

Tianru Zhang

+46 70 032 52 67 | tianru.zhang@it.uu.se | jsfri.github.io

 Tianru Zhang |  JSFRi |  Tianru Zhang |  0000-0001-9983-3755

Stockholm, Sweden

PROFILE

I am currently a postdoc working at the intersection of data/storage systems and efficient multimodal AI, and I am interested in researcher/postdoc position in efficient AI data system. My research covers ML/RL-based storage management, efficient video understanding MLLMs, federated learning, and practical ML systems.

EDUCATION

- **Uppsala University** 2020 - 2025
PhD in Scientific Computing Uppsala, Sweden
 - Intelligent Data Management via Machine Learning: From Storage Hierarchy to Information Hierarchy
- **ENSAI (National School of Statistics and Information Analysis)** 2017 - 2018
MSc in Statistics and Data Science Brest, France
 - Thesis: Decentralized Machine Learning Case Study on Smart Mobility: Public Transportation in Île-de-France
- **University of Science and Technology of China** 2013 - 2017
BSc Mathematics in Probability and Statistics Hefei, China
 - From the School of Gifted Young, majoring in Mathematics. Thesis: Inverse Problem of Local Geodetic Transformation

EXPERIENCE

- **Uppsala University**  2025 -
Postdoc at Group VLL, Beijer lab Uppsala, Sweden
 - Develop efficient VLM and video-LLM methods using Bayesian approaches
 - Conduct research on multispectral handwritten-text recognition and computational palimpsest modeling
 - Continue collaborations on intelligent hierarchical storage management and federated learning
- **Boston University**  Sep. - Dec. 2023
Visiting Scholar Boston, USA
 - Research visit at BU DiSC lab with Prof. Manos Athanassoulis
 - Collaboration on project Reinforcement Learning-Based Data Migration in Multi-Tiered Storage Systems
- **Fujitsu R&D center**  2019 - 2020
Research Assistant Beijing, China
 - Worked on the Fujitsu Deep Tensor project and a third-party personal financial credits project
 - Explored radial basis function neural network in the Deep Tensor framework for graph learning
- **IRT SystemX**  Mar. - Sep. 2018
Thesis Internship Paris, France
 - Master thesis with Dr. Mostepha KHOUADJIA in project BST&IVA
 - Built transport demand estimation model for the public transportation network of the greater Paris metropolitan area via federated learning and hidden markov model

SELECTED PUBLICATIONS

C=CONFERENCE, J=JOURNAL, P=PREPRINT, S=IN SUBMISSION, T=THESIS

- [C.1] Tianru Zhang, et al. (2026). **ReStore-in-Action: Adaptive Multi-Tier Storage Management via Intelligent Data Migration Policy**. *Proceedings of the VLDB Endowment*. Accepted; forthcoming.
- [C.2] Tianru Zhang, et al. (2026). **Restore: A Reinforcement Learning Approach for Data Migration in Multi-Tiered Storage**. *Proceedings of the ACM on Management of Data (SIGMOD)*. DOI: [10.1145/3802104](https://doi.org/10.1145/3802104)
- [J.1] Tianru Zhang, et al. (2023). **Data Management of Scientific Applications in a Reinforcement Learning-Based Hierarchical Storage System**. *Expert Systems with Applications*. DOI: [10.1016/j.eswa.2023.121443](https://doi.org/10.1016/j.eswa.2023.121443)
- [J.2] Tianru Zhang, et al. (2022). **Efficient Hierarchical Storage Management Empowered by Reinforcement Learning**. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*. DOI: [10.1109/TKDE.2022.3176753](https://doi.org/10.1109/TKDE.2022.3176753)
- [C.3] Tianru Zhang, et al. (2023). **Efficient Hierarchical Storage Management Empowered by Reinforcement Learning: Extended Abstract**. *2023 IEEE 39th International Conference on Data Engineering (ICDE)*. DOI: [10.1109/ICDE55515.2023.00361](https://doi.org/10.1109/ICDE55515.2023.00361)
- [C.4] Tianru Zhang (2024). **Autonomous Hierarchical Storage Management via Reinforcement Learning**. *VLDB PhD Workshop 2024*. [PDF](#)

