

Jonáš Kulháněk

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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 Kulháněk](#)

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 task-based **dialogue systems**
- 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

- Architecting 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 Kulháněk and Erik Derner and Robert Babuška,

arXiv preprint arXiv:2010.10903

Vision-based navigation using Deep Reinforcement Learning

Sep 2019

Jonáš Kulháněk and Erik Derner and Tim de Bruin and Robert Babuška,

2019 European Conference on Mobile Robots (ECMR), 2019, p.1-8

Visual Navigation using Deep Reinforcement Learning

May 2019

Jonáš Kulháněk, *Bachelor thesis*