

# Ehsan Yousefzadeh-Asl-Miandoab

## Curriculum Vitae

Postdoctoral Researcher, IT University of Copenhagen  
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## Research Profile

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I am a computer systems researcher working at the intersection of efficient AI infrastructure, GPU resource management, and data-intensive computing. My research develops measurement-driven methods, predictive models, and runtime systems that make modern computing platforms more efficient, predictable, and accessible. I am particularly interested in resource-aware scheduling, workload characterization, and reproducible systems research for deep learning and large-scale data processing.

## Research and Academic Positions

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**Postdoctoral Researcher**, IT University of Copenhagen, Denmark 2025–Present  
Resource-Aware Data Systems (RAD) Group, Department of Computer Science

- Conduct research on efficient AI infrastructure, GPU resource management, and shared deep learning training systems.
- Develop measurement-driven scheduling and resource-estimation methods for improving GPU utilization and workload predictability.
- Build reproducible software artifacts and datasets for GPU memory estimation, utilization prediction, and workload characterization.

**Ph.D. Researcher**, IT University of Copenhagen, Denmark 2021–2025  
Resource-Aware Data Systems (RAD) Group, Department of Computer Science  
Supervisor: Prof. Pinar Tözün

- Researched efficient resource management for deep learning and data-intensive workloads.
- Developed methods for profiling, modeling, and predicting GPU memory and utilization behavior.
- Published peer-reviewed workshop papers and released public datasets and software artifacts.

**Graduate Researcher**, Sharif University of Technology, Iran Sep. 2016–Aug. 2019; Sep. 2020–Feb. 2021  
High Performance Computing Architectures and Networks (HPCAN) Lab, Department of Computer Engineering  
Supervisor: Prof. Hamid Sarbazi-Azad

- Conducted research on energy- and area-efficient on-chip memory designs for GPU streaming multiprocessors.
- Implemented and evaluated GPU memory-system designs using GPGPU-Sim and custom C/C++ analysis tools.
- Contributed to research published in *IEEE TPDS* and *ACM POMACS/SIGMETRICS*.

## Education

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**Ph.D. in Computer Science**, IT University of Copenhagen, Denmark Nov. 2021–Apr. 2025  
Thesis: *Collocation and Memory Estimation for Efficient GPU Resource Management in Deep Learning Training*  
Supervisor: Prof. Pinar Tözün

**M.Sc. in Computer Engineering**, Sharif University of Technology, Iran  
Thesis: *Unifying L1 Data Cache and Shared Memory in GPUs*  
Supervisor: Prof. Hamid Sarbazi-Azad

Sep. 2016–Sep. 2018

**B.Sc. in Computer Engineering**, University of Tabriz, Iran  
Project: *Car Distance Estimation Using Laser and Computer Vision Methods*

Sep. 2012–Jun. 2016

## Publications

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### Journal Articles

1. Sina Darabi, **Ehsan Yousefzadeh-Asl-Miandoab**, Negar Akbarzadeh, Hajar Falahati, Pejman Lotfi-Kamran, Mohammad Sadrosadati, and Hamid Sarbazi-Azad. "OSM: Off-Chip Shared Memory for GPUs." *IEEE Transactions on Parallel and Distributed Systems*, 33(12):3415–3429, 2022.
2. Sina Darabi, Negin Mahani, Hazhir Bakhishi, **Ehsan Yousefzadeh-Asl-Miandoab**, Mohammad Sadrosadati, and Hamid Sarbazi-Azad. "NURA: A Framework for Supporting Non-Uniform Resource Accesses in GPUs." *Proceedings of the ACM on Measurement and Analysis of Computing Systems*, 6(1):16:1–16:27, 2022.

