

Jasper Gerigk

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PUBLICATIONS

Jasper Gerigk, Steve Engels. Learning Various Strategies For Dominion Using Deep Reinforcement Learning. In *19th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, 2023. AIIDE-2023.

Marvin Klimke, **Jasper Gerigk**, Benjamin Völz, Michael Buchholz. An enhanced graph representation for machine learning based automatic intersection management. In *2022 IEEE 25th International Conference on Intelligent Transportation Systems*, Oct 2022, pp. 523–530. IEEE.

EDUCATION

- 2019/09–present **B.S. with Specialist in Computer Science and Mathematics Major**
University of Toronto 📍 Toronto, Canada
GPA: 3.96/4.0 2020 and 2023 Dean’s List Scholar
2019 Millard Scholarship (\$1208)
2023 University of Toronto Scholar (\$1500) - For outstanding academic performance
- 2020/11–2021/08 **B.S. Mathematics Major with Computer Science Minor**
Johannes Gutenberg-Universität 📍 Mainz, Germany
Supplementary courses taken at Technische Universität Darmstadt
GPA: 3.8/4.0
- 2007/08–2019/06 **Bilingual Diploma of the International Baccalaureate**
Metropolitan School Frankfurt 📍 Frankfurt, Germany
Score: 43/45 with Higher Level Subjects: Mathematics, Physics, Chemistry

EXPERIENCE

- 2023/05–present **Student Researcher**
Toronto Intelligent Systems Lab 📍 Toronto, Canada
Work study position for research on Task Aware Object Segmentation as part of team
During summer, worked as DSI SUDS Scholar and presented results at DSI SUDS Showcase
Methods: Python, PyTorch, JAX, SLURM
- 2022/03–2022/08 **Data Analytics Internship**
Mercedes Benz AG 📍 Böblingen, Germany
Member of the Fleet Learning for Automated Driving team
Analyzed lateral vehicle movement to improve comfort of lane following assistant using customer fleet data
Methods: Big Data using Spark, Frequentist and Bayesian statistics in Python
- 2022/10–2023/03 **Research Intern**
Robert Bosch GmbH 📍 Renningen, Germany
Member of BMWK-funded research project “Lokales Umfeldmodell für das Kooperative, Automatisierte Fahren in komplexen Verkehrssituationen”
Development of multi-agent reinforcement learning algorithms for centralized planning of connected self-driving vehicles using graph neural networks
Co-author of paper published at IEEE ITSC 2022
Methods: DQN, TD3, RCGN, GAT implemented in Python using PyTorch

- 2020/06–2020/10 Student Intern
Excubo AG Zug, Switzerland
 Designed and built functional software demonstration based on Server-Side Blazor (C#)
 Contributed to backend by integrating machine learning methods using Python
 Methods: Server-Side Blazor, C#, Python
- 2018/05 Student Intern
German Research Center for Artificial Intelligence (DFKI) Kaiserslautern, Germany
 Created instructional material for AI undergraduate course at TU Kaiserslautern on Reinforcement Learning including Deep-Q learning for Brick Breaker using PyTorch
 Methods: Deep-Q learning, PyTorch, Python
- 2017/06 Student Intern
PwC Experience Center Frankfurt, Germany
 Member of agile development team for Pepper robot
 Developed server-client system for future store demo using nodejs
- 2016/06 Student Intern
Fraunhofer Institute for Intelligent Analysis and Information Systems (IAIS) Sankt Augustin, Germany
 Introduction to machine learning using example of multiclass classification of geographic co-ordinates

PROJECTS AND EXTRA-CURRICULAR

- 2017/11–present Core Maintainer of Cosmos
C# Open Source Managed Operating System
 Cosmos supports the development of operating systems in C# and includes a custom compiler, standard library and drivers
 Contributions include improving the file system and graphics driver, implement garbage collector, and various compiler enhancements including support for .Net 5.0 and 6.0
- 2019/09–2020/03 LearnAI Program
University of Toronto Toronto, Canada
 Overview of deep learning methods and completion of project in a team using Tensorflow
 Presentation of project results at StartAI Conference
- 2020/01 UofT Hacks
University of Toronto Toronto, Canada
 Built recommender system for healthier food alternatives with web interface

SKILLS

Extensive experience developing on Linux and Windows, working with git and docker

Python: Deep learning with Pytorch and Tensorflow, Data Science/Machine learning with Numpy, Scipy, PySpark, pymc and Pandas, OpenCV, Web server with Flask, GPU Programming using TorchScript and Numba, Cython

C#: Asp.Net and Blazor Server-Side Web Application, MSIL/.Net Internals, Game Programming with SFML and Unity, Operating System and Compiler Development

Javascript/Typescript: Frontend using Bootstrap/Material and React/Vue.js, Backend using Node.js and Express.js, WebGL shader development

Other: Java (OOP and Swing), MATLAB (Numerical Algorithms), C (Unix), R (Data Analytics and Statistics), Haskell, and SQL (MySQL, MariaDB)