



Marcus Kalander

Curriculum Vitae

Education

- Aug. 2015–
July 2016 **Master's Degree (2nd Year)**, *Chalmers University of Technology*, Gothenburg, Sweden.
Computer Science - Algorithms, Languages, and Logic
- Aug. 2014–
May 2015 **Mandarin Language Studies**, *The Chinese University of Hong Kong*, Hong Kong.
Full-time Mandarin classes
- Aug. 2013–
June 2014 **Master's Degree (1st Year)**, *National Chiao Tung University*, Hsinchu, Taiwan.
Exchange year, Computer Science courses, and Mandarin language studies.
- Aug. 2010–
June 2013 **Bachelor's Degree**, *Chalmers University of Technology*, Gothenburg, Sweden.
Computer Science

Master's thesis

- Title *A natural language processing approach for identifying driving styles in curves*
- Supervisor Professor Selpi Selpi, Project Leader in the Vehicle Safety division and Director of Studies for the graduate school Machine and Vehicle Systems
- Description We used driving data collected over one year from day-to-day driving over 140 drivers. WE preprocessed the data using automatic separation of curve segments, feature selection, and reduction of data dimensions using symbolic representation, then applied Latent Dirichlet Allocation to categorize drivers after their driving styles. The improved driving style knowledge can be used in e.g. education and the field of autonomous vehicles. MATLAB was the main programming language used.

Work experience

- Dec 2021–Present **Senior Research Engineer (A)**, *Huawei*, Hong Kong.
Continued work on the time series anomaly detection framework, label noise, and root cause localization projects. Focused on researching the field of robotics and created two prototype proof-of-concept simulation projects in PyBullet. Furthermore, I was the project manager for a successful cooperation project focused on weakly supervised learning.

- May **Senior Research Engineer (B)**, *Huawei*, Hong Kong.
- 2019–Dec. Focused on large-scale time series anomaly detection (both univariate and multivariate) where I built a Python framework from the ground up that is used in numerous live networks.
- 2021 Further studied label noise, dynamic traffic flow prediction using GCNs, and root cause localization in multi-dimensional time series to identify the root cause dimensions of the time series.
- Dec. **Research Engineer**, *Huawei*, Hong Kong.
- 2016–May Involved in multiple projects, including prediction of hard disk failure with heterogeneous disk models, analysis of alarm data in a telecom network focusing on correlations with Apache Spark and Scala, and root cause analysis identifying the most relevant alarms for network failure.
- 2019
- May–Sept. **Software Developer**, *RUAG Space AB*, Gothenburg, Sweden.
- 2015 Developed a server program in Tcl that receives remote data through TCP/IP and sends them to a hardware module through a SpaceWire link, handling all hardware setups, such as memory buffers.
- Aug. **IT Responsible**, *Chalmers International Taiwan Office*, Hsinchu, Taiwan.
- 2013–June Responsible for all IT equipment and all IT related tasks, e.g. backup data, solving internet problems and handling the website.
- 2014
- June–Aug. **Researcher**, *Ericsson*, Gothenburg, Sweden.
- 2012 Developed an indoor positioning system using WiFi access points. Intended to be used for finding the position of a portable WiFi dongle in a room. Java was mainly used for programming.
- June–Aug. **Software Developer**, *RUAG Space AB*, Gothenburg, Sweden.
- 2011 Identifying and solving performance issues in test tools by examination of received trace-data from hardware. Both Java and C were used.

Publications

- 2022 **Kalander, M.**, RiskLoc: Localization of Multi-dimensional Root Causes by Weighted Risk, *in review*.
- Pan, L., **Kalander, M.***, & Wang, P., LDAAD: An effective label de-noising approach for anomaly detection, *Journal of Intelligent & Fuzzy Systems*.
- 2021 Zhang, K., Zhu, S., **Kalander, M.**, Ng, I., Ye, J., Chen, Z., & Pan, L., gCastle: A Python Toolbox for Causal Discovery, *arXiv*.
- Yang, M., Zhou, M., **Kalander, M.**, Huang, Z., & King, I., Discrete-time Temporal Network Embedding via Implicit Hierarchical Learning in Hyperbolic Space, *KDD*.
- Wen, Y.*, **Kalander, M.***, Su, C., & Pan, L., An Ensemble Noise-Robust K-fold Cross-Validation Selection Method for Noisy Labels, *IJCAI2021-WSRL*.
- 2020 Zhang, K.*, **Kalander, M.***, Zhou, M., Zhang, X., & Ye, J., An Influence-based Approach for Root Cause Alarm Discovery in Telecom Networks, *ICSOC*.
- Kalander, M.**, Zhou, M., Zhang, C., Yi, H., & Pan, L., Spatio-Temporal Hybrid Graph Convolutional Network for Traffic Forecasting in Telecommunication Networks, *arXiv*.
- Pan, L., Zhang, J., Lee, P., **Kalander, M.**, Ye, J., & Wang, P., Proactive Microwave Link Anomaly Detection in Cellular Data Networks, *Computer Networks*.

Computer skills

Basic OpenGL, Erlang, VHDL, Lua, Bash, HTML, CSS
Intermediate C, C++, Ruby, Tcl, XML, TensorFlow
Advanced Python, PyTorch, Scala, Apache Spark, JAVA, Haskell, MATLAB, L^AT_EX, Linux, Microsoft Windows

Languages

Swedish **Native**
English **Fluent**
Mandarin **Working knowledge**
Spanish **Basic knowledge**

HSK 4 certificate

Miscellaneous

Nationality **Swedish**
Born **1991-04-21**
Marital status **Married**