

# Claas A. Voelcker

PHD STUDENT IN COMPUTER SCIENCE

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## Education

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### University of Toronto

Toronto, Canada

PHD IN COMPUTER SCIENCE

since 09/2020

- thesis topic: task aware models for reinforcement learning
- academic supervisors: Prof. Amir-massoud Farahmand, Prof. Igor Gilitschenski
- ongoing, CGPA: 3.93

### Technische Universität Darmstadt

Darmstadt, Germany

M.Sc. IN COMPUTER SCIENCE

04/2018 - 07/2020

- thesis topic: Object segmentation and detection for reinforcement learning applications
- thesis supervisors: Karl Stelzner, Prof. Kristian Kersting
- notable courses: "Deep generative models", "Deep Learning: Methods & Architectures", "Reinforcement Learning"
- graduated with honors, GPA: 3.9

### Technische Universität Darmstadt

Darmstadt, Germany

B.Sc. IN COMPUTER SCIENCE

10/2014 - 04/2018

- thesis topic: DeepNotebooks – Interactive data analysis using Sum-Product Networks
- thesis supervisor: Prof. Kristian Kersting
- notable courses: "Introduction to AI", "Statistical Machine Learning", "Data Science Practical Lab"
- graduated with honors, GPA 3.75

## Professional Experience

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### University of Toronto

Toronto, ON, Canada

TEACHING ASSISTANT

since 01/21

- teaching assistant for the courses in "Reinforcement Learning", "Introduction to the Theory of Computation", "Introduction to Machine Learning"
- head-TA (coordination and assignment creation) for "Reinforcement Learning" and "Introduction to Deep Neural Networks"

### Google Deepmind

Toronto, Canada

STUDENT RESEARCHER

10/23 – 09/24

- investigating action representation for robotic control with foundation models

### TU Darmstadt - Chair of Artificial Intelligence and Machine Learning

Darmstadt, Germany

RESEARCH ASSISTANT

10/18 - 07/2020

- developer of the DeepNotebook framework for interactive data exploration
- data analysis on health care data to predict heart attack risk in ICU patients (in cooperation with UKE Hamburg)

### TU Darmstadt - Department of Computer Science

Darmstadt, Germany

TEACHING ASSISTANT

10/15 - 10/18

- tutor for the courses "Introduction to computer science", "Parallel programming", "Propositional and first-order logic"
- supervision and coaching of student software development teams
- graduate teaching assistant for "Statistical machine learning"

### Security Research Labs

Berlin, Germany

RESEARCH INTERNSHIP

08/16

- implementation of a remote execution API for automatic pen testing
- data analysis on large scale phishing campaign data to determine staff training strategies

### Deutsche Bank AG

Eschborn, Germany

JUNIOR PROJECT MANAGEMENT CONSULTANT

01/15 - 03/16

- technical implementation and supervision of the "Roadshow Cyber Security Awareness" campaign presented in Berlin, London, Singapore and New York

## Publications

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**Dissecting Deep RL with High Update Ratios: Combatting Value Overestimation and Divergence** *Reinforcement Learning Conference 2024*

HUSSING, M., VOELCKER, C., GILITSCHENSKI, I., FARAHMAND, A. & EATON, E.

**When does Self-Prediction help? Understanding Auxiliary Tasks in Reinforcement Learning** *Reinforcement Learning Conference 2024*

VOELCKER, C., KASTNER, T., GILITSCHENSKI, I. & FARAHMAND, A.

**Queer In AI: A Case Study in Community-Led Participatory AI** *FACCT 2023*

ORGANIZERS OF QUEER IN AI

**Value Gradient weighted Model-Based Reinforcement Learning** *ICLR 2021, spotlight*

VOELCKER, C., LIAO, V., GARG, A., & FARAHMAND, A.

**Structured Object-Aware Physics Prediction for Video Modeling and Planning** *ICLR 2020*

KOSSEN, J., STELZNER, K., HUSSING, M., VOELCKER, C., & KERSTING, K.

