Márk Antal Csizmadia

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Education

September 2020 –
June 2022

KTH Royal Institute of Technology, Stockholm, Sweden

MSc Machine Learning

- Modules include Deep Learning, Artificial Neural Networks and Deep Architectures, Image Analysis and Computer Vision, Pattern Recognition and Machine Learning, Data Mining, Statistical Methods in Applied Computer Science, Natural Language Processing.

September 2016 –
June 2020

The University of Manchester, Manchester, United Kingdom

BEng (Hons) Electronic Engineering - with Industrial Experience

1st Class (expected); Year 1 – 89 %, Year 2 – 88 %, Year 3 – 85 % (expected)

- Modules include Numerical Analysis, Digital Signal Processing, C Programming, Signals and Systems, Control Systems, Mathematics, Concurrent Systems and Programming, Computer Systems Architecture, Data Networking, Microcontroller Engineering, Digital System Design.

Machine Learning and Deep Learning Experience

September 2019 –
June 2020

The University of Manchester, Manchester, United Kingdom

Final year individual project, Grade – 90 % (expected)

- Built, pre-processed, labeled, and cleaned an object detection dataset of 1,600 images.
- Trained deep learning-based object detection models in the NVIDIA Deep Learning GPU Training System (DIGITS), conducted hyperparameter tuning to improve model performance, and evaluated the trained models using the PASCAL VOC scheme.
- Deployed the trained models for real-time object detection on an NVIDIA Jetson Nano embedded AI computing platform and adapted the platform to serve as the vision system of a Niryo One robotic arm that functioned as a pick-and-place machine.
- Presented my work in a 12, 000-word report and a 15-minute-long presentation.
- Technologies: Caffe, Python, NumPy, Pandas, Matplotlib, scikit-learn, TensorFlow, OpenCV, NVIDIA DIGITS, Linux.

Work Experience

September 2018 –
August 2019

Nexperia, Manchester, United Kingdom

12-month long Internship in Research and Development,

- Cleaned, explored, and visualized raw product manufacturing data, designed factorial experiments, and used statistical techniques such as ANOVA to extract actionable insights.
- Developed scientific simulation and analysis software in Python that improved the company's semiconductor device design process. Built interactive, easy-to-use GUIs in Python to improve software user experience. Produced a 30-page-long documentation for the simulation and analysis software.
- Delivered presentations on my project to over 30 engineers in the monthly R&D meetings.
- Technologies: Python (NumPy, SciPy, Pandas, PyQt), Minitab, TIBCO Spotfire, Linux.

Professional Development

September 2019 –   **Deep Learning**

January 2020   Completed four of the five-course specialization offered by deeplearning.ai on Coursera

- Course certificates: <u>Neural Networks and Deep Learning</u>, <u>Improving Deep Neural Networks: Hyperparameter tuning, Regularization, and Optimization</u>, <u>Convolutional Neural Networks</u>, <u>Structuring Machine Learning Projects</u>
- Learned to build and train deep neural networks and convolutional neural networks with Python and TensorFlow and applied them to visual detection and recognition tasks.
- Learned and applied techniques such as weight initialization, L2 and dropout regularization, Batch normalization, and gradient checking. Implemented a variety of optimization algorithms, such as mini-batch gradient descent, Momentum, RMSprop, and Adam.

Technical Skills

Machine Learning and Deep Learning

- Caffe
- TensorFlow
- Keras
- OpenCV

Programming Languages

- Python (NumPy, Pandas, SciPy, Matplotlib, scikit-learn)
- MATLAB
- C/C++
- Assembly Language

Operating Systems

- Linux, Windows

Version Control

- Git

Web Development

- Django
- Bootstrap
- HTML / CSS / Javascript

Electronic Engineering

- Numerical analysis
- Digital signal processing
- Control theory
- Microcontroller and embedded systems programming

Positions of Responsibility and Achievements

2017 – 2018   **Peer Assisted Study Sessions Leader at the University of Manchester**

- Led weekly sessions to over 20 engineering students and helped them study through collaborative learning sessions. Developed strong leadership and clear communication skills.

2016   **Success Entry Scholarship at the University of Manchester**

- "For having achieved A*AA at A-Level or an equivalent score in entry qualification with the A* in Mathematics, Physics, Electronics or Further Mathematics"

Languages

- English (IELTS Academic 7.5, CEFR Level C1, in 2016)
- Hungarian (Native)

Interests and activities

- Competed in multiple team programming competitions and hackathons such as Google Hash Code to improve my coding skills and collaborate on great projects.