

# Furkan Şahinuç

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 furkansahinuc |  furkan-sahinuc |  Google Scholar |  Semantic Scholar

## Professional Experience

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### Ubiquitous Knowledge Processing Lab, Darmstadt, Germany

Doctoral Researcher (Wissenschaftlicher Mitarbeiter)

Nov 2023 -

- Developing generation and evaluation methods that align large language models (LLMs) with human-expert preferences for scientific NLP tasks.

### Ubiquitous Knowledge Processing Lab, Darmstadt, Germany

Research Intern (Wissenschaftliche Hilfskraft)

Nov 2022 - Oct 2023

- Research on automatic scientific writing via large language models (particularly related work generation) in InterText Group.

### ASELSAN Research Center, Ankara, Türkiye

Research Engineer in NLP Team

June 2019 - Sep 2022

- Research on hate speech detection, misinformation detection in social media.
- Other research topics: Interpretability of word embeddings, signal processing tools in NLP, and gender bias.

## Education

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### Technical University of Darmstadt, Darmstadt, Germany

Ph.D., Computer Science, Ubiquitous Knowledge Processing Lab

2023 -

**Advisor:** Prof. Iryna Gurevych

### Bilkent University, Ankara, Türkiye

M.Sc., Electrical and Electronics Engineering (GPA: 3.68/4.00)

2019 - 2021

**Advisor:** Asst. Prof. Aykut Koç, **Co-advisor:** Prof. Haldun Ozaktas

**Thesis title:** *Disclosing Zipfian Regularities in Semantic Breadth of Words via Multimodal Gaussian Embeddings.*

B.S., Electrical and Electronics Engineering (GPA: 3.71/4.00)

2014 - 2019

## Publications

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### Conference Proceedings

- [C10] **F. Şahinuç**, T. T. Tran, Y. Grishina, Y. Hou, B. Chen, and I. Gurevych. (2024). Efficient Performance Tracking: Leveraging Large Language Models for Automated Construction of Scientific Leaderboards. *In Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing*, (pp. 7963–7977). doi: 10.18653/v1/2024.emnlp-main.453

- [C9] **F. Şahinuç**, I. Kuznetsov, Y. Hou, and I. Gurevych. (2024). Systematic Task Exploration with LLMs: A Study in Citation Text Generation. *In Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*, (pp. 4832–4855). doi: 10.18653/v1/2024.acl-long.265
- [C8] C. Toraman, O. Ozcelik, **F. Şahinuç**, and F. Can. (2024). MiDe22: An Annotated Multi-Event Tweet Dataset for Misinformation Detection. *In Proceedings of the 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING 2024)*, (pp. 11283–11295). URL: <https://aclanthology.org/2024.lrec-main.986/>
- [C7] C. Toraman, **F. Şahinuç**, and E. H. Yilmaz. (2022). Large-scale Hate Speech Detection with Cross-domain Transfer. *In Proceedings of The Language Resources and Evaluation Conference (LREC)*, (pp. 2215–2225). URL: <https://aclanthology.org/2022.lrec-1.238/>
- [C6] C. Toraman, **F. Şahinuç**, and E. H. Yilmaz. (2022). BlackLivesMatter2020: An Analysis of Deleted and Suspended Users in Twitter. *In 14th ACM Web Science Conference*, (pp. 290–295). doi: 10.1145/3501247.3531539
- [C5] C. Toraman, O. Ozcelik, **F. Şahinuç**, and U. Sahin. (2022). ARC-NLP at CheckThat! 2022: Contradiction for Harmful Tweet Detection. *In Working notes of CLEF 2022 - Conference and Labs of the Evaluation Forum*, (pp. 722-739). URL: <https://ceur-ws.org/Vol-3180/paper-59.pdf>
- [C4] O. Ozcelik, E. H. Yilmaz, **F. Şahinuç**, and C. Toraman. (2022). Slot Filling for Voice Assistants. *In 30th Signal Processing and Communications Applications Conference (SIU)*, (pp. 1–4). doi: 10.1109/SIU55565.2022.9864737
- [C3] **F. Şahinuç** and C. Toraman. (2021). Tweet Length Matters: A Comparative Analysis on Topic Detection in Microblogs. *In European Conference on Information Retrieval (ECIR)*, (pp. 471–478). doi: 10.1007/978-3-030-72240-1\_50
- [C2] **F. Şahinuç**, C. Toraman, and A. Koç. (2021). Topic Detection Based on Deep Learning Language Model in Turkish Microblogs. *In 29th Signal Processing and Communications Applications Conference (SIU)*, (pp. 1–4). doi: 10.1109/SIU53274.2021.9477781
- [C1] **F. Şahinuç**, V. Yücesoy, and A. Koç. (2020). Intent Classification and Slot Filling for Turkish Dialogue Systems. *In 28th Signal Processing and Communications Applications Conference (SIU)*, (pp. 1–4). doi: 10.1109/SIU49456.2020.9302308

