Mahsa Eftekhari

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EXPERIENCE

Microsoft

Applied Scientist II

Aug. 2022 – Present

- **Integration of LLM** (large language model) with Microsoft products, such as Copilot, Designer, Edge sidebar chat, and Enterprise Bing chat. I helped the team in design, development, prompt iteration, quality evaluations, quality improvement, and metric adjustments using Python, C#, TypeScript, and AML tools via Codex, GPT-3, GPT-4, GPT-4o model series.
- Played a key role in the introduction and launch of **Customizable GPTs** for both consumer and enterprise worlds.
- **Quality Evaluation** Designed and implemented different quality evaluation pipelines for LLM integration to Microsoft products.
- **Fine-tuning** the LLM based model using state-of-the-art techniques and evaluated its quality using Python, C#, and Azure ML tools.

Google

Software Engineering Intern

June 2020 – Sept 2020

- Implement **data cleaning and verification pipeline** (using Python and REST API) to address the messy datasets for **Google Knowledge Graph**. While an intern, I noticed and initiated an effort to address the missing values in the existing data series used by the knowledge graph team. I designed and implemented this procedure from scratch (using Go) and provided the team with interfaces that fill the missing values of the data series.

University of California, Davis

Research Assistant

Sept 2017 – June 2022

- Design, analysis, and simulation of distributed computing algorithms.
- Implemented (Java) simulations for a **distributed computing model**, population protocols, to study the time and memory complexity of randomized real-world physical systems.

SELECTED PUBLICATIONS

- A Time and Space Optimal Stable Population Protocol Solving Exact Majority.
  - (Full version) **IEEE Symposium on Foundations of Computer Science (FOCS)**
  - (BA) **ACM Symposium on Principles of Distributed Computing (PODC)**
- A survey of size counting in population protocols. Theoretical Computer Science Journal **(TCS)**
- Message complexity of population protocols. International Symposium on Distributed Computing **(DISC)**
- Efficient size estimation and impossibility of termination in uniform dense population protocols. **ACM Symposium on Principles of Distributed Computing (PODC)**
- BA: Exact size counting in uniform population protocols in nearly logarithmic time. In the 32nd International Symposium on Distributed Computing **(DISC 2018)**

SKILLS

Programming and Libraries:
Python, Java, OOP (Object-Oriented Programming)
C#, Go, C++, Git, SQL, AML, LaTeX

Other: LLM, Fine Tuning, Prompt Engineering
Machine Learning, Deep Learning, Transformers, Map Reduce, Clustering, Data Science, Algorithm Design and Analysis, Software Design, Distributed computing, Data visualization, Probability, Combinatorics

EDUCATION

Ph.D. in Computer Science

University of California, Davis
2017 – 2022

- **Focus:** Distributed Algorithms
- **Thesis:** Computation in Population Protocols: Exact Majority, Uniform Computation, and the Dynamic Model
- **Awards**: UC Davis GGCS Richard Walters scholarship, GHC scholarship, CRA-W scholarship, UC Davis graduate fellowship

M.Sc. in Computer Engineering-

Sharif University of Technology
2015 – 2017

- **Focus:** Online Algorithms
- **Thesis:** Online Algorithms for Fair Allocation of Goods
- **Honors**: **Ranked 15th**, National Scientific Olympiad in Computer Engineering, **Ranked 3rd** National Graduate Entrance Exam in Computer Science., **Ranked 15th** National Graduate Entrance Exam in Software Engineering.

B.Sc. in Computer Science

Sharif University of Technology
2010 – 2015