DHRUVI PATEL

Toronto, Ontario, Canada | +1 (647) 648-1077 | patell.dhruvii24@gmail.com | [LinkedIn](#) | [Github](#) | [Website](#)

EDUCATION

Toronto Metropolitan University (formerly Ryerson University) Toronto, ON, Canada
Bachelor of Engineering, Computer Engineering Co-op (Software Specialization) Sep 2019 – Jun 2024
Cumulative GPA: 3.54/4.33 (A-); **Dean's List** 2023-2024, 2021-2022, 2019-2020 *Graduated with Distinction*
Relevant Coursework: Data Structures, Algorithms, Object Oriented Programming, Operating Systems, Distributed Cloud Computing, Databases, Artificial Intelligence, Software Testing & QA, Network Security, Software Project Management
Awards: Metropolitan Engineering Competition: Consulting 2nd Place 2022, Leaders' League Student Leadership Program 2021

WORK EXPERIENCE

AMD (Advanced Micro Devices, Inc.) Markham, ON, Canada
Software Engineering Co-op (Computing Platform, Machine Learning) – Advanced Tech. Group Aug 2022 – Aug 2023
- Developed Python scripts to automate the detection of Face and Object Region of Interests (ROI) on the AMDCamera Application, leading to a **30%** improvement in operational efficiency and test release cycle acceleration
- Tested **50+** Image Signal Processors (ISPs) using Windows Camera and the AMDCamera across multiple product stages and various Windows OS/BIOS and Camera Driver configurations, ensuring consistent quality and performance across all stages
- Enhanced testing procedures by researching and documenting new camera features, updating over **100** test cases, and creating **60+** new test cases, resulting in a **25%** improvement in test coverage
- Conducted **500+** quality assessments (functionality, regression, user experience, performance, etc.), utilizing Software Development Life Cycle (SDLC) principles, High-Level Design documents, and Jira for defect tracking
- Collaborated with cross-functional teams of Hardware Engineers, Software Developers, Project Managers, and Quality Assurance Engineers in Agile environments to deliver integrated solutions and ensure timely high-quality software delivery

Citibank (Citigroup Inc.) Mississauga, ON, Canada
Software Development Analyst Intern – Capital Markets Operations Technology (CMOT) May 2022 – Aug 2022
- Designed and implemented an end-to-end CI/CD Jenkins pipeline for an open-source Currency Converter application, leveraging Docker containerization and AWS deployment to streamline deployment processes
- Increased code coverage by over **70%** through migration to JUnit5 and Mockito4, updating **100+** test cases across **20+** microservices, ensuring robust and reliable software
- Configured microservices to leverage OpenShift 4.X Clusters after Black Duck Scanning, resulting in a **50%+** reduction in security vulnerabilities and improved application resilience
- Leveraged tools such as Jira, BitBucket, TeamCity, and Docker/Kubernetes to ensure seamless integration and deployment of software, enhancing development efficiency and maintaining high standards of software quality

Toronto Metropolitan University (Dean's Office: Faculty of Engineering & Architectural Science) Toronto, ON, Canada
Engineering Outreach Ambassador Sep 2021 – Apr 2022
- Inspired **200+** youth (grades 1-12) to pursue Engineering, Computer Science, and related fields via **50+** STEM outreach workshops alongside presentations and creative build activities
- Designed and led workshops on C/C++, Arduino, and TinkerCAD for Regent Park's YEA! Program, Go ENG as part of the Ontario Network of Women in Engineering (ONWiE), FuturENG (WEMADEIT) events, etc.
- Promoted use of the Engineering Design Process, highlighting the societal impact of the diverse engineering disciplines

Toronto Metropolitan University (Dean's Office: Faculty of Engineering & Architectural Science) Toronto, ON, Canada
Engineering Outreach Camp Counsellor May 2021 – Aug 2021
- Engaged **70+** students in hands-on activities, including Scratch, Python, professional communication, and case studies
- Created and executed **20+** STEM workshops in collaboration with Danforth CI, TDSB Centre of Excellence for Black Student Achievement, POW WOW x Ryerson Aboriginal Student Services, Gannett Fleming, and Camp Eureka!
- Promoted diversity and inclusion in STEM fields by increasing minority involvement through targeted outreach and educational programs

PROJECTS

BiasAware: Engineering Capstone Project | **HTML5/CSS3, React, Node.js, Express.js, MongoDB**
- Collaborated in a 4-member team to develop an interactive web application using MongoDB, Node.js, and React, to display 11 social biases perpetuated by AI text-to-image generators, ex. Addictions, Crime, Education, Emotions, Quality of Life, etc.

