Jaimin Patel

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EDUCATION

University of Toronto Sep 2020 – May 2025
Honours Bachelor of Science - Computer Science Specialist, Minor in Math
- **Courses:** Software Design, **Data Structures and Algorithms**, **Machine Learning**, **Software Tools and Systems Programming**, Operating Systems, **Relational Databases**, Robotics, Web Development
- **Certificates:** BigQuery for Machine Learning (Google), Introduction to LLM (Google)

TECHNICAL SKILLS

Languages: Python, JavaScript/TypeScript, C/C++, Java, CSS, HTML, SQL (Postgres), PHP, Bash
Libraries/Frameworks: PyTorch, Scikit-Learn, Matplotlib, Numpy, Pandas, TensorFlow, JUnit, React, NodeJS
Developer Tools: GitHub (Git), Docker, Linux, Visual Studio, VS Code, MS Azure, Eclipse, VMWare

EXPERIENCE

Teaching Assistant - CSC207 Software Design Sep – Dec 2024
University of Toronto *Mississauga, ON*
- Spearheaded grading assignments and labs using JUnit, **bash, and Python scripts** for **450+ students**.
- Delivered practical sessions introducing **version control** using **Git**, **object-oriented programming** in Java, **design patterns**, and **SOLID** principles to second-year students.
- Monitored the discussion board to answer over **800 student** queries with an average response time of 10 minutes.
- Hosted office hours to provide guidance on assignments, and assist students in overcoming technical challenges and improving their problem-solving and analytical thinking skills.

Research Assistant - Medical Robotics May – Aug 2024
University of Toronto - MEDCVR Lab *Mississauga, ON*
- Developed and optimized an **automated needle insertion algorithm** in C++ for the Franka Emika Panda Robot arm, deployed on **Docker container**, achieving an average error of **7mm** and greater than **90% accuracy**.
- Integrated **real-time communication** of robot poses and ultrasound data using **OpenIGTLink Python library**, **reducing system latency by 0.7 seconds** and significantly improving the feedback loop.

Programming Instructor June 2021 – Present
Ultimate Coders *Brampton, ON*
- Tutored **Python**, Web Development, and Scratch to students in grades 1 through 10 for **1000+ hours**.
- Adjusted the syllabus by incorporating real-life applicable projects to increase student engagement to **90%**.

PROJECTS

Image Inpainting - ML Capstone Project | *Python, PyTorch, SciPy, Pandas, CUDA* Apr 2025
- Conducted **knowledge distillation** on LaMa, a large mask inpainting model, reducing its parameter size from **50M to 18M** for improved computational efficiency while preserving the quality.
- Engineered the **UNet architecture** model and trained it on **20K images**, achieving satisfactory performance.
- Utilized **NVIDIA's CUDA Toolkit** to harness GPU power to accelerate the training process to just **12 hours**.

Wellthify - AI-powered Wellness App | *React, NodeJS, Flask (Python), SQLAlchemy, Gemini* Mar 2025
- Designed a React app for mental and physical wellness in **Canada's Largest AI Hackathon**, GenAI Genesis.
- Integrated **Google Gemini AI** and **Google Cloud Text-to-Speech** to generate personalized fitness routines, diet plans, and therapeutic conversations, based on data provided by the user.
- Implemented a fitness trainer with a 3D model that demonstrates the exercise and provides **real-time feedback**.

City Classifier - ML Model | *Python, Matplotlib, NumPy, Pandas, Scikit-Learn, GitHub* Apr 2024
- Trained Random Forest Classifier using **scikit-learn** and **optimized hyperparameters** using Grid Search to obtain **92% accuracy** on the validation set.
- Analyzed and documented the performance of **4 machine learning** models and deployed the **neural network** model for the hidden test data and achieved **84% accuracy**.
- Performed data preprocessing using **NumPy** to identify/remove anomalies and improve **performance by 10%**.