Progga Paromita Dutta

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EDUCATION

Stony Brook University Stony Brook, NY
Bachelor of Science with Honors: Computer Science | Applied Mathematics and Statistics December 2024
GPA: 3.71, Dean's list, 2022 (Spring, Fall) -2024 (Spring)
Related Coursework: Software Development, Analysis of Algorithm, Machine learning, Fundamentals of Computer Vision, System Fundamentals, Programming Abstractions, Data Analysis, Data Structures, Object-Oriented Programming

SKILLS

- **Programming:** Python (Numpy, Pandas, OpenCv, TensorFlow, Pytorch), HTML/CSS, JavaScript, Java, C
- **Database Technologies:** MongoDB, SQL
- **Front-End Development:** React
- **Back-End Development**: Node.js
- **Software & Tools:** Git, GitHub, Google Workspace, Bitbucket, Microsoft Office, Eclipse, Visual Studio, LaTex
- **Statistical Analysis:** R**,** SAS

WORK EXPERIENCE

Evolv Technology Waltham, MA
Computer Vision Engineer Intern, Advanced Threat Detection (ATD) Team *June 2024- August 2024*

- Developed and integrated a robust algorithm into Evolv's weapon detection system, significantly enhancing its performance and reliability.
- Collaborated with the ATD team to refine algorithms and implemented a custom tracker, boosting the accuracy of object detection by maintaining consistent object identities across frames. (add number)
- Created and optimized a script to process millions of images, building a database to support the development of a custom object detector, reducing processing time from 3 weeks to 32 minutes using profiling techniques.

Computer Science Department, Stony Brook University Stony Brook, NY
Undergraduate Research Assistant, Computer Vision Lab *May 2023 – Present*

- Collaborates with a team on a human gaze prediction project using multi-camera setups; contribute to data collection, precise annotation, and enhancement of machine learning model accuracy.
- Engages in team meetings and discussions, sharing progress and ideas, and providing feedback, with a strong focus on detail, accuracy, and adherence to research protocols.

PROJECTS

- **Communication Board Development - Full Face Appearance Based Eye Gaze Estimation|Python, MediaPipe**
  Conducting research to develop a communication board for cerebral palsy people using facial feature extraction for eye gaze estimation, implementing advanced machine learning models for real-time interaction.
- **Custom Object Tracker Development - Con-Op Compliance Verification | Python, RT-DETR**
  Implemented a custom object tracker integrated with RT-DETR to detect and track laptops and persons in real-time, developing an algorithm to assess Con-Op compliance by monitoring relationships between detected objects while detection accuracy and reliability.
- **The Hospital Project - Process Management Tool | React, MongoDB, Node.js, Express**
  Developed a tool to enhance departmental efficiency by managing accounts, resources, equipment, procedures, and staff assignments, enabling dynamic decision-making and caregiver notifications.
- **Fake Stack Overflow Application | React, MongoDB, Node.js, Express, bcrypt**
  Engineered a Stack Overflow-inspired app using React, Node.js/Express, and MongoDB, implementing secure authentication with bcrypt and translating user stories into a responsive UI and efficient server-side routing.
- **Homography Estimation and image Warping| Python, OpenCv**
  Implemented advanced computer vision techniques for image alignment and stitching producing a seamless image mosaic that simulates panoramic photography using feature matching algorithms and Random Sample Consensus (RANSAC) for robust homography estimation.
- **Neural Network Framework| Python, Numpy**
  Developed a versatile neural network framework, enabling model training for classification and regression with dynamic architectures activation functions, and optimized loss computations.