

Om Patel

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EDUCATION

McMaster University

Hamilton, ON

Bachelor of Applied Science in Honours Computer Science (Co-op), Minor in Statistics

09/2022 – 04/2026

- **Relevant Coursework:** Computer Systems and Architecture, Machine Learning, Automata and Computability, Databases and SQL, Probability and Statistics, Data Privacy
- **Awards:** Engineering Award of Excellence, Dean's Honour List

TECHNICAL SKILLS

Programming Languages: Python, C++, SQL, MATLAB, Golang, HTML/CSS, R, Java, Javascript, Bash

Frameworks: TensorFlow, PyTorch, Flask, Django, MediaPipe

Libraries & Tools: NumPy, Pandas, Scikit-learn, OpenCV, NLTK, Git, Docker, GraphQL, Matplotlib, Seaborn, SciPy

EXPERIENCE

Software Programming Instructor

07/2024 – Present

Ultimate Coders

Toronto, ON

- Implemented a comprehensive computer science curriculum in Python, Java, and C++, resulting in 90% student satisfaction.
- Facilitated coding workshops, improving student performance by 20% in both exam scores and coding abilities.
- Created interactive learning materials that elevated student engagement by 30% in key programming concepts.

Administrative Assistant

06/2021 – 01/2022

BAPS Charities

Toronto, ON

- Streamlined office workflows using project management tools, improving team efficiency by 20%.
- Coordinated 7+ technical meetings and prepared documentation for 5+ software projects.
- Managed databases and tracked project progress, ensuring 90% data accuracy.

PROJECTS

Exercise Pose Recognition System

Computer Vision & Pose Estimation Project

Python, TensorFlow, OpenCV, MediaPipe, Pandas, NumPy

- Developed a system for recognizing and analyzing exercise poses using MediaPipe for real-time pose detection.
- Built a data pipeline to extract and save key-point coordinates in CSV format for analysis and visualization.
- Integrated OpenCV to annotate videos with pose landmarks and angles, providing visual feedback for users.

Dimensionality Reduction – PCA

Data Analysis and Feature Extraction

Python, NumPy, Scikit-learn, Matplotlib, Pandas

- Applied PCA and SVD for dimensionality reduction on the LFW and Synthetic TNC datasets.
- Visualized face images and noisy circle data, extracting features and eigenvalues using PCA.
- Implemented PCA transformation and visualized reduced dimensions to assess data representation..

RC4 Encryption and Decryption Implementation

Cryptography and Systems Programming

C, Pointers, Memory Management

- Designed a robust RC4 encryption library with seamless integration for data security applications.
- Optimized dynamic memory allocation for high-performance processing of variable-length cryptographic keys.
- Developed comprehensive debugging utilities for precise validation of encryption and decryption workflows.

Algorithmic Maze Solver

Personal Project

C, Prim's Algorithm, DFS, SVG, libxml

- Designed and implemented a maze generator using Prim's algorithm.
- Developed a solver using DFS with backtracking for efficient solutions.
- Rendered mazes as scalable SVG images for clear visualization.