

THOMAS BRUNNER

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WORK EXPERIENCE

Everyday Robots / Google X
Software Engineer - Robotics

Jul 2020 - present
Munich, Germany

I work on simulation for teaching robots. My work explores cutting-edge technology across a broad range of fields, including perception, 3D reconstruction, graphics, rendering and ML domain adaptation.

fortiss GmbH - Research Institute of the Free State of Bavaria
Scientific Employee - Computer Vision

Aug 2017 - Dec 2019
Munich, Germany

Wanting to try something new, I started this position in combination with a PhD program. I largely taught myself the basics of machine learning and computer vision and then identified adversarial examples as my field of research. I produced a number of high-profile publications for the institute and, together with my colleagues and friends, won second place in the NeurIPS 2018 Adversarial Vision Challenge. I also supervised a number of Bachelor's and Master's students.

Dassault Systèmes SolidWorks Corp.
Software Developer (lead) - Computer Graphics

Apr 2015 - Feb 2017
Munich, Germany

As lead programmer for SolidWorks Visualize (ex. Bunkspeed), an application for photorealistic 3D rendering of CAD data, I was responsible for software architecture, technical design, code reviews and coordination of a team of 6 developers, spread between Germany and the USA. During this time, the team succeeded in redesigning the software for the SolidWorks brand, while at the same time increasing code quality and stability. I also implemented key features, such as high-performance baked lighting with CUDA and hands-free import of CAD data from a wide range of industry formats.

Dassault Systèmes 3DEXCITE
Software Developer - Computer Graphics

May 2014 - Mar 2015
Munich, Germany

Integrated various 3D rendering prototypes into the newly acquired Bunkspeed software.

Sulzer GmbH
Software Engineer - Web Development

Oct 2011 - Feb 2013
Munich, Germany

Developed and maintained J2EE applications in the automotive domain.

EDUCATION

Technical University of Munich, Germany
Ph.D. in Computer Science (Dr. rer. nat.)

Aug 2017 - Nov 2021

Thesis: Evaluating the robustness of image classifiers with adaptive black-box adversarial attacks.

Auckland University of Technology, New Zealand
M.Sc. in Computer Science

Jul 2009 - Jun 2011

Thesis: Testing cognitive mapping ideas on a mobile robot.

Munich University of Applied Science, Germany
B.Sc. in Computer Science

Oct 2005 - Jul 2009

Thesis: A movement interface for a harvesting robot.

PUBLICATIONS

F. Croce, S. Gowal, **T. Brunner**, E. Shelhamer, M. Hein, T. Cemgil (2022). Evaluating the Adversarial Robustness of Adaptive Test-time Defenses. *ICML 2022*.

T. Brunner, F. Diehl, M. Truong Le, A. Knoll (2019). Guessing Smart: Biased Sampling for Efficient Black-Box Adversarial Attacks. *ICCV 2019*. Also presented at *NeurIPS 2018 Competition Workshop: Adversarial Vision Challenge (oral)*.

T. Brunner, F. Diehl, A. Knoll (2019). Copy and Paste: A Simple But Effective Initialization Method for Black-Box Adversarial Attacks. *CVPR 2019 Workshop on Adversarial Machine Learning in Real-World Computer Vision Systems*.

T. Brunner, F. Diehl, M. Truong Le, A. Knoll (2019). Leveraging Semantic Embeddings for Safety-Critical Applications. *CVPR 2019 Workshop on Safe Artificial Intelligence for Autonomous Driving (oral)*.

F. Diehl, **T. Brunner**, M. Truong Le, A. Knoll (2019). Graph Neural Networks for Modelling Traffic Participant Interaction. *IV 2019*.

T. Kessler, J. Bernhard, M. Büchel, K. Esterle, P. Hart, D. Malovetz, M. Truong Le, F. Diehl, **T. Brunner**, A. Knoll (2019). Bridging the Gap between Open Source Software and Vehicle Hardware for Autonomous Driving. *IV 2019*.

M. Truong Le, F. Diehl, **T. Brunner**, A. Knoll (2018). Uncertainty Estimation for Deep Neural Object Detectors in Safety-Critical Applications. *ITSC 2018*.

SKILLS

Programming: Python, C++, C#, TensorFlow, PyTorch, JAX, CUDA, OpenGL, OpenCV.

Tools: Git, Docker, Singularity, Google Cloud API, Jenkins, JIRA, and many others.

OS: Many years of experience developing on Linux and Windows each.

Languages: English and German (fluent), French and Spanish (intermediate).

PERSONAL

I took a gap year in 2013/14 and travelled from Germany to China on a bicycle. These days, I play drums and love to go bouldering with my friends.