**DeepNotebooks: Deep Probabilistic Models Construct PythonNotebooks for Reporting Datasets** *ECML PKDD 2019. CCIS Springer*

VOELCKER, C., MOLINA, A., NEUMANN, J., WESTERMANN, D., & KERSTING, K.

## Preprints & Non-Archival Writing

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**MAD-TD: Model-Augmented Data stabilizes High Update Ratio RL** *under review 2024*

VOELCKER, C. HUSSING, M., EATON, E., FARAHMAND, A. & GILITSCHENSKI, I.

**Can we hop in general? A discussion of benchmark selection and design using the Hopper environment** *Finding the Frame workshop RLC 2024*

VOELCKER, C. HUSSING, M., & EATON, E.

**$\lambda$ -models: Effective Decision-Aware Reinforcement Learning with Latent Models** *Preprint 2023*

VOELCKER, C., AHMADIAN, A., ABACHI, R., GILITSCHENSKI, I. & FARAHMAND, A.

**Viper: Value-Aware Model Learning along the Value Improvement Path** *DARL workshop @ ICML 2022*

ABACHI, R., VOELCKER, C., GARG, A., & FARAHMAND, A.

## Review

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### Conference reviewer

- Transactions of Machine Learning Research, 2024
- International Conference on Learning Representations, 2022, 2025
- International Conference on Learning Representations – workshop reviewer, 2023, 2024
- International Conference on Artificial Intelligence and Statistics 2022, 2023
- International Conference on Machine Learning, 2024
- Conference on Neural Information Processing Systems 2021, 2022, 2023 (top reviewer), 2024
- Conference on Robot Learning, 2024
- Robotics: System and Science 2021

## Service

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### Robot Learning @ NeurIPS

WORKSHOP CHAIR

2023

- organized and served as program chair for the Robot Learning workshop at NeurIPS 2023

### Department of Computer Science, University of Toronto

STUDENT REPRESENTATIVE

since 2022/10

- serving as graduate student representative to the Grad Affairs committee
- lead a grassroots effort to improve graduate student compensation

### Queer in AI @ NeurIPS

WORKSHOP CHAIR

2021 and 2022

- organized and chaired the Queer in AI workshops at NeurIPS 2021
- mentored the organizers of the workshop at NeurIPS 2022 and served as review chair

### Queer in AI

CORE ORGANIZER

since 03/2020

- core organizer of Queer in AI, an affinity group aiming to create an inclusive and welcoming space for queer researchers and AI practitioners

### Conference of Aspiring Students in Tech – Rhein-Main

*Darmstadt, Germany*

ORGANIZING COMMITTEE

06/18 - 03/19

- part of the organizing committee for the first CASTrm, a conference targeted at students aspiring to become researchers
- helped to write prize winning concept
- in charge of coordination for the program and the diversity team

### TU Darmstadt

*Darmstadt, Germany*

UNIVERSITY SENATE COMMITTEE ON STUDIES AND TEACHING

10/16 - 10/18

- student representative on the board for studies and teaching
- responsible for reviewing the study plans of the departments

### Department of Computer Science, TU Darmstadt

*Darmstadt, Germany*

BOARD OF THE FACULTY OF COMPUTER SCIENCE

10/2016 - 10/17, 10/18 - 10/19

- elected student member of the faculty board, representing 3000 students
- member of several professorial appointment commissions

## Awards

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### Ontario Graduate Scholarship

AWARDED BY THE DEPARTMENT OF COMPUTER SCIENCE, UNIVERSITY OF TORONTO

2024

### Inclusion@RSS Fellow 2021

AWARDED BY INCLUSION@RSS

2021

### Vector Institute Research Grant

AWARDED BY THE VECTOR INSTITUTE

2020 – 2025

### Deutschlandstipendium

AWARDED BY THE TECHNICAL UNIVERSITY OF DARMSTADT

10/15 - 10/19