Lucas Lange

Research Assistant · Ph.D. Student

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Summary

At Leipzig University, I am currently working and teaching as a research assistant while pursuing a Ph.D. in computer science. My research interests align with the common border between data science, machine learning, and privacy. Nonetheless, an environment of diverse knowledge exchange is essential to me. I like to adopt an agile prototyping approach to test hypotheses and make quick and educated decisions in my experiments.

Experience

Leipzig University

Leipzig, Germany

Research Assistant (Wissenschaftlicher Mitarbeiter)

Mar. 2022 - Present

- Ph.D. research in "Privacy-Preserving Data Analysis" with a focus on machine learning.
- Conducting and supervising computer science courses at Leipzig University, especially in the field of databases (tutorials, labs, seminars, lectures).

InfAI - Institute for Applied Informatics

Leipzig, Germany

Research Assistant (WHK)

Oct. 2019 - Feb. 2020

- Working individually on the ShapBiRd project, an effort to create a linked data infrastructure and workflow for the institute's bibliography. — github.com/AKSW/shapbird
- Tools: Docker / Compose, RDF, SHACL, Webhooks, and Python

eccenca GmbH

Leipzig, Germany

Software Developer

Jun. 2018 - Apr. 2019

- Visual Editor Based on SHACL Shapes (Bachelor Thesis).
- Specification and implementation of a visual editor for linked data knowledge graphs - furthermore, adjustable to specific domains by utilizing SHACL shape descriptions.
- Tools: React.js, SHACL, and SPARQL

InfAI - Institute for Applied Informatics

Leipzig, Germany

Student Assistant (SHK)

Jul. 2017 – Apr. 2018

- Assisted in the open-source SlideWiki EU Project. — github.com/slidewiki
- Lead an agile software engineering student project at Leipzig University. — github.com/AKSW/Auto-Slides
- Tutored an agile software engineering student project at Leipzig University.
- Tools: JavaScript, Java, SPARQL, RDF, and Agile Project Management

Education

Leipzig University

Leipzig, Germany

Ph.D. in Computer Science

Mar. 2022 - Present

- Topic: Privacy-Preserving Data Analysis (Focus on Machine Learning).

Leipzig University

Leipzig, Germany

M.Sc. in Computer Science

Apr. 2019 - Jan. 2022

- Thesis: Privacy-Preserving Detection of COVID-19 in X-Ray Images.

Université Grenoble Alpes (UGA)

Grenoble, France

Erasmus+—M.Sc. in Computer Science

Sep. 2020 - Jun. 2021

- Courses in Machine Learning and Robotics.

Leipzig University

Leipzig, Germany

B.Sc. in Computer Science

Oct. 2015 - Mar. 2019

- Thesis: Visual Editor Based on SHACL Shapes.

Projects

DP-X-COVID

ScaDS.AI Dresden/Leipzig

github.com/luckyos-code/DP-X-COVID

- Privacy-Preserving Detection of COVID-19 in X-Ray Images (Master Thesis).
- The goal of this work was to implement a private image classifier for COVID-19 X-ray images. The model was trained by applying privacy-preserving machine learning procedures to produce a private model and thus prevent attacks from causing data leakage.
- Tools: Deep Learning (CNNs), Differential Privacy (DP-SGD, PATE), Tensorflow/Keras, Python, Jupyter, and Google Colab

X-COVID

github.com/luckyos-code/X-COVID

- Detection of COVID-19 in X-ray images.
- Binary (COVID-19 vs. normal): 97.8%, Multiclass (COVID-19 vs. Pneumonia vs. Normal): 94.1%
- Tools: Deep Learning (CNNs), Tensorflow/Keras, Python, Jupyter, and Google Colab

SentArg

github.com/luckyos-code/ArgU

- Argument retrieval model for Touché @ CLEF 2020 - 1st Shared Task on Argument Retrieval.
- The task was to retrieve arguments from the provided dataset of the focused crawl with content from online debate portals for the 50 given topics, covering a wide range of controversial issues.
- Tools: NLP, Sentiment Analysis, Doc2Vec/Word2Vec, Python, Docker, and Google Cloud

Publications

SentArg: A Hybrid Doc2Vec/DPH Model with Sentiment Analysis Refinement

Christian Staudte and Lucas Lange, In: CLEF 2020 Working Notes

ceur-ws.org/Vol-2696/paper_191.pdf

Further Education

2021	**Fundamentals of Neuroscience Part 1**, HarvardX	*edX*
2020	**Deep Learning Specialization**, deeplearning.ai	*Coursera*
2020	**Machine Learning**, Stanford Online	*Coursera*
2020	**Blockchain A-Z™: Learn How To Build Your First Blockchain**, SuperDataScience	*Udemy*
2020	**TRIZ User (Level 1)**, Target Invention	*TRIZ-Trainer*

Personal

Languages German Native, English B2/C1, and French B1/B2

Hobbies Fitness, Reading, Hiking, Travel, and Cinema

Interests Artificial Intelligence & Machine Learning, Digital Ethics & Privacy, Environment, Data Science, and Medicine