- Drafted 3300+ neutral prompts and generated the corresponding AI images using NightCafe and Stable Diffusion, further performing statistical analysis to reveal biases under overarching themes like Age, Gender, and Race
- Utilized Hugging Face's model alongside Google Maps to collect 1600 images of Jane and Finch and Forest Hill houses and apartments to train own AI text-to-image generator model for the Neighbourhoods & Global Infrastructure Social Bias

Hospitallia: Hospital Management System | **HTML5/CSS3, jQuery, Bootstrap, Python, FastAPI, Uvicorn, MongoDB**
- In a 4-person team, implemented a full-stack web application using Python, FastAPI, and MongoDB for healthcare services
- Engineered a 3-in-1 hospital, patient, and room management system, including booking/rescheduling of appointments and surgeries, quarantine and surgery recovery, room utilization and departmental efficiency, etc.

Spring Boot Framework Application Testing Project | **Java, JUnit5, PIT Mutation, Selenium, TestNG, OpenClover**
- Worked in a 3-person team to test 60 methods of the Spring Boot Framework Application via JUnit testing, applying Input Space Partitioning, Graph-based (Control/Data Flow), Logic-based, and PIT Mutation Testing for comprehensive validation
- Developed a detailed test plan to strategize testing procedures, presenting findings in an oral presentation and written report

onTrack: Student Task Tracker Application | **HTML5/CSS3, React, Node.js, Express.js, Oracle**
- Led a 10-member team as Project Manager in Agile Development with SCRUM meetings, using Microsoft Azure to oversee backend and frontend development teams and creating documentation, ex. Gantt charts, timelines, status reports, etc.
- Developed a task tracking solution with a React frontend and Node.js/Express.js backend, with Oracle for task management
- Implemented deadline tracking, dynamic task editing, calendar/list views, and more to enhance personal productivity

MetMax Cinemas | **HTML5/CSS3, MySQL, Apache Tomcat, JSP/Servlets, JAXB/XML, Microservices, UML**
- Developed a Cineplex-simulating web application with N-layered architecture using Apache Tomcat, JSPs, Servlets, etc.
- Created a microservices-driven REST API backend with MySQL for synchronous communication and implemented secure authentication via key middleware like JSON Web Tokens (JWT) and JAXB/XML for optimized data exchange/management

The X Hotel | **HTML5/CSS3, PHP, SQL, Oracle, Shell Scripting, Normalization, ER Modeling**
- Developed Hotel Relational Database Management System for overnight stays, achieving 100% data redundancy elimination through Boyce-Codd Normal Form (BCNF) normalization and ER modeling, ensuring data consistency and accuracy
- Used Unix/Linux Shell Scripts to create a text-based menu system for query execution (create, populate, and display results)

P2P (Peer-to-Peer) Application | **C, Linux**
- Developed a Peer-to-Peer (P2P) application in a Linux environment via C Programming, using UDP for real-time communication between peers and an index server, and TCP for reliable content downloads
- Designed and implemented a Protocol Data Unit (PDU) format with eight function types including content registration and de-registration, search/download requests, content list, and error handling (ACK/ERR), etc., for efficient content exchange

Memory Hierarchy: Cache Controller | **VHDL, Xilinx ISE (Spartan-3E FPGA Board 32-Bit RISC Processor & DDR)**
- Developed a VHDL-based Cache Controller for Xilinx Spartan-3E FPGA, supporting cache hit and miss scenarios via integration of valid and dirty bits for optimized memory access and efficient data retrieval/storage and cache coherence
- Designed symbol and block diagrams, and finite state machines for functional validation using waveform analysis in Linux

General-Purpose Processor | **VHDL, Quartus II**
- Engineered a VHDL-based general-purpose processor with 3 Arithmetic Logic Units (ALUs), integrating Latches, 4-16 Decoders, and Moore/Finite State Machines (FSMs) to perform arithmetic, bitwise operations, and more
- Demonstrated functionality on an FPGA board, showcasing outputs via LEDs and seven-segment displays (SSEG)

EXTRACURRICULARS

Metropolitan Engineering Competition (MEC) 2021 Toronto, ON, Canada
Co-Chair | **Leadership, Initiative, Effective Communication, Teamwork, Project Management** Jul 2021 – Apr 2022
- Led a 2-day event for **300+** students after a comprehensive 5-month planning phase, having **8** design competitions (ex. Programming, Consulting, Debate, etc.) on the Indigenous Medicine Wheel for real-world solutions to promote awareness
- Managed a **$12,000** budget and oversaw **4** committees (IT/Logistics, Competitions, Communications, Sponsorship) of **65+** members, coordinating website development, sponsorship acquisition, and communications, ensuring seamless execution of the event, networking session, career fair, awards ceremony, and more

SKILLS

Languages: Python, C/C++, Java, JavaScript, MATLAB, HTML5/CSS3, PHP, SQL, VHDL, Verilog, Assembly, Shell Scripting
Developer Tools & Concepts: React, Node.js, Express.js, Apache Tomcat, MySQL, Oracle, Docker, Amazon Web Services, OpenShift, Git, Jenkins, Jira, Unified Modeling Language, Entity-Relationship Modeling, Software Requirements Analysis