Priyanshu Arora

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Education

University of California, San Diego *Sep 2022 – May 2024*

Master of Science in Computer Science, Specialist in Artificial Intelligence

- Triton Robotics Computer Vision Team.
- Graduate Courses: *Intro to Robotics, Deep Learning for 3D Data, Mathematics for Robotics.*

University of Toronto (GPA: 3.8) *Sep 2018 – May 2022*

Bachelor of Science in Computer Science, Specialist in Artificial Intelligence

- Graduate Courses: *Image Understanding, Computer Vision, Probabilistic Learning and Reasoning, Neural Networks and Deep Learning, Knowledge Representation and Reasoning.*
- Leadership: Undergraduate Research Team Leader, Technology Leadership Initiative (TLI) mentor, Residence Student Council (Social Convener), Scotiabank Social Committee.
- Intramural Sports: Men's flag football captain, Coed basketball captain, Coed Dodgeball Captain, Spikeball Captain.

Skills

Languages: Python, SQL, Java, C, C++, Bash, JavaScript, HTML.

Frameworks and Libraries: PyTorch, OpenCV, NumPy, Pandas, TensorFlow, ROS, Django, FastAPI, Spring Boot REST API, ReactJS.

Technologies: PostgreSQL, Tableau, Matplotlib, Microsoft PowerBI, Apache Airflow.

Research and Projects

University of California, San Diego *Sep 2022 – Dec 2022*

Robotics Project

- Developing a quad-wheel robot utilizing purely visual observations on the Qualcomm RB5 Platform.
- Implemented a Kalman filter based SLAM system to localize and map environment through visual feedback.

University of Toronto *Sep 2021 – May 2022*

Computer Vision and Deep Learning Researcher

- Lead a research team of 5 students under the supervision of Professor Steve Mann and in collaboration with the Canadian Sheep Federation. Developed an AI tool in Python to detect sheep faces, localize facial landmarks, and assess welfare in real time through video surveillance.
- Analyzed research papers and implemented the latest methods on face alignment using PyTorch and OpenCV. Methods included direct regression with CNN, heatmap regression with CNN, Cascaded CNN, and extension of ResNet.
- Collaborated with stakeholders to device a rule-based approach to assessing animal welfare based on facial landmarks.

University of Toronto *Sep 2021 – May 2022*

Computer Vision and Deep Learning Researcher

- Modified a popular Deep CNN Cascade design for Facial key point detection by merging the independent networks into one network that performs direct regression.
- Implemented and analyzed both the CNN cascade and the merged direct regression design on human faces using PyTorch and OpenCV.
- Demonstrated that the direct regression method outperformed the Cascade structure.
- **Click Here** for the paper.

Experience

Scotiabank *May 2021 – Aug 2021*

Data Science Intern

- Assisted the Data and Analytics lab in developing and maintaining a platform that provides insights to the Sales and Trading and Investment Banking sectors.
- Analyzed and compared the performance of a new ML model to the current model using python and SQL. The analysis, presented in Tableau, showed poor performance from the new model resulting in keeping the status quo model, which prevented a 30% increase in daily runtime.
- Developed a new data pipeline in python and Apache Airflow to retrieve interaction details among Scotiabank clients to train models. The new pipeline, which ran on weekends, corrected inaccurate data that was acquired during the week.
- Optimized SQL queries in the weekday data pipeline to save 20 minutes of runtime daily.

Scotiabank *May 2020 – Aug 2020*

Software Engineer Intern

- Worked as a backend developer in the Real Time Payments Lab, a high priority Agile lab responsible for the development of real-time, Interac Payments functionality on ScotiaConnect (Digital corporate banking platform).
- Designed and developed several services in the backend pipeline using Java with Spring Boot. These services allowed for reporting fraudulent activity, retrieving payment details, retrieving payment scores and more.