### Conference and Workshop Papers

1. Alexander Bilde Pedersen, **Ehsan Yousefzadeh-Asl-Miandoab**, Ismail Oukid, and Martin Hentschel. "Benchmarking Column Statistics for Analytical Query Pruning." *Proceedings of the 2026 11th International Workshop on Testing Database Systems (DBTest)*, 2026, pp. 31–37.
2. **Ehsan Yousefzadeh-Asl-Miandoab**, Reza Karimzadeh, Danyal Yorulmaz, Bulat Ibragimov, and Pinar Tözün. "GPU Memory and Utilization Estimation for Training-Aware Resource Management: Opportunities and Limitations." *Proceedings of the Sixth European Workshop on Machine Learning and Systems (EuroMLSys)*, 2026, pp. 127–138.
3. Büşra Karatay Demiray, **Ehsan Yousefzadeh-Asl-Miandoab**, Benoît Garbinato, Pinar Tözün, and Pamela Delgado. "Where the Time Goes: Analysis of a Public LLM Serving System." *Proceedings of the Sixth European Workshop on Machine Learning and Systems (EuroMLSys)*, 2026, pp. 171–182.
4. Shiva Parsarad, **Ehsan Yousefzadeh-Asl-Miandoab**, Raheleh Kafieh, Pinar Tözün, Florina M. Ciorba, and Isabel Wagner. "DP-Morph: Improving the Privacy-Utility-Performance Trade-off for Differentially Private OCT Segmentation." *AI@Sec@CCS*, 2025, pp. 264–275.
5. Reza Karimzadeh, **Ehsan Yousefzadeh-Asl-Miandoab**, Hossein Arabi, Pinar Tözün, and Bulat Ibragimov. "PiMPiC: An Overlap-Aware Contrastive Learning Framework for 3D Patch-Based Medical Image Segmentation." *DEMI@MICCAI*, 2025, pp. 21–31.
6. Ties Robroek, **Ehsan Yousefzadeh-Asl-Miandoab**, and Pinar Tözün. "An Analysis of Collocation on GPUs for Deep Learning Training." *Proceedings of the Fourth Workshop on Machine Learning and Systems (EuroMLSys)*, 2024, pp. 81–90.
7. Ties Robroek, Aaron Duane, **Ehsan Yousefzadeh-Asl-Miandoab**, and Pinar Tözün. "Data Management and Visualization for Benchmarking Deep Learning Training Systems." *Proceedings of the Seventh Workshop on Data Management for End-to-End Machine Learning (DEEM)*, 2023, pp. 1:1–1:5.
8. **Ehsan Yousefzadeh-Asl-Miandoab**, Ties Robroek, and Pinar Tözün. "Profiling and Monitoring Deep Learning Training Tasks." *Proceedings of the Third Workshop on Machine Learning and Systems (EuroMLSys)*, 2023, pp. 18–25.

### Preprints and Manuscripts

1. **Ehsan Yousefzadeh-Asl-Miandoab**, Reza Karimzadeh, Bulat Ibragimov, Florina M. Ciorba, and Pinar Tözün. "CARMA: Collocation-Aware Resource Manager with GPU Memory Estimator." *arXiv preprint*, 2025.

### Thesis

1. **Ehsan Yousefzadeh-Asl-Miandoab**. *Collocation and Memory Estimation for Efficient GPU Resource Management in Deep Learning Training*. Ph.D. thesis, IT University of Copenhagen, 2025.

## Selected Software and Artifacts

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- **GPUMemNet** — Artifact repository for deep learning-based GPU memory estimation for training workloads, including dataset generation, cleaning, analysis, and modeling components.  
[github.com/itu-rad/GPUMemNet](https://github.com/itu-rad/GPUMemNet)
- **GPU Resource Estimation Dataset** — Public Hugging Face dataset for studying GPU memory and hardware-utilization estimation across deep learning training workloads.  
[huggingface.co/datasets/ehyo/GPU-Resources-Estimation-for-Deep-Learning-Training-Tasks](https://huggingface.co/datasets/ehyo/GPU-Resources-Estimation-for-Deep-Learning-Training-Tasks)
- **DL Trace Mapper** — Tool for mapping deep learning workloads to evaluation traces for reproducible scheduling and resource-management experiments.  
[github.com/ehsanyousefzadehasl/dl-trace-mapper](https://github.com/ehsanyousefzadehasl/dl-trace-mapper)
- **Parallel Computing with GPGPUs** — Educational CUDA/GPGPU repository with notes, explanations, and programming examples on GPU computing.  
[github.com/ehsanyousefzadehasl/PCwGPGPUs](https://github.com/ehsanyousefzadehasl/PCwGPGPUs)

## Teaching Experience

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### IT University of Copenhagen, Denmark

#### Teaching Assistant

- *Advanced Data Systems* (MSc) Spring 2022, 2023, 2024
- *Computer System Performance* (MSc) Fall 2022, 2023, 2024

#### Guest Lecturer

- *Operating Systems and C* (BSc) Fall 2024
- *Computer System Performance* (MSc) Fall 2022, 2023, 2024, 2025
- *Large Scale Data Analysis* (MSc) Spring 2022, 2023, 2024, 2025
- *Big Data Management* (BSc) Fall 2022, 2023, 2024

