Zain Parihar

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Education

Queen's University Kingston, ON
Honour's Bachelor of Computing, Specialization in A.I, Minor in Statistics. | GPA: 3.9 *Sep. 2022 – Apr. 2026*

Experience

AI Researcher Fall 2023 - Present
Division of AI Research, QMind *Kingston, ON*
- Currently conducting research, data analysis, and model implementation using the Microsoft COCO dataset to compare transformers and convolutional recurrent neural networks for image-to-text caption generation.
- Aiming to improve automatic alt text generation, with the goal of benefiting visually impaired users and enhancing content moderation on social media platforms.
- Qmind is a student-run AI Design Team at Queen's University.

Perception Development Researcher Fall 2023 - Present
Queen's AutoDrive *Kingston, ON*
- Working on the Perception Development Team to design advanced computer vision algorithms, enhancing the vehicle's visual awareness capabilities.
- Currently researching and implementing cutting-edge machine-learning algorithms for the vehicle's detection and classification systems. This includes Traffic Lights, Street Signs, and Roads/Lanes.
- Autodrive is a challenge sponsored by SAE & GM, where students are developing a Level 4 Autonomous Car by 2025.

Discrete Math Teaching Assistant Fall 2023
Queen's University, School of Computing *Kingston, ON*
- Teaching Assistant for CISC 102 - Discrete Math. Subjects of study include: Proof Methods, Group Theory, Number Theory, Sets, functions, sequences, and relations. Equivalence relations. Linear and partial orderings.

Jr. Full-Stack Developer Summer 2023
Scotiabank *Toronto, ON*
- Developed a consent enforcement system, enabling secure third-party access to customer account information.
- Implemented enterprise Java solutions using the Spring Framework, ensuring robustness and scalability.
- Conducted API testing and development with Postman, ensuring seamless integration and functionality.
- Implemented secure authentication mechanisms using JWts and Opaque Tokens, safeguarding sensitive account information.

Electrical Design Team Winter 2023 - Present
Queen's Hyperloop *Kingston, ON*
- Currently developing electronic systems for power and controls onboard an autonomous tunnel boring machine.
- Systems include both custom-built solutions and embedded systems, and off-the-shelf micro-controllers.
- Competed in the Canadian Hyperloop Conference and the European Hyperloop Conference.

Automation Research Intern Summer 2021
Queen's University *Kingston, ON*
- Researched and collected market data to identify common parameters for dependency bots on GitHub.
- Developed strategies to determine dependency settings for new developers using python and the GitHub API.

Projects

Toyota Innovation Challenge: *University of Waterloo Engineering* Summer 2023
- Developed an image classification project using Python, OpenCV, and deep learning techniques.
- Utilized image processing, label encoding, and dense neural network architectures using Tensorflow.

Coursework

Computer Science: Digital Logic, Neural Networks, Decision Trees, Data Visualization, Decision Making & Reasoning in Computers, Cognitive Architectures, Data Structures & Algorithms, Computer Architecture, Instruction-Set Architectures, Software Specifications, Propositional & Predicate Logic, Assembly
Math: Linear Algebra, Calculus & Differential Equations, Discrete Math, Combinatorics, Vector Calculus
Stats: Data Science with R, Linear Data Analysis, Linear Regression, Statistical Inference, Probability
Languages: English, French, Spanish.

Skills

Java, Python, Javascript, C/C++ for Arduino, Git, GitHub, Anaconda, Electronics & Circuit Design, Tensorflow, OpenCV, Keras, Joblib, Pandas, NumPy, Machine & Deep Learning, Image & Data processing, SKLearn, PyTorch.