Benedikt Mayer

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Software engineer interested in machine learning, human-computer interaction, functional programming, data visualization and mixed reality.

Work Experience

Since 09.2019	**Microsoft, Munich,** - Machine Learning Working Student *Technologies: C# (Asp.net Core, WPF, UWP), Python, TensorFlow, Azure Machine Learning, Bonsai, Docker, Azure Cognitive Services, HoloLens 2* Building showcases and conducting workshops on the intersection of software engineering and data science for the Microsoft Technology Centre Munich.
12.2018-05.2019	**Bundeswehr University, Munich,** – Research Assistant *Technologies: C#, Unity, Motive, Microsoft HoloLens, HTC Vive, Leap Motion* Thesis supervision on HCI topics, including VR/AR, eye-tracking, gesture interaction and machine learning.
10.2017-04.2018	**Intel Corporation, Munich,** – Software Engineering Intern *Technologies: JavaScript (jQuery), HTML5, CSS (Bootstrap), PHP, SQL, Linux (SUSE)* Design and implementation of a strategic planning web application. Developed new data visualisation and analysis sections in a RESTful service. Transitioned the backend application to a modern, Linux-based architecture.
05.2017-08.2017	**Siemens AG, Munich,** – Software Development Working Student *Technologies: Java (Swing), MagicDraw, Thrift* Software development for model-based systems engineering. Collaborated with other departments to expand functionality and improve user experience.
09.2015-07.2016	**LMU, Munich,** – Research Assistant *Technologies: JavaScript (D3.js, AngularJS, Node.js), SQL, HTML5, CSS (Bootstrap)* Data visualisation, web development and HCI research for the LFE Media Informatics.
06.2014-09.2014	**"The Table", Seoul,** – Work & Travel in South Korea
2012-2016	**Mayer's Brauwerk, Oggersheim,** – Auxiliary

Education

10.2017-12.2020	**LMU Munich** – Master of Science – Grade so far: 1.4 Informatics with focus on machine learning, functional software development and Human-Computer Interaction. Master thesis about **Interpretable Machine Learning**.
10.2016-03.2017	**Lancaster University, UK** – Bachelor thesis – Grade: 1.3 *Technologies: C#, Unity, Linux (Mint), HTC Vive, Leap Motion* "Integrating Eye Gaze and Gestures into Virtual Reality"
10.2014-09.2017	**LMU Munich** – Bachelor of Science – Grade: 1.9 Media Informatics with applied subject Human-Computer Interaction.
08.2006-03.2014	**Carl-Bosch-Gymnasium Ludwigshafen** – High School – Grade: 2.0

Skills

Programming	**C#, JavaScript, Python, Java, Haskell, R**
Tools	**Git, Docker, Unity, Linux, Azure**
Expertise	**AR/VR, Machine Learning, IoT**
Interests	**Visualizations, Security, Research, UX**

Languages

German	**Native speaker**
English	**Fluent**
French	**Basic knowledge**
Korean	**Basic knowledge**

University Projects

02.2016-03.2016 **Data Visualization** – Lab Project
Technologies: Java (Processing)
In a practical course we developed a novel data visualisation application with real world data on food and beverage trade.

04.2019-08.2019 **Water Leak Detection** – Applied Machine Learning
Technologies: Python (TensorFlow, Keras, NumPy, scikit-learn), CUDA, Linux
To find water leaks in audio files of water pipes, we pre-processed the audio track into spectrogram images and then built autoencoder models combined with clustering for unsupervised classification and CNNs for supervised classification.

06.2018-08.2018 **Modern Radios** – Hardware interaction group project
Technologies: Python, C++ (Arduino), Raspberry Pi, Arduino, Linux (Raspbian)
As a team of two we developed, prototyped and built a radio device with modern features (NFC, E-Ink displays), referencing traditional radio designs.

06.2018-08.2018 **Robocode Learner** – Applied Reinforcement Learning
Technologies: Java (Swing), Teachingbox (RL-Framework)
Using Temporal Difference learning, we designed and implemented an AI which learns to win against enemy robots in the coding game Robocode.

12.2019-11.2020 **Master Thesis** – Interpretable Machine Learning
Technologies: R, Linux (Ubuntu), LaTeX
Creating a new Feature Importance metric based on local loss derivatives for better efficiency as well as increased rebustness against correlations and sparsity in the data.

More on my portfolio

Publications

2017 **Gaze + Pinch interaction in virtual reality**
Authors: Pfeuffer, K., Mayer, B., Mardanbegi, D., Gellersen, H.
SUI '17 Proceedings of the 5th Symposium on Spatial User Interaction, Pages 99-108

2019 **EyeSeeThrough: Unifying Tool Selection and Application in Virtual Environments**
Authors: Diako Mardanbegi, Ken Pfeuffer, Alexander Perzl, Benedikt Mayer, Shahram Jalaliniya, Hans Gellersen
The 26th IEEE Conference on Virtual Reality and 3D User Interfaces, 2019

Personal Interests

Volunteering **Media Informatics student council** – Spokesperson 2016-2018
Active in organisation, planning and the teaching committee

Music **Piano, Viola**

Sports **Swimming, mountain biking, ju-jutsu**