Vinayak Sharma

+1 602-515-5883 • Vinayak.Sharma@asu.edu • linkedin/vinayak19th • github/vinayak19th • web/vinayak19th.me

RESEARCH INTERESTS

Highly motivated PhD student with 2 years of industry experience in Machine Learning (ML) and a Master's thesis focused on Learned Quantum Embeddings, looking to further study the correlation between quantum computing and ML.

EDUCATION

[PhD] Doctor of Philosophy in Computer Science — Current
Arizona State University, Tempe, AZ — Current GPA: 4.0/4.0

[M.S] Master of Science in Computer Science — May 2024
Arizona State University, Tempe, AZ — GPA: 4.0/4.0

[B.Tech] Bachelors of Technologyin Computer Science and Engineering — July 2021
SRM Institute of Science & Technology, Chennai, TN, India — GPA: 8.98/10

RESEARCH EXPERIENCE

MPS-Lab | *Masters Student Researcher* — Jan 2023 - Present

- Submitted a paper to **Design and Automation Conference, 2024** titled **QPMeL (Quantum polar Metric Learning)**.
- Researching a new approach to Physics Informed Neural Networks (PINNs) used for system identification based on TinyML models for more lightweight and efficient models.
- Founded the Quantum-Machine Learning research vertical.
- Built a wavelet-convolution based solution for the **TinyML contest, ICCAD 2023**.

PUBLICATIONS

- Quantum Polar Metric Learning: Efficient Classically Learned Quantum Embeddings. 2023.,V. Sharma and A. Shrivastava. **[Pre-Publication]**

INDUSTRIAL EXPERIENCE

Product Engineer: Machine Learning | *Myelin Foundry,Bengaluru,India* — Aug 2021 - Jun 2022

- Overhauled inference pipeline for a multi-model orchestration system comprising of **face detection, recognition & Driver management** models resulting in **a 70% increase in the number of running concurrent models**.
- Optimized computer vision system utilizing Tensorflow with TensorRT acceleration on Nvidia Jetson platform, resulting in a **2x increase in inference speed** and **50% increase in defect detection rate** in real-time steel manufacturing.
- Reduced footprint of a *low-light image enhancement* model by 50% by adapting the **ZeroDCE++ architecture to run faster on a DSP** enabling deployment on embedded devices.
- Created a new architecture and training pipeline for a **joint denoise & super-resolution (SR) model** *reducing compression artifacts by 60% for Super Resolution* outputs on encoded video streams.
- Awarded the **Myelin Impact Award** as the *most impactful employee* for the company in the year 2021.

Samsung Research Institute, Bengaluru | *PRISM ML Research* — Nov 2019 - Aug 2020

- Developed an **LSTM based model which used Bezier Curves** to perform *online handwriting recognition* **50% faster** without any loss in accuracy.
- Collaborated with a team from Samsung to collect **over 1300 samples of Bengali handwriting** for a custom dataset for the Bengali Language.
- Awarded the title '**Excellent**' given only to the top 5% of teams

TEACHING EXPERIENCE

Graduate Teaching Assistant, Quantum Computation | *Arizona State University* — Aug 2023 - Dec-2023

- Graded assignments and managed office hours.

Graduate Teaching Assistant, CS Capstone I | *Arizona State University* — Aug 2022 - Dec-2022

- Helping final year undergraduate students with any issues they face in their *'Capstone Project'*

HONORS & ACCOLADES

- Google CS Research Mentorship Program, Mentee, Sep 2023
- SRM Annual Research Day, Gold Medal, Jan 2020

SKILLS

- **Programming Languages:** Python, C/C++, MATLAB, Java, JavaScript, HTML/CSS, Bash
- **Machine Learning Frameworks:** PyTorch, TensorFlow, Keras, Scikit-Learn, OpenCV, TF-Lite, Mediapipe
- **Quantum Computing Frameworks:** Qiskit, Cirq, PennyLane, TensorFlow Quantum