DR. IVAN SEKULIĆ

SENIOR RESEARCH ENGINEER, NLP/IR

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ABOUT ME

I work at the intersection of NLP and IR, focusing on conversational search, task-oriented dialog systems, document retrieval, and generative AI. I leverage state-of-the-art methods like retrieval-augmented generation (RAG), dense retrieval, performance-efficient fine-tuning (PEFT) and in-context learning of LLMs. I thrive in team work and lead projects from ideation to deployment.

I published in multiple top-tier NLP and IR venues, such as SIGIR, ACL, WSDM, TIST, ECIR, COLING (700+ citations, h-index 10). For a full list, please see my Google Scholar page.

I am an EU citizen and a B permit holder.

SKILLS

- PYTHON
- PYTORCH, PANDAS, SCIKIT-LEARN
- HUGGINGFACE, DEEPSPEED
- DATABRICKS
- DOCKER, K8S, HELM
- TERRAFORM, AZURE AKS
- C/C++, R, JAVA

LINKS

Google Scholar:
link to Google Scholar page

LinkedIn:
https://www.linkedin.com/in/ivan-sekulic-80513723b/

LANGUAGES

ENGLISH, GERMAN, CROATIAN

AWARDS

WSDM'22 BEST PAPER RUNNER-UP AWARD
AUG 2022

USI DOCTORAL MOBILITY GRANT
JAN 2022

WORK EXPERIENCE

TELEPATHY LABS
Zürich, Switzerland
Jan 2024 - Present

Senior Research Engineer, NLP/IR

- Improved latency and effectiveness of a retrieval-augmented generation (RAG) pipeline for conversational product search via: Setting up a reliable retrieval evaluation; Implementing document expansion for improved dense retrieval; Merging re-ranking and post-filtering steps.
- Initiator and co-supervisor of a company-wide internship program (2 interns since summer 2024).
- Reduced cost and decreased latency by leading the transition from closed-source pay-per-service LLMs (OpenAI) to self-deployed, open-source LLMs: Ensuring comparable effectiveness via fine-tuning LoRA adapters.
- Lead research on two publications (SciChat@EACL'24 and COLING'25).

TELEPATHY LABS
Zürich, Switzerland
Jun 2023 - Dec 2023

Research Engineer [Intern], NLP/IR

- Improved TOD system performance evaluation via LLM-based user simulator; SciChat@EACL'24.

USI, IDSIA
Lugano, Switzerland
Mar 2020 - Jan 2024

PhD Candidate in NLP/IR

- Mixed-initiative conversational search, user simulation for conversational search evaluation.
- Research visits: 1) IAI group, Stavanger University, Norway with Prof. Krisztian Balog; CHIIR'24. 2) GRILL, University of Glasgow, UK with Prof. Jeff Dalton; SIGIR'24 and preprint' 23.

STATNLP, SUTD
Singapore
Jul 2019 - Dec 2019

Research Associate, NLP

- Document-level entity relation extraction with Prof. Wei Lu; ACL'20.

HITS
Heidelberg, Germany
Oct 2018 - Jun 2019

Research Associate, NLP

- Deep learning methods for mental health status prediction in social media with Prof. Michael Strube; W-NUT@EMNLP'19.

REVERSINGLABS
Zagreb, Croatia
Aug 2017 - Jul 2018

Data Analyst

- Data Quality / Program Management team, ensuring consistency and cleanliness of large and diverse datasets.

TAKELAB
Zagreb, Croatia
May 2016 - Sep 2017

Student Project Associate

- Improving customer experience through state-of-the-art NLP by predicting user's sentiment, emotions and actions.

EDUCATION

USI, IDSIA
Lugano, Switzerland
2024

PhD in Informatics

- Dissertation: *"Clarification and user simulation in mixed-initiative conversational search"* with Prof. Fabio Crestani.

UNIVERSITY OF ZAGREB, FER
Croatia
2018

MSc in Computer Science

- Thesis: *"Text-based mental disorder prediction from online discussion texts"* with Prof. Jan Šnajder.

UNIVERSITY OF ZAGREB, FER
Croatia
2015

BSc in Computer Science

- Thesis: *"Automatic extraction of verb relations in Croatian"* with Prof. Jan Šnajder.