINE PERCEPTION | RESEARCHER
Feb 2018 – Jun 2018
- Building object detectors using fully convolutional neural networks
- Implementing RetinaNet, FasterRCNN, MaskNet (SoTA at that time)
- Preparing object detection datasets and data pipelines
- **TensorFlow**, Numpy, OpenCV, ...

complete list at https://jkulhanek.github.io/#resume.

PUBLICATIONS

Visual Navigation in Real-World Indoor Environments Using End-to-End Deep Reinforcement Learning
Oct 2020
Jonáš Kulhánek and Erik Derner and Robert Babuška,
Designing DRL agent with auxiliary tasks for real-world navigation. Transfering policy pretrained on custom 3D simulator to the real world.
arXiv preprint arXiv:2010.10903

Vision-based navigation using Deep Reinforcement Learning
Sep 2019
Jonáš Kulhánek and Erik Derner and Tim de Bruin and Robert Babuška,
Extending PAAC with auxiliary tasks designed for visual navigation. Evaluating on AI2THOR, House3D, DeepMind Lab environments
2019 European Conference on Mobile Robots (ECMR), 2019, p.1-8

Visual Navigation using Deep Reinforcement Learning
May 2019
Jonáš Kulhánek,
Bachelor thesis