Laura Rieger

About

Name Laura Rieger
Address Plantevej 25, 3tv, 2870 Dyssegaard, Denmark
Email lauri@dtu.dk
Nationality German

Education

2019 **Research Stay** Focus: Stabilizing neural networks by regularizing explanations
University of California, Berkeley

2017 – 2020 **Ph.D.** "Explainability of uncertainty for neural networks"
Technical University of Denmark (DTU)
Goal: Better understanding of safety-critical decisions made with deep learning

2015 - 2017 **M.Sc. Computer Science** Dual degree program of *TU Berlin* and *KAIST* in South Korea
GPA: 1.1 (German scale, 1.0 being the highest, 4.0 the lowest passing grade)
Master thesis: "Separable explanations of neural network decisions"

2011 - 2014 **B.Sc. Computational Engineering Science** at *TU Berlin*
Bachelor thesis: "Automated creation of change requests based on patterns in usage data"

2007 - 2011 **High School Diploma** (Abitur) at *Waldgymnasium, Berlin*

2008 - 2009 **Exchange year** at *Central High School, Independence, OR, USA*

Publications

2019 **Laura Rieger**, Chandan Singh, W James Murdoch, and Bin Yu. Interpretations are useful: penalizing explanations to align neural networks with prior knowledge. *(Under review)*, 2019.

2019 **Laura Rieger** and Lars Kai Hansen. Aggregating explainability methods for neural networks stabilizes explanations. *(Under review)*, 2019.

2018 **Laura Rieger**, Pattarawat Chormai, Grégoire Montavon, Lars Kai Hansen, and Klaus-Robert Müller. Structuring Neural Networks for More Explainable Predictions. In *Explainable and Interpretable Models in Computer Vision and Machine Learning*, pages 115–131. Springer, 2018.

2017 **Laura Rieger**. Separable explanations of neural network decisions. In *Proceedings Workshop on Interpreting, Explaining and Visualizing Deep Learning (at NIPS)*, 2017.

2017 Matthieu de La Roche Saint Andre, **Laura Rieger**, Morten Hannemose, and Junmo Kim. Tunnel Effect in CNNs: Image Reconstruction From Max Switch Locations. *IEEE Signal Processing Letters*, 24(3):254–258, 2017.

2019 Lars Kai Hansen and **Laura Rieger**. Interpretability in Intelligent Systems–A New Concept? In *Explainable AI: Interpreting, Explaining and Visualizing Deep Learning*, pages 41–49. Springer, 2019.

Dissemination

2018 Tutorial "Opening the black box - how to interpret machine learning functions and their decisions" at IEEE International Workshop on Machine Learning for Signal Processing 2018

Reviewer for NIPS 2018 and ICML 2019

Teaching experience

2018 Teaching assistant - Introduction to Intelligent Systems (DTU)

2018 Teaching assistant - Introduction to Machine Learning and Data Mining (DTU)

2016 –2017 Teaching assistant - Machine Learning I & II (TU Berlin)

Supervision of one bachelor thesis and two master theses

Experience

Aug-Sep 2018 **Machine Learning Summer School Madrid** Statistical machine learning and inference

2016 - 2017 **Technical University Berlin** Student assistant in Machine Learning Group

2016 **SAP** Healthcare Machine Learning Developer

2015 - 2016 **Lab for Artificial Intelligence & Probabilistic Reasoning at KAIST** Research in Deep Learning

2011 - 2015 **InMediasP GmbH** Developer for product data management systems

Skills

Programming Python, C++, Java, Matlab

Languages German (native), English (business fluent), Danish (fluent), Latin (Latinum)

Achievements and scholarships (selected)

2018 **Best Pitch at DTU's PhD Bazaar 2018** Explainable AI for specific domains

2017 **DTU Scholarship** Scholarship for the Ph.D. studies from the DTU Compute (2017-2020)

2016 **Deutschland-Stipendium** German scholarship for high-achieving and committed students