(Rachel) Yuchen Zeng

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Education

University of California, Berkeley, CA **Aug 2024 – May 2025 (expected)**
Master of Engineering in Electrical Engineering and Computer Science (EECS)

University of Toronto, Toronto, ON, Canada **Sept 2019 – June 2024**
Honours Bachelor of Science with High Distinction in Computer Science Specialist, Statistic Major *GPA: 3.97/4.0*

Technical Skills

Languages/Databases: Python, C, C++, R, SQL, Java, MongoDB, PostgreSQL
AI Programming & Development: TensorFlow, PyTorch, Scikit-learn, Keras, NLP, BERT, OpenCV
Web & Software Technologies: JavaScript, HTML/CSS, PHP, React.js, Node.js, CUDA, Shell Scripting, Git, Flask
Data Science Tools: Matplotlib, NumPy, Pandas

Work Experience

Intelligent Adaptive Interventions Lab **August 2023 – May 2024**
Part-time Software Developer *Toronto, ON, Canada*

- Developed user-friendly front-end interfaces, enhancing user engagement and accessibility on various platforms.
- Designed and deployed multiple software tools utilizing **Large Language Models (LLMs)** to deliver tailored user experiences, demonstrating proficiency in AI-driven technologies.
- Co-authored academic papers **published in CHI, a premier conference on human-computer interaction**, ensuring content quality and strict adherence to publication standards.

Huawei Technologies Canada Ltd. **May 2022 – Aug 2023**
Assistant Engineer, Distributed Data and Storage Lab *Markham, ON, Canada*

- Developed, tested, and debugged key features, such as server intercommunication and system fault-tolerance, within GaussDB, an **enterprise-class distributed database**.
- Led a test group that implemented over 50 G-tests, mock tests, concurrency tests, and integration tests to ensure and enhance product quality.
- Presented detailed overview of software architecture on behalf of the team to an audience of over 40 engineers.

Research Experience

Lee Language Lab **Jan 2023 – May 2024**
Undergraduate Research Team Lead *Toronto, ON, Canada*

- Conducted and analyzed more than 100 empirical experiments utilizing language models including **mBART, M2M, XLM-R and NLLB**, yielding insights and data-driven findings.
- Reviewed more than 200 relevant literature sources to inform model and language selection.
- Trained and mentored new students, ensuring their transition into the lab, equipment familiarity, and rapid onboarding.

Projects

Personalized Training Platform for Physical Skills **Sept 2024 - Present**

- Developing a scalable, personalized platform for diverse ranges of physical training domains.
- Building a platform as an application in **augmented reality (AR)** that utilizes AI for an immersive, 3D environment.

Fault-tolerant Key-value Service | *C++ Git* **Jan 2023 - May 2024**

- Implemented a distributed key-value (KV) store system with replication across multiple servers and crash recovery mechanism, designed to handle concurrent client requests efficiently.
- Detailed the design decisions and implementation strategies in documentation, addressing conceptual challenges and optimizing system performance.

Key-value Database System | *C++ Git* **Sept 2023 - Dec 2023**

- Developed a multi-stage database system, implementing in-memory structures and persistent storage mechanisms.
- Enhanced system performance by integrating buffer pools with LRU eviction, static B-Trees, and an LSM-tree featuring Bloom filters to optimize data retrieval and reduce disk I/O.

Publications

Bhattacharjee, A., **Zeng, Y.**, Xu, S. Y., et al. (2024). **Understanding the Role of Large Language Models in Personalizing and Scaffolding Strategies to Combat Academic Procrastination.** *In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems.* ***Best Paper Honorable Mention.***

Rao, P., Xu, S., Bhattacharjee, A., **Zeng, Y.**, et al. (2024). **Integrating Digital Calendars with Large Language Models for Stress Management Interventions.** *ALBECS-2024: Workshop on Algorithmic Behavior Change Support.*