Zain Parihar

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Education

Queen's University   September 2022 - April 2026

Honour's Bachelor of Computing, Minor in Statistics   *Kingston, ON*

- GPA: 4.05, Dean's Honour List, Principle's Scholarship
- Recipient of the Queen's Undergraduate Summer Student Research Award & High School Research Award
- Teaching Assistant for Computer Architecture and Discrete Mathematics
- Coursework: Computer Architecture, Computer Networks, Machine Learning, Digital Logic, Data Structures and Algorithms

Skills

Machine Learning: TensorFlow, PyTorch, Federated Learning, Natural Language Processing, Computer Vision
Programming Languages and Frameworks: R, Python, Matlab, Java, C, C++, JavaScript, PyTorch, Keras, TensorFlow, Pandas, NumPy
Software Development: Kubernetes, SDLC, Agile, Scrum, Unit Testing, MySQL, REST, Postman, CI/CD, Jira, Confluence, BitBucket

Experience

Federated Learning and Optimization Researcher   May 2024 - Present

Queen's University   *Kingston, ON*

- Developed a Federated Learning method that incorporates a trustworthiness metric to quantify the quality of training data
- Implemented SINR (Signal to Interference plus Noise Ratio) based client selection for aggressive initial training
- Benchmarked the algorithm against standard schemes, improving accuracy and shortening the fine-tuning phase
- Currently researching quantization algorithms to optimize data transmission for FL frameworks in hostile environments

Full-Stack Developer Co-op   May 2023 - August 2023

Scotiabank   *Toronto, ON*

- Engineered a consent enforcement system, increasing efficiency by reducing account information access times
- Deployed enterprise solutions using the Spring Framework with Java, improving system scalability and user access times
- Implemented secure authentication mechanisms using JWTs and Opaque Tokens, safeguarding sensitive account information
- Collaborated on software development projects using Python, JavaScript, Spring, and RESTful APIs

Data Organization Intern   June 2022 - September 2022

Sprackman Terrence LLP   *Toronto, ON*

- Led a company-wide transition to a paperless workspace and file system, reducing time for data entry and access by 80%
- Developed an efficient and streamlined archiving system for permanent clients and files using SQL and Excel
- Automated routine tasks with Python scripts, enhancing productivity and inter-department communications

Automation Research Intern   June 2021 - September 2021

Queen's University   *Kingston, ON*

- Researched and collected market data to identify common parameters for dependency bots on GitHub
- Defined strategies to determine dependency settings for new developers using Python and the GitHub API
- Contributed to the development of automation tools to streamline software maintenance processes

Projects

Computer Vision Project Manager   September 2023 - Present

Division of AI Research, QMind   *Kingston, ON*

- PM within the Computer Vision Node, leading a team of 5 undergraduate researchers to CV Models with TensorFlow and PyTorch
- Published an AI research paper to compare and improve automatic image to text generation, trained on Microsoft COCO
- Presented our research findings at the Canadian Undergraduate Conference on Artificial Intelligence

Perception Development Researcher   September 2023 - Present

Queen's AutoDrive   *Kingston, ON*

- Designed traffic light detection algorithms onboard a self-driving car, resulting in a 50% improvement in accuracy
- Developed and tested computer vision algorithms using OpenCV and Python
- Placed third overall at the 2024 AutoDrive Challenge in Ann Arbor, Michigan