

Heydar Soudani

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About Me!

I am currently a third-year PhD candidate at Radboud University, specializing in Conversational AI. My research centers on: **(1)** Enhancing the trustworthiness of RAG systems through *Uncertainty Estimation* methods. **(2)** Developing novel *Data Generation* pipelines to create high-quality datasets that enable the training and specialization of LLMs in specific domains and areas of knowledge.

Education

PhD	Computer Science , Radboud University, Nijmegen, Netherlands	Feb 2023 – Jan 2027
	<ul style="list-style-type: none"> • Title: Data Augmentation for Conversational AI • Supervisors: Faegheh Hasibi, Evangelos Kanoulas 	
MS	Computer Engineering , Sharif University, Tehran, Iran	Sep 2019 – Jun 2022
	<ul style="list-style-type: none"> • Title: Predicting Novelty Concepts in Data Stream • Supervisors: Hamid Beigy 	
BS (Major)	Electrical and Electronics Engineering , Polytechnic of Tehran, Tehran, Iran	Sep 2014 – Sep 2019
	<ul style="list-style-type: none"> • Title: Providing new cloud services on the Kubernetes platform • Supervisors: Hassan Taheri 	
BS (Minor)	Computer Engineering , Polytechnic of Tehran, Tehran, Iran	Sep 2016 – Sep 2018

Publications

- [1] **Heydar Soudani**, Evangelos Kanoulas, Faegheh Hasibi. "Why Uncertainty Estimation Methods Fall Short in RAG: An Axiomatic Analysis." [🔗 ACL \(Findings\) 2025](#).
- [2] **Heydar Soudani**, Evangelos Kanoulas, Faegheh Hasibi. "Fine Tuning vs. Retrieval Augmented Generation for Less Popular Knowledge." [🔗 SIGIR-AP 2024](#).
- [3] **Heydar Soudani**, Roxana Petcu, Evangelos Kanoulas, Faegheh Hasibi. "A Survey on Recent Advances in Conversational Data Generation." [🔗 ACM surveys \(under review\), 2025](#).
- [4] **Heydar Soudani**, Mohammad Hassan Mojab, Hamid Beigy. "Persian Natural Language Inference: A Meta-learning Approach." [🔗 COLING 2022](#).

Tutorials & Talks

SIGIR 2025 , Enhancing Knowledge Injection in Large Language Models for Efficient and Trustworthy Responses	Padua, Italy July 2025
<ul style="list-style-type: none"> • Presented my Doctoral Consortium 🔗 on addressing LLM errors from limited knowledge by exploring optimal methods, timing, and types of external knowledge injection for more accurate, reliable responses. 	
WebConf 2024 , The Second Tutorial on Data Augmentation for Conversational AI	Singapore, Singapore May 2024
<ul style="list-style-type: none"> • Presented a unified conversational data generation pipeline—input generation, utterance generation, and quality filtering—and added recent papers. 	
CIKM 2023 , The First Tutorial on Data Augmentation for Conversational AI	Birmingham, UK Oct 2023
<ul style="list-style-type: none"> • Showcased the role of data augmentation in tackling data scarcity and provided an up-to-date overview of effective methods for conversational data generation. 	

SIGIR 2025 , Uncertainty Estimation for RAG	Padua, Italy
• Presented a poster on our ACL paper at the IR-RAG@SIGIR'25 workshop.	July 2025
ICTOpen 2025 , RAG vs. Fine-tuning	Utrecht, Netherlands
• Presented our SIGIR-AP paper to industry and academia in the Netherlands.	Apr 2025
KPN, Research Group , Uncertainty Estimation for RAG	Amsterdam, Netherlands
• Presented our ACL paper to KPN's data science group to discuss the industry perspective on our method.	Mar 2025
RU, DaS Seminar , RAG vs. Fine-tuning	Nijmegen, Netherlands
• Presented our tutorial and SIGIR-AP paper at Radboud's Data Science seminar.	Feb 2025

Experiences

Teaching Assistant , Information Retrieval	Radboud University
• Supervisor: Faegheh Hasibi	Sep 2024 – Feb 2025
• Duties: Designed and implemented practical assignments. Supervised and guided students during weekly practical sessions and group projects.	Sep 2023 – Feb 2024
Teaching Assistant , Machine Learning	Sharif University
• Supervisor: Hossein Peyvandi	Feb 2022 – Jul 2022
• Duties: Delivered lectures on theoretical concepts and solved practical examples. Designed, administered, and graded homework assignments, quizzes, and projects.	
Teaching Assistant , Machine Learning Theory	Sharif University
• Supervisor: Hamid Beigy	Feb 2022 – Jul 2022
• Duties: Scheduled homework, quizzes, exams, and project submissions. Provided in-person and virtual guidance to students throughout the semester.	
Software Developer , Andishe Fartak Amirkabir (Atrovan), Part-time	Atrovan, Tehran, Iran
• Duties: Developed web applications for diverse domains, including a smart metering system (AtroMeter), a fleet management system (Navgoon), a home automation platform (Smart Home), and a building management system (BMS)	Dec 2017 – Jun 2022
Research Assistant , Control of Multi Vehicle Systems Laboratory (CMVL)	Polytechnic of Tehran
• Supervisor: Farzaneh Abdollahi	Jan 2016 – Oct 2017
• Duties: Collaborated on AVR and Raspberry Pi programming, computer vision for localization, and PCB design with Altium Designer.	

Languages

Persian: Native **English:** Fluent **Dutch:** Basic

Programming Skills

Python PyTorch TensorFlow NumPy Pandas Matplotlib \LaTeX Git

References

Faegheh Hasibi, Assistant Professor, Radboud University, f.hasibi@cs.ru.nl

Evangelos Kanoulas, Professor, University of Amsterdam, e.kanoulas@uva.nl