Ekta Gavas

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Professional Experience

Senior ML Engineer *Samsung R&D Institute, Bangalore, India* **Jul 2022 – Nov 2023**

- Collaborated with the **CTO team** to develop and optimize lightweight object detection models involving deep learning techniques like **transformers** and **diffusion models** for Samsung's **S23/S24 series**, improving performance by **15%**.
- Played a key role in rapid prototyping and implementing resource-efficient fine-grained classification models for Samsung's **AI Gallery** application, leading to a performance enhancement of **30%** within the **Visual Intelligence Team**.

Graduate Research Assistant *(Advisor: Dr. Anoop N.) CVIT, IIIT Hyderabad* **Dec 2019 – Dec 2023**

- Modeled **fingerprint enhancement** on synthetic and real images, boosting matching performance by **46%**. Pioneered a novel method for robust **representation learning** through self-supervised enhancement pre-training. *(Thesis Link)*
- Optimized and benchmarked indices in the **Faiss** library to achieve 9 queries per second, balancing time-accuracy trade-offs for efficient searching across a **large-scale dataset** of 45M vector samples and ensuring optimal performance through continuous resource monitoring.

Teaching Assistant *IHub-Data, IIIT Hyderabad, India* **Jun 2021 – Jul 2022**

- Collaborated with researchers and faculties to develop course content, conducted **45+ weekly labs**, enhancing learning outcomes for **290+ students** from pan India in the "Foundations of Modern Machine Learning-2021" program. *(Link)*

Associate Software Engineer *Jeavio (India) Pvt. Ltd.* **May 2018 – Jan 2019**

- Designed, developed, and tested **front-end modules** for high-traffic bookings portal in Angular 6, enhancing user experience. Engineered and integrated robust **RESTful APIs** in Node.js within an Agile framework, improving data interchange and client service operations.
- Tested **Python APIs** for advanced network solutions boosting network efficiency and reliability by **30%**.

Education

International Institute of Information Technology (IIIT) Hyderabad **Feb 2024**
Master of Science by Research, CSE (CGPA: 8.83/10.00) *Telangana, India*

The Maharaja Sayajirao University of Baroda **Apr 2018**
Bachelor of Engineering, CSE (GPA: 3.99/4.00) *Gujarat, India*

Publications

- Gavas, E., Olpadkar, K., & Namboodiri, A. "Enhancement-Driven Pretraining for Robust Fingerprint Representation Learning", VISAPP 2024: Introduced a self-supervised pre-training strategy for fingerprint representation learning on noisy datasets, boosting matching performance. *(Link)*
- Gavas, E. and Namboodiri, A."Finger-UNet: A U-Net Based Multi-Task Architecture for Deep Fingerprint Enhancement", VISIGRAPP 2023: Enhanced low-quality fingerprint images using a modified U-Net with wavelet attention and multi-task learning, incorporating domain knowledge for improved recognition performance. *(Link)*
- Olpadkar, K., & Gavas, E. "Center Loss Regularization for Continual Learning", arXiv 2021: Proposed an efficient center loss regularization method for continual learning to mitigate catastrophic forgetting in neural networks, with minimal computational overhead. *(Link)*
- Gavas, E., & Olpadkar, K. "Deep CNNs for peripheral blood cell classification", arXiv 2021: Achieved 99.51% accuracy in classifying peripheral blood cells using fine-tuned deep CNN models, helpful in hematologic disorder detection. *(Link)*

Skills

Languages & Tools: Python, PyTorch, Sklearn, C, C++, TensorFlow, MLFlow, Java, Git, Docker, Slurm, SQL, GCP

Relevant Coursework: Computer Vision, Statistical Methods in AI, Deep Learning, Digital Image Processing, Software Engineering, Data Structures & Algorithms, Object Oriented Programming, Linear Algebra, Databases, Math & Statistics

Soft skills: Effective communicator and team player adept at delivering high-quality projects in cross-functional teams. Skilled problem-solver able to adapt to dynamic environments, drive positive outcomes and pay attention to detail.