Harshank Pathak

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Education

University of Ottawa **Sep. 2022 – Present**
Masters of Engineering - Computer and Electrical Engineering - 3.78/4 GPA *Ottawa, Canada*

Gujarat Technical University **Feb. 2017 – June 2021**
Bachelor of Engineering - Information Technology - 3.62/4 GPA *Gujarat, India*

Technical Skills

Programming Languages: Python, C/C++
Web Technologies: HTML/CSS, XML, Tailwind, Bootstrap, ReactJS, NextJS, VueJS, NextJS, NodeJS, ExpressJS, Javascript, Typescript, jQuery, PostgreSQL, SQL, MongoDB, RESTful API, Nginx, CMS, SEO
Other Technologies/Frameworks: Agile Methodologies, SCRUM, JIRA, Confluence, CI/CD, Jenkins, Docker, Kubernetes, Git, GitHub, JMeter, AWS, OOPs, Machine Learning, Flask, IoT (Arduino), Cucumber, TDD, BDD, Automation Testing, Performance Testing, System Testing, Windows, Unix/Linux

Experience

Tata Consultancy Services (TCS) **Oct. 2021 – July 2022**
Front-end Developer (Assistant System Engineer) *Gandhinagar, India*

- Led team in migrating AngularJS front-end to ReactJS, resulting in a 350% improvement in load speed and 40% reduction in resource utilization. Optimized web app to load in 1.2 seconds, reducing data processing time by 92%.
- Developed and implemented an AWS Lambda function to automate the process of loading Retail promotion XML files, resulting in a 50% reduction in manual effort and a 25% increase in data accuracy.
- Worked closely with cross-functional teams to troubleshoot and resolve technical issues related to XML file loading, ensuring timely and accurate delivery of critical business data.
- Collaborated with team members to identify areas for improvement in the sprint release process, ultimately resulting in a 20% increase in on-time deliveries.

Red Raven Infoways **Sep. 2020 – Sep. 2021**
Web Developer Internship *Ahmedabad, India*

- Collaborated with senior developers to develop, and maintain e-commerce websites using the MERN architecture.
- Developed an inventory management system using MySQL and created RESTful APIs to communicate with it, streamlining the order processing workflow and reducing processing time by 30%.
- Gained hands-on experience with the development of CI/CD pipelines using Jenkins and Kubernetes Docker, improving deployment efficiency and reducing downtime by 50%.
- Increased website accessibility rate by 16% while ensuring compliance with the WCAG 2.1 AA guidelines. Reduced page load time by 24% through improving the CSS structure and creating code splits.

Projects

CNN vs RNN: Research Analysis of Deep Learning Models for Gender Identification *(Link)* **Mar. 2023**
| *Sklearn, NumPy, Matplotlib, Pandas, TensorFlow, Keras, OpenCV, Python, Google Colab*

- Developed and implemented multiple CNN and RNN models with varying layers and architectures using Python, Sklearn, TensorFlow and Keras.
- Preprocessed a dataset of cropped facial images by resizing and converting them to grayscale for training the model.
- Incorporated advanced features such as skip connections, batch normalization, and residual blocks to improve the performance of the CNN models.
- Trained a deep learning model using a sequential architecture with LSTM layers and a dense output layer with a sigmoid activation function.

Unix/Linux Scripting Projects | *Shell scripting, Python, Unix, Linux* **July 2021 - Aug. 2021**

- CPU frequency management script: Developed a comprehensive CPU power management script with various modes (e.g., game mode, battery mode, performance mode) for effective governance and frequency control. Integrated shortcut triggers for convenient and quick activation of desired CPU settings.
- Keyboard backlight control script: Developed a versatile script to dynamically adjust the keyboard backlight intensity, offering convenient control over the brightness levels.
- Website Email Crawler: Developed an efficient email crawler script to extract email addresses from websites, enabling streamlined data collection and analysis.

Real-time ASL Translator | *OpenCV, Numpy, TensorFlow, NLP, Vision Matplotlib, Flask* **Dec. 2020**

- Implemented real-time video processing using Flask, OpenCV to capture live video input, detect ASL gestures in each frame, and track hand movements.
- Curated and filtered a large dataset consisting of images of sign language for training the model.
- Utilizes TensorFlow, YOLO object detection framework, and LSTM algorithm to develop a real-time ASL translator, enabling accurate gesture detection and translation from ASL to text.

IoT Based Saline Level Monitoring System | *HTML/CSS, PHP, Arduino, RESTful API* **Feb. 2020**

- Designed and developed a Saline level monitoring system that can be used in Hospitals to monitor and alert users about the Saline bottle levels of patients, using Arduino-based IoT technology.
- Built a portable wireless Arduino-based IoT system that could detect Saline level in real-time, providing accurate and timely data for healthcare professionals.
- Implemented a RESTful API that sends data to a centralized server, directly from individual Arduino, enabling real-time monitoring and alerting, improving patient care and safety.
- Developed a website with a front-end in HTML/CSS and a back-end in PHP that could read and display the reading of the IoT hardware, allowing for easy visualization and analysis of patient data.

Competitive Coding Experience | *C++, Python* **Jan. 2019 – Present**

- Participated in online competitions: Google Kick-Start, CodeJam, Smart India Hackathon (Awarded for being in top 10 projects).

Certifications

Crash Course on Python (Link) *by Google* **Sep. 2020**

AWS Fundamentals: Going Cloud-Native (Link) *by AWS* **Sep. 2020**