

Martin Matak

PhD Student at the University of Utah

<https://martinmatak.github.io>

EDUCATION

University of Utah, School of Computing (USA)

PhD in Computer Science

Aug 2019 – present

- Advised by Tucker Hermans

TU Wien (Austria)

MSc in Computational Intelligence / Logic and Computation

Oct 2016 – June 2019

- Advised by Georg Weissenbacher
- Thesis: *Attacks against Neural Networks* [PDF]
- Courses that were particularly interesting to me: *Machine Learning, Deep Learning in Visual Computing, Security in Machine Learning, Similarity Modeling, Introduction to NLP*

University of Zagreb, Faculty of Electrical Engineering and Computing (Croatia)

BSc in Computer Science

Sep 2013 – Jul 2016

- Thesis: *Data Processing with Technology Apache Spark*

PUBLICATIONS

- [Martin Matak](#) and Tucker Hermans
“Visual-Tactile Surface Estimation to Enable Multi-fingered, Precision Grasps”
Under submission for RA-L 2022
- Rebecca Miles, [Martin Matak](#), Mohanraj Devendran Shanthi, Darrin Young, Tucker Hermans
“Comparing Piezoresistive Substrates for Tactile Sensing in Dexterous Hands” [PDF]
Preprint
- Mark Van der Merwe, Qingkai Lu, Balakumar Sundaralingam, [Martin Matak](#), Tucker Hermans
“Learning Continuous 3D Reconstructions for Geometrically Aware Grasping” [PDF]
IEEE International Conference on Robotics and Automation (ICRA) 2020

WORK EXPERIENCE

NVIDIA, Seattle, US

Research Scientist Intern at Seattle Robotics Lab

May 2022 – Dec 2022

- Working on Geometric Fabrics for Dexterous Grasping.

Deloitte Digital, Vienna, Austria

Analyst (Software developer)

May 2018 – July 2019

- Part of the team that developed a loyalty program for a client.

Austrian Institute of Technology (AIT), Vienna, Austria

Data Science Intern

Oct 2017 – Feb 2018

- Investigated linkability of *monero* cryptocurrency.

CROZ d.o.o., Zagreb, Croatia

Software Engineering Intern

Jul 2016 – Oct 2016

- Worked on graph search through natural language (Croatian).

University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia

Teaching assistant

Feb 2014 – July 2018

- Algorithms and Data Structures: Summer Semester (SS) '14, SS '15
- Introduction to Java Programming Language: SS '16, SS '18

SELECTED PROJECTS

Grasping Pipeline

Aug 2019 – now

- Generating grasps for a robot from only a partial view of the object. The project is under development.
- Tech stack: Python 2 and 3, ROS, PyTorch, C++
- Source: <https://bit.ly/3UfPDbE>

Adversarial Perturbations Against Deep Neural Networks

Jul 2018 – Apr 2019

- Trained several classifiers for human age estimation from the given image. Evaluated several white-box and black-box attacks against the classifiers. Developed a new black-box attack based on the existing state of the art algorithm. Some adversarial samples successfully tricked Microsoft service for age estimation.
- Tech stack: Tensorflow, Keras, and Python 3
- Source: <https://github.com/martinmatak/adversarial-framework>

Monero Linkability

Oct 2017 – Feb 2018

- This project is implementation of the paper: An Empirical Analysis of Linkability in the Monero Blockchain.
- Tech stack: Scala, Spark, and Google Cloud
- Source: <https://github.com/martinmatak/monero-linkability>

Neural Bird

Sep 2015 – Jan 2016

- Five of us developed a harder version of flappy bird and trained the agent (a neural network) to play better than human. My part was developing a neural network from scratch. More info about the project: <http://morgoth.zemris.fer.hr/data-repo/proj/1/>.
- Tech stack: Java
- Source: <https://github.com/martinmatak/NeuralBird>

ACHIEVEMENTS

Java	Part of a team where three of us won Code Quest - programming contest http://croz.net/news/odrzan-5-croz-code-quest
Learning skills	One of the two students in generation who received a <i>scholarship for outstanding students</i> (http://logic-cs.at/master/grants-and-scholarships/).

ACADEMIC SERVICE

Reviewer for IROS 2021 and ICRA 2022.