

# Ayyoob Imani

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## Research Interests

Parameter efficiency in NLP, Applications of large language models, Multilingualism and cross-lingual transfer, Representation learning, low-resource learning.

## Education

### PhD in Computer Science

University of Munich (Ludwig-Maximilians-Universität München)

Munich, Germany

11/2020-present

- Focus: Multilingualism and low-resource Natural Language Processing
- Supervisor: [Hinrich Schuetze](#)
- Anticipated graduation date: May 2024 (Quite flexible)

### MEng in Computer Engineering

University of Tehran

Tehran, Iran

09/2016-06/2019

- GPA : 4.0/4.0
- Thesis Topic: *Semantic matching for information retrieval systems*
- Supervisor: [Azadeh Shakery](#)

### BEng in Computer Engineering

Iran University of science and technology

Tehran, Iran

09/2010-09/2015

- GPA : 3.71/4.0

## Publications

- [1] [Imani, A.](#), Lin, P., Kargaran, A., Severini, S., Sabet, M. J., Kassner, N., Ma C., Schmid, M., Martins, A., Yvon, F., & Schütze, H. Glot500: Scaling Multilingual Corpora and Language Models to 500 Languages. [\[paper\]](#) [\[code\]](#)
- [2] Modarressi, A., [Imani, A.](#), Fayyaz, M., & Schütze, H. RET-LLM: Towards a General Read-Write Memory for Large Language Models [\[paper\]](#)
- [3] Ma, C., [Imani, A.](#), Ye, H., Asgari, E., & Schütze, H. A Dataset for Multilingual Text Classification in 1500 Languages. [\[paper\]](#) [\[code\]](#)
- [4] [Imani, A.](#), Severini, S., Sabet, M. J., Yvon, F., & Schütze, H. (2022, December). Graph-Based Multilingual Label Propagation for Low-Resource Part-of-Speech Tagging. EMNLP 2022. [\[paper\]](#) [\[code\]](#)
- [5] Movahedi, S., Adabinejad, M., [Imani, A.](#), Keshavarz, A., Dehghani, M., Shakery, A., & Araabi, B. N. (2022).  $\Delta$ -DARTS: Mitigating Performance Collapse by Harmonizing Operation Selection among Cells. ICLR 2023. [\[paper\]](#) [\[code\]](#)
- [6] [Imani, A.](#), Şenel, L. K., Sabet, M. J., Yvon, F., & Schütze, H. (2022). Graph neural networks for multiparallel word alignment. Findings of ACL 2022 [\[paper\]](#) [\[code\]](#)
- [7] Severini, S., [Imani, A.](#), Dufter, P., & Schütze, H. (2022). Towards a broad coverage named entity resource: A data-efficient approach for many diverse languages. LREC 2022 [\[paper\]](#) [\[resource\]](#)
- [8] [Imani, A.](#), Sabet, M. J., Şenel, L. K., Dufter, P., Yvon, F., & Schütze, H. (2021). Graph algorithms for multiparallel word alignment. EMNLP 2021 [\[paper\]](#) [\[code\]](#)
- [9] [Imani, A.](#), Sabet, M. J., Dufter, P., Cysouw, M., & Schütze, H. (2021). ParCourE: A Parallel Corpus Explorer

for a Massively Multilingual Corpus. ACL 2021 [\[paper\]](#) [\[code\]](#)

- [10] **Imani, A.**, Vakili, A., Montazer, A., & Shakery, A. (2018). An Axiomatic Study of Query Terms Order in Ad-hoc Retrieval. ECIR 2019 [\[paper\]](#)
- [11] **Imani, A.**, Vakili, A., Montazer, A., & Shakery, A. (2018). Deep Neural Networks for Query Expansion using Word Embeddings. ECIR 2019 [\[paper\]](#)

## Professional Experience

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### Research Intern

Microsoft

Berlin, Germany

06/2023-present

Conducting research on the efficient generation of large language models and actively involved in a project shipping these models to client devices

### Technical Manager/ Software Engineer

TSETMC

10/2016-10/2020

Worked three years part-time as a Software Engineer, followed by a year full-time as a Technical Manager, utilizing technologies such as C, C++, Java, Oracle, and Linux.

TSETMC Is the main IT solution provider for stock markets in Iran.

### Software Engineer

Oddrun

11/2015-10/2016

At Oddrun I worked on a push notification service, capable of handling millions of online users.

Technologies: Java, Hibernate, NGINX, C, Redis, Posgresql, python

### Co-founder, Technical Manager

HISIS

01/2013-10/2015

I co-founded HISIS with two other friends in my final year of undergraduate studies; I worked on Apache Ofbiz, which is a Java-based ERP system.

## Honors and Awards

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- ACL 2023 Multilingualism and Cross-Lingual NLP Area Chair award.
- Ranked 2nd in "Yadegar ACM cup", Yadegar Emam University, Tehran, Iran (2016).
- Ranked 41st among more than 30000 participants in "M.Sc. University Entrance Exam in Software Engineering Field" (2016).
- Ranked top 0.1% among approximately 400000 participants in "Iran National University Entrance Exam (Konkour)" (2010).

## Programming Skills

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- **Languages (excellent):** Python, C/C++, Java
- **Languages (familiar with):** R, SQL, Bash
- **Machine learning frameworks:** PyTorch, Tensorflow, keras, Pytorch Geometric, HuggingFace
- **Other:** Git, Docker, Numpy, Scikit-learn,

## Teaching Experience

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- Natural language processing (Spring 2018)
- Neural Networks and deep learning (Spring 2018 and Fall 2018)
- Statistical inference (Spring 2018)
- Information retrieval (Fall 2017 and Fall 2018)
- Data mining (Spring 2018)

## Languages

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Persian (*Native*), English (C2), German (A2)