- [J.3] Robin Hollifield, **Tianru Zhang**, et al. (2026). **Generative Text Modeling and Language-Guided Visual Attention for Deciphering Palimpsests**. *Transactions of the Association for Computational Linguistics (TACL)*. Accepted; forthcoming; To be presented at EMNLP 2026.
- [C.5] **Tianru Zhang**, et al. (2026). **IHHC: Inductive Hyperbolic Hierarchical Clustering for Image Taxonomy**. *ECCV 2026 Beyond Euclidean Workshop (BEW)*. Accepted; forthcoming.
- [S.1] Mayank Nautiyal, **Tianru Zhang**, et al. (2027). **PROVE: Probabilistic Visual Grounding via Patch-Level Evidence for Vision-Language Models**. Manuscript submitted to WACV 2027.
- [S.2] Noah Wassberg, **Tianru Zhang**, et al. (2027). **Routing by Context: Communication-Efficient Vision Mixture-of-Experts in Federated Learning**. Manuscript submitted to AAAI 2027.
- [T.1] **Tianru Zhang** (2025). **Intelligent Data Management via Machine Learning: From Storage Hierarchy to Information Hierarchy**. Doctoral thesis, Uppsala University. [DiVA: diva2:1919253](#)

Full publication list: jsfri.github.io [Google Scholar](#)

SKILLS

- **Programming Languages:** Python, C++, JavaScript, Bash, R, Scala, Matlab
- **Cloud & Distributed Computing:** AWS, OpenStack, Databricks, Hadoop, Spark, Ray, Kafka, HDFS, NFS
- **HPC & DevOps:** Slurm, Apptainer, Singularity, EasyBuild, Docker, Kubernetes, Ansible, Celery, Git
- **Machine Learning & Data Science:** PyTorch, HuggingFace, TensorFlow, Chainer, Scikit-learn, Pandas, Plotly
- **Database Systems:** PostgreSQL, MongoDB, Neo4j

HONORS AND AWARDS

- **{Tech: Europe} Stockholm AI Hackathon** Mar. 2026
4th in final round
 - We built Neuro assistant, supporting neurodivergent students and teachers by adapting school materials according to their personal needs. The results are extended to a startup, [Nuro AI](#).
- **Chas Academy AI-Assisted Workflow Coding Hackathon** Nov. 2025
Selected Winner
 - We built an automated content editing workflow using AI agents and coding tools.
- **Huawei Sweden Tech Arena** Oct. 2024
1st place
 - We designed a CNN-based model for the Channel Charting-Based Localization Algorithm Competition and won the final.

PROFESSIONAL SERVICE

- AAAI'27 PC member, ECCV'26 PC member, IEEE BigData'26 PC member, Conference
 ICML'26 PC member, MLSys'26 AE reviewer, FAST'25 AE reviewer, VLDB'24 Demo reviewer
- *Frontier of Computer Science* reviewer'22,'23, *Expert Systems With Applications* reviewer'24 Journal

REFERENCES

1. **Salman Toor**
 Associate Professor at Uppsala University
 CTO of Scaleout Systems
 Email: salman.toor@it.uu.se
Relationship: PhD Advisor
2. **Ekta Vats**
 Assistant Professor (Docent) at Uppsala University
 Beijer Researcher at The Beijer AI Laboratory
 Email: ekta.vats@it.uu.se
Relationship: Postdoc Advisor
3. **Manos Athanassoulis**
 Associate Professor at Boston University
 Director of BU DiSC Lab
 Email: mathan@bu.edu
Relationship: Collaborator, Visiting host