Lars Holdijk

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Skills

Key qualifications	Three times published researcher in well respected venues, including NeurIPS twice
	Well-versed in machine learning and computer vision
	2+ years software engineering experience
	Good communication skills developed as Teaching Assistant
	Experienced in working both independent and as a team
Programming	Python, Matlab, C#, C, JAVA, R
Frameworks	Tensorflow, Keras, .NET, Docker, Angular2, Elastic Stack, Flask
Methodologies	API-Design, SCRUM project planning, Atlassian Stack, GitHub
Languages	Native fluency in Dutch and English

Education

Radboud University
Nijmegen, Netherlands

M.Sc. in Computing Science — *Sep. 2019 - present*

- **Relevant coursework**: Statistical Machine Learning, Information Retrieval, Real Analysis

University of Groningen
Groningen, Netherlands

B.S. in Computing Science — *Sep. 2015 - Jul. 2018*

- **Thesis**: Time series classification using Hankel matrix based dissimilarity measures in Learning Vector Quantization.
- **Relevant coursework**: Software Engineering, (Advanced) Algorithms and Data Structures, Artificial Intelligence, (Advanced) Object Oriented Programming, Software Quality Assurance and Testing, Net-Computing, Information Security, Information Systems, Calculus, Linear Algebra and Multivariable Calculus, Statistics.

Experience

Independent research
Brummen, Netherlands

In association with Porsche AG — *Aug. 2019 - Present*

- Independent deep learning research focusing on interpretable component-based image classification.

Porsche AG
Weissach, Germany

Student researcher autonomous driving — *Feb. 2019 - Aug. 2019*

- Participated in the study conceptualization, experiment design and write-up of two research projects on adversarial robustness and model interpretability, both resulted in publications and received continued funding.
- Studied and evaluated reinforcement learning and imitation learning in the context of automated driving.

Research intern machine learning — *Aug. 2018 - Feb. 2019*

- Improved the adversarial robustness of a classification model based on capsules and LVQ by combining it with multiple model robustification methods and scaled it to larger dataset by merging the model with a CNN.
- Presented the approach at the NeurIPS 2018 adversarial vision challenge workshop after submitting the model and achieving top 20 of 292 in the corresponding competition.

University of Groningen
Groningen, Netherlands

Teaching assistant for a variety of courses
Sep. 2017 - Jul. 2018

- Graded homework/programming assignments, assisted students with weekly programming exercises, small classes of students during weekly tutorials and guided students during small programming projects.
- **Courses taught**: Software engineering 1 & 2 (6 months), Algorithms and Data Structures in C (3 months), Signals and Systems (3 months), Imperative Programming (3 months).

Research intern Data Science and Systems Complexity group
Nov. 2017 - Mar. 2018

- Redesigned major API parts of the Zeeguu interactive online language acquisition platform, opening the platform for further personalization through custom text difficulty estimators.

Tedas
Brummen, Netherlands

Junior software engineer
Jul. 2017 - Aug. 2018

- Designed and developed alarm notification systems and external control dashboards deployed in a number of applications used for national security.

General employee software department
Jul. 2016 - Jul. 2017

- Extensively documented a existing large distributed camera surveillance system and developed elasticsearch based information flow dashboards for said surveillance system. The dashboard was consecutively used to detect a number of major issues within the system.

Publications and Patents

PUBLICATIONS (*: Denotes equal contribution)

S. Saralajew*, **L. Holdijk***, E. Asan, M. Rees, T. Villmann*. *Classification-by-Components: Probabilistic Modeling of Reasoning over a Set of Components.* **Neural Information Processing Systems (NeurIPS)**.
2019 (in press)

S. Saralajew, **L. Holdijk**, M. Rees, T. Villmann. *Robustness of Generalized Learning Vector Quantization Against Adversarial Attacks.* International Workshop on Self-Organizing Maps.
2019

S. Saralajew, **L. Holdijk**, M. Rees, T. Villmann. *Prototype-based Neural Network Layers: Incorporating Vector Quantization.* **Neural Information Processing Systems (NeurIPS) Workshop**.
2018

PATENTS

S. Saralajew, L. Holdijk, M. Rees, T. Villmann, P. Schlicht. *Komponentenbasierte Verarbeitung von Eingangsgrößen.* K 27257 DE.
Sep. 2019 (pending)