Divesh Bakshani

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Education

University at Buffalo, SUNY — Buffalo, NY
Master's in Computer Science and Engineering – GPA 3.81/4 — *Aug. 2021 – Dec. 2022*

University of Pune — Pune, India
Bachelor of Engineering in Computer Engineering – GPA 8.74/10 — *Aug. 2017 – May 2021*

Experience

Undergraduate Research Assistant — June 2020 – May 2021
University of Pune — *Pune, India*

- Trained and developed a Machine Learning Model using an ensemble of 3 other models to detect image tampering and splicing.
- Developed a full-stack web application using Flask, mySQL and bootstrap templates to analyze the Machine Learning Model and predict results.
- Developed a custom administrator console to check past results and submissions for model prediction.
- Explored ways to visualize model data in various ways.
- **Published 2 Research papers** to the Institute of Electrical and Electronics Engineers (IEEE) conference on the topic: Machine Learning Classifiers in Image Splicing Detection using Thepade's Sorted Block Truncation Coding.

Projects

Student Database with REST API in SpringBoot | *Java, SpringBoot, MySQL* — November 2022 – –

- Developed a SpringBoot application using Spring MVC, JPA, and Hibernate to create a RESTful API.
- Exposed an HTTP endpoint with over 5 features and 3 Headers.
- Implemented all CRUD operations in REST API and tested them using Postman.

Portfolio Website - WIP | *NextJS, ReactJS, HTML, CSS* — May 2022 – December 2022

- Designed and developed a portfolio website using Next.js (ReactJS), to showcase my work and skills.
- Implemented responsive design with HTML and CSS to ensure the website has a standardizes look on all devices.
- Leveraged Next.js features for optimized performance and code splitting.

Reinforcement Learning: Deep Q Networks | *Python, PyTorch, Q-Learning* — Sept 2021 – Dec 2021

- Programmed, compared and presented various Deep Q Learning methods on OpenAI Gym Atari Pong Game.
- Implemented neural networks using OpenAI Gym by OpenAI, PyTorch, Google Colab and Jupyter Notebooks.
- Deployed the application on CCR Tesla GPUs to parallelize tensors allowing a significant improvement in training times from 2+ days to approximately 8 hours for each network.

Image Splicing Detection | *Python, Flask, scikitlearn, MySQL* — June 2020 – May 2021

- Developed a full-stack web application using with Flask serving a machine learning model to display predictions
- Implemented a MySQL database to log results and user input.
- Visualized predictions and model results as tables and graphs.
- Applied predictions and tests on 3 datasets consisting of 8000 images and over 5 models to improve upon results to achieve over 71% accuracy.

Blood Bank Application in Java | *Java, Servlets, MySQL* — January 2020 – May 2020

- Formulated a full stack Blood Bank application in Java operating with Servlets.
- Developed a MySQL server along with a full front end using HTML and CSS and implemented CRUD operations for managing database.
- Cut down need for operational human interaction to one.

Technical Skills

Languages: Python, Java, SQL, HTML/CSS, R, LaTex
Technical Skills: Jupyter Notebooks, Flask, Django, Machine Learning, Deep Learning, Reinforcement Learning, Linux Systems, UNIX, Bash, Shell, git, Docker, unittests in Python, JUnit Testing, Node.JS, ReactJS, Springboot .
Misc Skills: Experience in agile project management with tools such as JIRA, experience maintaining and working in Arch Linux repositories for 2 years, professional fluency in German studied for over 8 years.