Saharsh Sandeep Barve

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Education

- **University of Illinois Urbana-Champagin** — Urbana-Champaign, Illinois
  MS in Computer Science; ***GPA: 3.94/4*** — *Aug'23 - May'25*
  Relevant Coursework: *Computer Vision, Cloud Computing, Applied Machine Learning, ML Algos for LLMs, 3D Vision, Adv. Data Management, Web Programming, Software Engineering*

- **Manipal Institute of Technology** — Manipal, India
  B.Tech in Computer Science and Engineering; ***GPA: 9.25/10*** — *Jul'18 - May'22*
  Relevant Coursework: *Operating Systems, Parallel Programming, Computer Networks, Database Systems, Data Structure and Algorithms*

Skills Summary

- **Languages** Python, C/C++, Javascript
- **ML** PyTorch, Tensorflow, CUDA, MLflow, TensorBoard
- **Vision** OpenCV, Image Processing, Object Detection, 3D vision
- **DevOps** Docker, Kubernetes, AWS (S3, ECS, Lambda, CloudFormation)
- **Database** SQL - Amazon RDS, MySQL; NoSQL - DynamoDB, MongoDB
- **Full-stack** React, TypeScript, REST, Node.js

Experience

- **Dragonfruit AI** — Menlo Park, CA
  Software Engineer (Intern) — *May'24 - Aug'24*
  - **Data Curation**: Developed a multi-threaded deduplication process for Qdrant vectors, reducing redundancy by 10%.
  - **Performance Optimization**: Enhanced scalability and throughput by 20% in multi-threaded applications processing millions of data points.
  - **Cross-Functional Collaboration**: Worked with product and ops teams to improve the self-checkout system and streamline multi-API synchronization based on customer feedback.

- **Onward Assist** — Bengaluru, India
  Machine Learning Scientist (Full-time) — *Jul'22 - Jul'23*
  - **Nottingham Grading Tool**: Led the development of machine learning models such as Nottingham Scoring algorithm boosting breast cancer diagnosis accuracy by 30% compared to our previous baseline.
  - **Deployment**: Integrated ML models into the web platform, utilized AWS and Kubernetes for scalable deployment, and optimized data workflows with MLflow and Apache Parquet.
  - **HuBMap + HPA**: Led team to top 8% in HuBMap + HPA Kaggle competition, showcasing expertise in large-scale biomedical data analysis.

Projects

- **3D Vision - Scene Reconstruction**: Conducted a study on 3D scene reconstruction concepts like Structure from Motion (SfM), Multi-View Stereo (MVS), and Neural Radiance Fields (NeRF). Explored Neural Kernel Surface Reconstruction (NKSR) to refine NeRF results, tackling noise sensitivity. (Jan'24 - May'24)
- **Graduate Researcher - UIUC (Virtual Reality, Computer Vision)**: Worked on a medical instrument tracking system for HoloLens2, offering medical professionals real-time mixed reality guidance. (Aug'23 - Dec'23)
- **Visual Odometry (Autonomous Vehicle)**: Evaluated classical stereo vision and deep learning-based methods for visual odometry on KITTI dataset, analyzing their efficacy in calculating depth maps and tracking motion. [Link] (Aug'23 - Dec'23)
- **SafeZoneUofI (Web App)**: Developed a dedicated platform for sharing and reporting of crime information and fostering a safer environment around UIUC campus area. [Link] (Aug'23 - Dec'23)

Publications

- **Paper**: Reef-Insight: A Framework for Reef Habitat Mapping with Clustering Methods Using Remote Sensing. Information 2023, 14, 373. [Link]
- **arXiv**: Switched auxiliary loss for robust training of transformer models for histopathological image segmentation. [Link]

Leadership

- **Head of Finance - IAESTE India LC Manipal** — Manipal, India
  Led a 40-member team, handling the financial responsibilities of the organization. — *2020 - 2021*

Miscellaneous

- Teaching Assistant for the courses UIUC CS444: Deep Learning for Computer Vision, Spring '24, and Applied Machine Learning, Fall '24.
- Recipient of J N Tata Endowment Scholarship, demonstrating commitment to academic excellence and future impact.
- Volunteered at an NGO 'Sehar ek Nayi Udaan' - Teaching and volunteer work with children having differing abilities.
- Mentored interns and managed the Internship Training Program at Onward Assist for the January 2023 cohort.