### Sharif University of Technology, Iran

#### Teaching and Lab Assistant

- *Microprocessor/Microcontroller Lab* (BSc) Fall 2017, Spring 2018, Summer 2018
- *Computer Architecture and Systems Lab* (BSc) Summer 2017, Spring 2018, Summer 2018
- *Computer Architecture* (BSc) Spring 2018

#### Other Teaching Experience

- Teaching Assistant, *Logic Circuit Design* (BSc), University of Tabriz Spring 2016
- Tutor, *Fundamentals of Programming with C* (BSc) Spring–Summer 2018

## Supervision and Mentoring

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### Master's Thesis Supervision

- **Danyal Yorulmaz**, *Understanding GPU Monitoring Metrics and Collocation Through CUDA Microbenchmarks*, IT University of Copenhagen, Fall 2025. Co-supervised with Prof. Pinar Tözün.
- **Aiting Lee**, *Checkpointing as a Scheduling Primitive for Multi-Tenant Deep Learning Training*, IT University of Copenhagen, Fall 2025. Sole supervisor.
- **Kamil Kojs**, *Time-Series Based Preloading of Deep Learning Models on GPU to Increase Request Processing Speed in Machine Learning Serving Systems*, IT University of Copenhagen, Spring 2024. Co-supervised with Prof. Pinar Tözün.

- **Hans Kristian Krogshede**, *Intelligent GPU Utilization Estimation*, IT University of Copenhagen, Spring 2023. Co-supervised with Prof. Pinar Tözün.

## Academic Service

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### Reviewing and Program Committee Service

- Program Committee Member, *InSyDe 2026 @ EuroSys 2026*.
- Reviewer, *The VLDB Journal*, 2026.
- Shadow Reviewer, *EuroSys 2026*.

### Institutional Governance

- Ph.D. Student Member, Ph.D. Council, IT University of Copenhagen 2023–2024.
- Ph.D. Student Member, Ph.D. Executive Committee, IT University of Copenhagen 2023–2024.

## Talks and Presentations

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- **ML for Systems, Systems for ML**. Lecture, ITU IoT course, Copenhagen, Denmark Apr. 2026
- **Taming GPU Interference: Safe Co-location and Fair Resource Management**. Workshop talk, SAINTS, Copenhagen, Denmark Mar. 2026
- **CARMA: Collocation-aware Resource Management System for Deep Learning Training Tasks**. Talk, SUITS Symposium, Copenhagen, Denmark Sep. 2025
- **CARMA: Collocation-aware Resource Management System for Deep Learning Training Tasks**. Poster, D3A 3.0, Nyborg, Denmark Aug. 2025
- **GPUMemNet: Deep Learning-based Estimation of GPU Memory Requirement for Neural Network Training Tasks**. Poster, D3A 3.0, Nyborg, Denmark Aug. 2025
- **GPU Memory Usage Estimation for Efficient Resource Management for Deep Learning Training**. Workshop talk, ESWM 2025, Rotterdam, Netherlands 2025
- **Introduction to CUDA Programming**. Guest lecture, Operating Systems and C, IT University of Copenhagen, Nov. 2024.
- **Resource-Efficient Training via Task Collocation on GPUs**. Presentation, D3A 1.0, Nyborg, Denmark Feb. 2024
- **Profiling and Monitoring Deep Learning Training Tasks**. Paper presentation, EuroMLSys, Rome, Italy May 2023
- **Orchestration of Deep Learning Tasks on CPU-GPU Co-Processors for Multi-Tenant Settings**. Presentation and poster, EuroSys Doctoral Workshop, Rome, Italy May 2023
- **GPU Efficiency through Intelligent Collocation**. Poster, REAML Summer School, Dortmund, Germany Sep. 2022

## Honors and Awards

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- Admitted to the M.Sc. program at Sharif University of Technology as an Exceptional Talented Student 2016
- Ranked 1st by cumulative GPA among 50 Computer Hardware Engineering students, University of Tabriz 2016

## Technical Skills

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- **Research Areas:** computer systems, GPU resource management, AI infrastructure, workload characterization, performance analysis, scheduling, deep learning systems.

- **Programming:** Python, C/C++, CUDA, Bash, SQL,  $\LaTeX$ .
- **Machine Learning and Systems Tools:** PyTorch, TensorFlow, Hugging Face, Docker, Git, Linux, NVIDIA profiling and monitoring tools.
- **Data and Experimentation:** workload profiling, trace-based evaluation, reproducible experiments, data cleaning, statistical analysis, visualization.

## Languages

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- **Persian:** Native
- **Azerbaijani:** Native
- **English:** Professional working proficiency
- **Danish:** Basic proficiency
- **Turkish:** Basic proficiency

## References

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Available upon request.