Ronak Chhatbar

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Education

- **University at Buffalo, The State University of New York** — Buffalo, NY
  Masters in Computer Science — *Aug 2022 - Jan 2024*
  Courses: Operating Systems, Analysis Of Algorithms, Bio-metrics Image Analysis, Machine Learning, Reinforcement learning.
- **Jawaharlal Nehru Technological University Hyderabad** — Hyderabad, India
  Bachelor of Computer Science; GPA: 3.6 — *Aug 2015 - May 2019*
  Courses: C, C++, Machine Learning, Cloud Computing, DSA, Computer Networks, Probability and Statistics, Mathematics (I, II, and III), and compiler design.

Experience

- **Spatial AI & Robotics Lab** — Buffalo, NY
  Graduate Research Assistant - Prof. Chen Wang — *May 2023 - Current*
  - Collaborated with Dr.Chen Wang to enhance the inference performance of learning-based visual odometry models, contributing to advancements in AI research at the SAIR Lab.
  - Built Deepstream plugins and Tensorrt Plugins for Optical Flow estimation improve inference performance by 33%.
  - Developed backend of robotranking.com website, similar to csranking.org.
- **Tensorgo Technologies** — Hyderabad, India
  Computer Vision Engineer — *Sep 2020 - August 2022*
  - Led a team of engineers in developing and scaling computer vision applications using Python/C++ scripting, and managed a model zoo for product development, indicating robust technical skills and leadership ability.
  - Boosted deployment efficiency and reduced cloud billing costs by 15% through integration of tensorrt inference engine with Docker and cloud deployment, demonstrating an emphasis on cost-effectiveness and efficient implementation of AI solutions.
  - Streamlined development processes by designing real-time audio-transcription and video inference pipelines, led to significant reductions in development time, increased GPU utilization, and cut manual intervention by 40%, showcasing an ability to innovate and design scalable solutions.
- **Wavelabs.ai** — Hyderabad, India
  Machine learning Engineer — *May 2019 - Aug 2020*
  - Devised object detection models using deep learning systems for identifying threats, were swiftly deployed on Jetson-Nano and NX, ensuring threat alerts were aired on mobile apps within two seconds.
  - Built, tested, and modified over three architecture prototypes for Swift mobile alerts and led cross-functional teams (including front-end and mobile development) to construct streaming pipelines and deploy models in a microservices architecture.
  - Developed a forecasting and simulation engine for a BFS remittance domain, enabling data-driven strategic initiatives such as dynamic pricing and promotions, thus supporting business's strategic decision-making process.
- **Wavelabs.ai** — Hyderabad, India
  Computer Vision Research Intern — *Nov 2018 - April 2019*
  - Advanced in development of a real-time facial detection and recognition system at Wavelabs.ai, using Resnet50, OpenCV, and Keras.
  - Assisted in gathering and labeling 3000+ images for training neural-net models, explored various optimization techniques and architectures, leading to improved object detection, classification, and segmentation outcomes.

Academic Projects

University at Buffalo, The State University of New York, January 2024

- Constructed and optimized an OpenCV and CUDA-based stereo CSI Camera library for Nvidia Jetson Xavier. Features included disparity map tuning, adaptive image resizing, and noise reduction, improving system performance.
- Developed and tested various reinforcement learning methods, including dynamic programming, Temporal-Difference, DQN, double DQN, A2C, A3C, and multiagent RL leveraging PyTorch across multiple environments as part of course projects.
- Enhanced the Pintos OS kernel by implementing priority donation, multilevel feedback queue scheduling, and virtual memory management.
- Created an algorithm for generating embeddings from 3D-face point cloud data for person identification, utilizing pointnet++'s PyTorch implementation.

Skills Summary

- **Languages**: Python, C++, C, Bash, Golang, Rust, SQL
- **Tools**: Kubernetes, Docker, GIT, JIRA, Apache Kafka, Postman, Agile, Tableau, Apache Spark, and PySpark, Postgres,Django, Serverless.
- **Deep learning**: PyTorch, Tensorflow, ONNX, Flask, Django, Tensorrt, Triton inference server, Deepstream, CUDA, OpenCV, LLM's, Langchain, ONNX, OpenCV.
- **Cloud platforms**: Amazon Web Services (AWS), Google Cloud Platform (GCP), and Azure.