

Raphael Schumann

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Education

Heidelberg University

PhD Candidate in Statistical Natural Language Processing Group

– Advisor: Prof. Dr. Stefan Riezler

Heidelberg, Germany

2019 - 2024 (expected)

Heidelberg University

Master's in Computational Linguistics

– Thesis about unsupervised sentence summarization [6]

Heidelberg, Germany

graduated 2019

University of Waterloo

Visiting Graduate Student at the Computer Science Department

Waterloo, Canada

6 month, 2019

Heidelberg University

Bachelor's in Computational Linguistics

Heidelberg, Germany

graduated 2015

Internships

Google DeepMind

Student Researcher

Berlin, Germany

6 month, 2024

Amazon AWS AI

Applied Scientist Intern

– Backward compatible finetuning of language models for text classification [3]

Seattle, US

6 month, 2022

Nuance Communications

Research Intern @ Clinical Language Understanding [9]

– Implemented CNN related layers in CUDA for internal deep learning framework
– Pretrained generative models for doctor-patient dialog summarization

Montréal, Canada

6 month, 2018

Bosch AI

Research Intern @ Spoken Language Understanding [8]

Palo Alto, US

3 month, 2017

IBM Research and Development

Machine Learning Engineer Intern

– Implemented ML features for functional hardware verification of IBM z14 and POWER9

Böblingen, Germany

6 month, 2015

Publications

1. VELMA: Verbalization Embodiment of LLM Agents for Vision and Language Navigation in Street View.
Raphael Schumann, Wanrong Zhu, Weixi Feng, Tsu-Jui Fu, Stefan Riezler, William Yang Wang
AAAI 2024, Vancouver, Canada & FMDM Workshop at NeurIPS 2023
2. Text-to-OverpassQL: A Natural Language Interface for Complex Geodata Querying of OpenStreetMap.
Michael Staniek, **Raphael Schumann**, Maike Züfle, Stefan Riezler
TACL 2024
3. Backward Compatibility During Data Updates by Weight Interpolation.
Raphael Schumann, Elman Mansimov, Yi-An Lai, Nikolaos Pappas, Xibin Gao and Yi Zhang
EACL 2024, Malta
4. Analyzing Generalization of Vision and Language Navigation to Unseen Outdoor Areas.
Raphael Schumann and Stefan Riezler
ACL 2022, Dublin, Ireland.
5. Generating Landmark Navigation Instructions from Maps as a Graph-to-Text Problem.
Raphael Schumann and Stefan Riezler
ACL 2021, virtual.

6. Discrete Optimization for Unsupervised Sentence Summarization with Word-Level Extraction.
Raphael Schumann, Lili Mou, Yao Lu, Olga Vechtomova and Katja Markert
ACL 2020, virtual.
 7. Active Learning via Membership Query Synthesis for Semi-supervised Sentence Classification.
Raphael Schumann, Ines Rehbein
CoNLL 2019, Hong Kong.
 8. Incorporating ASR Errors with Attention-based, Jointly Trained RNN for Intent Detection and Slot Filling.
Raphael Schumann, Pongtep Angkititrakul
ICASSP 2018, Calgary, Canada.
 9. Scalable Wide and Deep Learning for Computer Assisted Coding.
Marilisa Amoia, Frank Diehl, Jesús Giménez, Joel Pinto, **Raphael Schumann**, Fabian Stemmer, Paul Vozila, Yi Zhang
NAACL-HLT 2018: Industry Track, New Orleans, US.
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Invited Talks

Grounding Natural Language Processing in Geodata

- Microsoft Research - NYC online, Apr 2024
- Lyft - *Mapping Team* Munich, Mar 2024
- University of Southern California - *NLP Lunch* Los Angeles, Mar 2024
- UC Santa Cruz - *ERIC Lab* Santa Cruz, Feb 2024
- UC Santa Barbara - *NLP Group* Santa Barbara, Nov 2022
- Google AI - *NLP Group Zurich* online, Mar 2022

Model Update Regression

- Google - *Ads Safety and AutoTFX* online, Feb 2023
- Aleph Alpha online, Feb 2023

Generating Human-like Landmark Navigation Instructions

- Google AI - *NLP Group Zurich* online, Nov 2020

Transcription Errors in Context of Intent Detection and Slot Filling

- Carnegie Mellon University - *LTI Sphinx Lunch* Pittsburgh, Nov 2018
 - 3M M*Modal Pittsburgh, Nov 2018
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Teaching

Tool Augmented Large Language Models

- Instructor, undergraduate/graduate course, summer 2024, Heidelberg University

Robust and Parameter-Efficient Finetuning

- Instructor, undergraduate/graduate course, summer 2023, Heidelberg University

Vision and Language Navigation

- Instructor, undergraduate/graduate course, summer 2022, Heidelberg University
- Instructor, undergraduate/graduate course, summer 2020, Heidelberg University

Software Project

- Supervisor, undergraduate course, winter 2023, Heidelberg University
 - Supervisor, undergraduate course, summer 2021, Heidelberg University
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Natural Languages & Other

- German (native), English
- www.map2seq.schumann.pub
 - Interactive demos for landmark navigation instructions and vision and language navigation