## Journal Articles

- [J9] N. Sevim, E. O. Ozyedek, **F. Şahinuç**, T. Ozates, and A. Koç. (2025). Fast-FNet: Accelerating Transformer Encoder Models via Efficient Fourier Layers. *Signal, Image and Video Processing*, 19(12). doi: 10.1007/s11760-025-04552-3
- [J8] C. Toraman, **F. Şahinuç**, E. H. Yilmaz, and O. Ozcelik. (2023). Impact of Tokenization on Language Models: An Analysis for Turkish. *ACM Transactions on Asian and Low-Resource Language Information Processing*, 22(4), (pp. 1-21). doi: 10.1145/3578707
- [J7] **F. Şahinuç** and A. Koç. (2022). Fractional Fourier Transform Meets Transformer Encoder. *IEEE Signal Processing Letters*, 29, (pp. 2258-2262). doi: 10.1109/LSP.2022.3217975
- [J6] **F. Şahinuç**, E. H. Yilmaz, C. Toraman, and A. Koç. (2022). The Effect of Gender Bias on Hate Speech Detection. *Signal, Image and Video Processing*, 17(4), (pp. 1591–1597). doi: 10.1007/s11760-022-02368-z
- [J5] L. K. Şenel, **F. Şahinuç**, V. Yücesoy, H. Schütze, T. Çukur and A. Koç. (2022). Learning Interpretable Word Embeddings via Bidirectional Alignment of Embedding Dimensions with Semantic Concepts. *Information Processing & Management*, 59(3), (pp. 102925). doi: 10.1016/j.ipm.2022.102925

- [J4] N. Sevim, **F. Şahinuç**, and A. Koç. (2022). Gender Bias in Legal Corpora and Debiasing it. *Natural Language Engineering*, 29(2), (pp. 449-482). doi: 10.1017/S1351324922000122
- [J3] C. Toraman, **F. Şahinuç**, E. H. Yilmaz, and I. B. Akkaya. (2022). Understanding Social Engagements: A Comparative Analysis of User and Text Features in Twitter. *Social Network Analysis and Mining*, 12(47). doi: 10.1007/s13278-022-00872-1
- [J2] **F. Şahinuç** and A. Koç. (2021). Zipfian Regularities in Non-point Word Representations. *Information Processing & Management*, 58(3), (pp. 102493). doi: 10.1016/j.ipm.2021.102493
- [J1] L. K. Şenel, I. Utlu, **F. Şahinuç**, H. M. Ozaktas, and A. Koç. (2020). Imparting Interpretability to Word Embeddings While Preserving Semantic Structure. *Natural Language Engineering*, 27(6), (pp. 721–746). doi: 10.1017/S1351324920000315

## Preprints

- [P2] **F. Şahinuç**, S. Dutta, and I. Gurevych. (2026). Reward Modeling for Scientific Writing Evaluation. *arXiv:2601.11374*. URL: <https://arxiv.org/abs/2601.11374>
- [P1] **F. Şahinuç**, S. Dutta, and I. Gurevych. (2025). Expert Preference-based Evaluation of Automated Related Work Generation. *arXiv:2508.07955*. URL: <https://arxiv.org/abs/2508.07955>

## Student Supervision

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- Niklas Traser, M.Sc. Thesis, *Semantic Graphs and Related Work Generation*, Technical University of Darmstadt, 2025.
- Shuqi Zhang, M.Sc. Thesis, *Enhancing Synthetic Related Work Paragraphs through LLM Revision*, Technical University of Darmstadt, 2024.
- Jakob Wölfle, B.S. Thesis, *Evaluating the Effectiveness of LLMs as Virtual Research Assistants*, Technical University of Darmstadt, 2024.

## Skills

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Languages: Turkish (Native), English (Full professional)

Coding: Python (PyTorch, Huggingface, vLLM), C, C++, Java, MATLAB, HTML L<sup>A</sup>T<sub>E</sub>X

## Awards - Honors

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- Best Paper Award: *The Effect of Gender Bias on Hate Speech Detection*. 30th IEEE Signal Processing and Communications Applications Conference (SIU), 2022.
- Ranked 1st in Turkish Harmful Tweet Detection Competition at 2022 CheckThat! Lab on Fighting the COVID-19 Infodemic and Fake News Detection.
- Full Scholarship, Bilkent University (B.S., M.Sc.)
  - High Honor List ( $\times 6$ ), Semester GPA  $> 3.5/4.0$ .
  - Honor List ( $\times 2$ ),  $3.0/4.0 < \text{Semester GPA} < 3.5/4.0$ .
- Top 0.003% (59th of 2,000,000) in Turkey's nationwide university entrance exam, 2014.
- Top Scoring Student (96.38/100), Suleyman Demirel Science High School, Afyonkarahisar, Turkey, 2014