Stephan Rabanser

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Education

M.Sc. in Computer Science — October 2015 – February 2019 (exp.)
Technische Universität München (TUM) — *Munich, Germany*

Visiting Research Scholar — August 2018 – January 2019 (exp.)
Carnegie Mellon University (CMU) — *Pittsburgh, PA, USA*

Honours Degree in Technology Management — August 2015 – February 2019 (exp.)
Center for Digital Technology and Management (CDTM) — *Munich, Germany*

Visiting Research Student — February 2016 – June 2016
Massachusetts Institute of Technology (MIT) — *Cambridge, MA, USA*

B.Sc. in Computer Science, Minor in Economic Sciences — October 2012 – October 2015
Technische Universität München (TUM) — *Munich, Germany*

Higher Education Entrance Qualification (A-levels) — September 2007 – July 2012
Technologische Fachoberschule "Max Valier" — *Bolzano, Italy*

Work Experience

Working Student: Applied Science (Machine Learning) — May 2018 – August 2018
Amazon AI — *Munich, Germany*

- Evaluate existing and develop new machine learning based algorithms for large-scale lossless data compression.

Intern Software Development Engineer — August 2017 – October 2017
Amazon – Core Machine Learning — *Berlin, Germany*

- Received an overview of standard time series analysis / forecasting techniques.
- Implemented Bayes by Backprop (weight uncertainty quantification) for standard MLPs and RNNs in MXNet.
- Contributed two chapters to upcoming MXNet book.

Intern Software Development Engineer — July 2016 – October 2016
Amazon Web Services (AWS) – OpsWorks — *Berlin, Germany*

- Developed internal business intelligence tool (business metrics reporting and automated dashboard generation) for new OpsWorks service offering (OpsWorks for Chef Automate).
- Gained deep insights into a broad range of AWS products and large-scale software development at Amazon.

Awards & Honors

Elite Network of Bavaria — Since April 2016
Member — *Munich, Germany*

Apple Worldwide Developers Conference (WWDC) — June 2013
Student Scholarship Recipient — *San Francisco, CA, USA*

- Developed résumé iOS app to highlight academic and professional experience as well as hobbies.
- Got awarded a free WWDC ticket.

Technical Strengths

Programming Languages	Python, Java, Swift, Ruby, C, HTML5/CSS3/JS, LaTeX
ML Frameworks	MXNet, Tensorflow, Keras, Sklearn
Tools	Git, IDEA suite, Jupyter, Xcode, Sketch

Languages

German	Native
English	Fluent, TOEFL iBT 104 (October 2014)
Italian	Proficient

Publications

- Stephan Rabanser, Oleksandr Shchur, Stephan Günnemann. 2017. **Introduction to Tensor Decompositions and Their Applications in Machine Learning**. *ArXiv e-prints (November 2017)*. arXiv:stat.ML/1711.10781
- CDTM Class of Fall 2015. 2015. **Entrepreneurship in Bavaria**. *Center for Digital Technology and Management.*

Selected Coursework

Denoising Spectral Clustering October 2017 – March 2018
Guided Research, Professorship of Data Mining and Analytics *Garching, Germany*

- Develop new methods to make spectral clustering more robust (reduce noise sensitivity).
- Model problem as latent data decomposition instead of similarity graph decomposition.
- Paper is in the works.

Data Science in Astrophysics and Industry March 2017 – July 2017
Interdisciplinary Project, Max Planck Institute for Astrophysics *Garching, Germany*

- Transform an existing Gaussian Mixture Model (GMM) into Google Tensorflow.
- Optimize the algorithmic implementation of the model (e.g. number of mixture components, hyper-parameters).
- Find a good approximation of the used density matrix using sparse matrices.
- Explore different training methods (stochastic vs. deterministic and EM vs. gradient descent vs. Newton).
- Determine parallelizable operations and to which extend sync points are needed.
- Research and implement online learning techniques for GMMs (and compare them to standard EM approaches).
- Paper on own online GMM method is in the works.

Stylight Now, Tech Lead October 2015 – January 2016
Managing Product Development – CDTM *Munich, Germany*

- Developed a simple and easy direct checkout solution for the fashion aggregator Stylight to raise the conversion rate throughout their platform, but especially in their apps.
- Created iOS app (UI/UX + code) which will be further refined by Stylight and eventually incorporated into their live platform.
- Got hands on experience with business development strategies, user and market research, project management, and collaboration in a diverse team.

Practical Course Coach (iPraktikum – Bosch Dots) October 2015 – January 2016
Advanced Project Management – Chair for Applied Software Engineering *Munich, Germany*

- Team coach for the Robert Bosch GmbH team as part of the iOS Praktikum WS 15/16.
- Developed a system that helps Bosch with matching active but also potential new suppliers to current Bosch projects in a smart and easy way.
- Cross-team modeling, architecture, and documentation instructor.

Spot.io, Bird Classifier October 2015 – December 2015
Deep Learning Elective – CDTM *Munich, Germany*

- Gained insights into the basics of applied machine learning and deep learning algorithms, frameworks, and techniques.
- Trained multiple convolutional neural network by using Nvidia Digits and Caffe for different kinds of birds.
- Developed a classification pipeline for handing over images from a broadly trained network for general bird clusters to more granular networks for specific bird species.

Teaching Assistant August 2014 – November 2014
Swift Introduction Course – Chair for Applied Software Engineering *Munich, Germany*

- Held a 2h talk and prepared the corresponding tutorial about RESTful interaction with web services within iOS and OS X apps.
- Developed a course-matching sample API by using Java technologies (Maven, Glassfish, Jersey, JPA).
- Supported course administration by writing and reviewing course assignments.
- Highlighted by Apple as one of the first Swift courses at major universities.