

Ayush Maheshwari

Lead Research Scientist, Vizzhy

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Experience

Vizzhy Inc

Lead Research Scientist, Language Model Team

Bengaluru

Sep 2023 – Present

1. Led a team of 5 people to build large language models from scratch.
2. Developing data collection & processing pipelines for training and evaluation.
3. Training of tokenizer and designing model training architecture.
4. Training the model on large accelerator cluster.
5. Instruction tuning and preference training of the pre-trained models.

Adobe Research

Research Intern, Document Cloud Team

Bengaluru

May – Aug 2021

NCETIS, IIT Bombay

Project Engineer

Mumbai

May 2016 – Dec 2018

Water & Climate Lab, IIT Gandhinagar

Junior Research Fellow

Gandhinagar

May 2015 – Apr 2016

Tata Consultancy Services

Systems Engineer

Mumbai

Oct 2011 – June 2013

Education

Indian Institute of Technology Bombay

Degree: Ph.D. in Computer Science and Engineering

Mumbai, India

Jan 2019 – Aug 2023

Thesis: Knowledge Integration in NLP Models using Constraint Ingestion and Generation

Advisor: Prof. Ganesh Ramakrishnan

Tata Institute of Social Sciences

Degree: M.Sc.

Mumbai, India

2013 – 2015

University College of Engineering

B.Tech. (CSE)

Rajasthan Technical University Kota, India

2007 – 2011

Featured Publications

1. Adaptive mixing of auxiliary losses in supervised learning, AAAI, 2023 ([Oral Presentation](#)) ↗
Sivasubramanian D., **Maheshwari, A.**, Prathosh AP, Shenoy P., Ramakrishnan G.
2. Learning to Robustly Aggregate Labeling Functions for Semi-supervised Data Programming, Findings of ACL, 2022 ↗
Maheshwari, A., Killamsetty K., Ramakrishnan G., Iyer R., Danilevsky M., Popa L.

3. Data Programming using Semi-Supervision and Subset Selection, Findings of ACL, 2021 [↗](#)
Maheshwari, A., Chatterjee O., Killamsetty K., Iyer R., Ramakrishnan G.
4. Joint Learning of Hyperbolic Label Embeddings for Hierarchical Multi-label Classification, EACL 2021 [↗](#)
Maheshwari A., Chatterjee S., Ramakrishnan, G. Jagaralpudi S.
5. UDAAN-Machine Learning based Post-Editing tool for Document Translation, CODS-COMAD Demonstrations, 2023 ([Best Demo Paper Award](#)) [↗](#)
Maheshwari, A., R. Ajay., Subramanian V., Ramakrishnan G.

Open-Source contributions

- **SPEAR** : Data-Programming python library to create training data. [GitHub](#)
- **UDAAN** : Post-editing workbench to quickly create publishable translations. [Website](#)

Research Interests

- Develop large language models for mid and low-resource languages.
- Develop machine learning based methods that generalize to new domains with limited resources.
- Lexically constrained neural machine translation, data programming, semi-supervised learning

Awards, Services & Talks

- Best Demo Paper Award at CODS-COMAD 2023
- Awarded prestigious Ekal Fellowship 2020
- Reviewer: ARR 22–24, EACL, EMNLP, ACL (21–23)
- Fully covered grant for attending EMNLP 2022, Abu Dhabi
- Co-Founder at non-profit [Temples of India](#) - A web and app platform listing > 700K temples across Indian subcontinent.
- Key Member of [Udaan Project](#) - A project to translate education textbooks in Indian languages.

Computer Skills

Programming Languages: Python, C, C++, Javascript/jQuery, Bash, SQL

Libraries: PyTorch, DeepSpeed, HuggingFace, NumPy, scikit-learn

Talks

- Delivered Masterclass on **Building data-efficient large language models** [NLTF NASSCOM](#), 2024
- Invited Tutorial on **Data Efficient Machine Learning for end-to-end Educational Content Creation** [International Conference on Educational Data Mining](#), 2023
- Talk on **SPEAR: Data Programming using Semi-Supervision** [\[Talk\]](#) [DECILE Workshop](#), 2022