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

- Learning Continuous 3D Reconstructions for Geometrically Aware Grasping (under submission)
  Mark Van der Merwe, Qingkai Lu, Balakumar Sundaralingam, <u>Martin Matak</u>, Tucker Hermans

SELECTED PROJECTS

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`

WORK EXPERIENCE

Deloitte Digital, Vienna, Austria

Software developer   May 2018 – July 2019
- Developing a loyalty program for a client
    - Technologies used: Java, Oracle, Docker, Git, Linux

Austrian Institute of Technology (AIT), Vienna, Austria

Data science intern   Oct 2017 – Feb 2018
- I did the *monero linkability* project mentioned above for them
    - Technologies used: Scala, Google Cloud Computing, Git, Linux

CROZ d.o.o., Zagreb, Croatia

Software Engineering Intern   Jul 2016 – Oct 2016
- worked on graph search through natural language (Croatian)
    - Technologies used: Java, Neo4j (NoSQL database) , React, Git, Linux

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

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 *scolarship for outstanding students* (http://logic-cs.at/master/grants-and-scholarships/).