

# 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

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

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

<b>SIGIR 2025</b> , Uncertainty Estimation for RAG	Padua, Italy July 2025
<ul style="list-style-type: none"> <li>Presented a poster on our ACL paper at the IR-RAG@SIGIR'25 workshop.</li> </ul>	
<b>ICTOpen 2025</b> , RAG vs. Fine-tuning	Utrecht, Netherlands Apr 2025
<ul style="list-style-type: none"> <li>Presented our SIGIR-AP paper to industry and academia in the Netherlands.</li> </ul>	
<b>KPN, Research Group</b> , Uncertainty Estimation for RAG	Amsterdam, Netherlands Mar 2025
<ul style="list-style-type: none"> <li>Presented our ACL paper to KPN's data science group to discuss the industry perspective on our method.</li> </ul>	
<b>RU, DaS Seminar</b> , RAG vs. Fine-tuning	Nijmegen, Netherlands Feb 2025
<ul style="list-style-type: none"> <li>Presented our tutorial and SIGIR-AP paper at Radboud's Data Science seminar.</li> </ul>	

## Experience

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<b>Teaching Assistant</b> , Information Retrieval	Radboud University Sep 2024 – Feb 2025 Sep 2023 – Feb 2024
<ul style="list-style-type: none"> <li><b>Supervisor:</b> Faegheh Hasibi</li> <li><b>Duties:</b> Designed and implemented practical assignments. Supervised and guided students during weekly practical sessions and group projects.</li> </ul>	
<b>Teaching Assistant</b> , Machine Learning	Sharif University Feb 2022 – Jul 2022
<ul style="list-style-type: none"> <li><b>Supervisor:</b> Hossein Peyvandi</li> <li><b>Duties:</b> Delivered lectures on theoretical concepts and solved practical examples. Designed, administered, and graded homework assignments, quizzes, and projects.</li> </ul>	
<b>Teaching Assistant</b> , Machine Learning Theory	Sharif University Feb 2022 – Jul 2022
<ul style="list-style-type: none"> <li><b>Supervisor:</b> Hamid Beigy</li> <li><b>Duties:</b> Scheduled homework, quizzes, exams, and project submissions. Provided in-person and virtual guidance to students throughout the semester.</li> </ul>	
<b>Software Developer</b> , Andishe Fartak Amirkabir (Atrovan), Part-time	Atrovan, Tehran, Iran Dec 2017 – Jun 2022
<ul style="list-style-type: none"> <li><b>Duties:</b> 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)</li> </ul>	
<b>Research Assistant</b> , Control of Multi Vehicle Systems Laboratory (CMVL)	Polytechnic of Tehran Jan 2016 – Oct 2017
<ul style="list-style-type: none"> <li><b>Supervisor:</b> Farzaneh Abdollahi</li> <li><b>Duties:</b> Collaborated on AVR and Raspberry Pi programming, computer vision for localization, and PCB design with Altium Designer.</li> </ul>	

## Languages

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

## Programming Skills

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**Languages:** Python    JavaScripts    C++    C

**Libraries/Frameworks:** PyTorch    TensorFlow    HuggingFace    NumPy    Pandas    Matplotlib

**Tools:**  $\text{\LaTeX}$     Git

## References

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**Faegheh Hasibi**, Assistant Professor, Radboud University, [f.hasibi@cs.ru.nl](mailto:f.hasibi@cs.ru.nl)

**Evangelos Kanoulas**, Professor, University of Amsterdam, [e.kanoulas@uva.nl](mailto:e.kanoulas@uva.nl)