SUBHADEEP JANA

(812) 916 3613 | Bloomington, IN | jsubhadeep1999@gmail.com | LinkedIn | GitHub | Portfolio

EDUCATION

Master of Science in Computer Science - Indiana University Bloomington — Aug 2022 - May 2024
Coursework: Software Engineering, Applied Algorithms, Applied Machine Learning, Time Series Analysis, Advanced Database Technologies, Elements of Artificial Intelligence **GPA: 3.87/4.0**

Bachelor of Technology in Computer Science - GCECT — Aug 2017 - Jul 2021
Coursework: Data Structures, Software Engineering, Operating System, Artificial Intelligence, Database Management Systems, Cryptography and Information Security **CGPA: 9.07/10.0**

SKILLS

Languages	Python, Java, C++, JavaScript, HTML, CSS, SQL, NoSQL, Bash
Frameworks	Flask, Bootstrap, ReactJS, Node.js, OpenCV, Keras, TensorFlow, scikit-learn, pytest, PyMongo
Databases	SQLite, MySQL, PostgreSQL, MongoDB
Tools	Git, Jira, VS Code, Jupyter Notebook, Eclipse, Postman, PowerBI, Tableau, Heroku CLI
Platforms	AWS (EC2, S3, Lambda), Windows, Linux

EXPERIENCE

Research Assistant — Feb 2024 - Present
Indiana University — *Bloomington*

- Designed a cognitive experiment on **JavaScript** and **jsPysch** to study *imminence* and *recency* perception in humans, aiming to establish a relation between the two. Hosted using **psiTurk** on **Amazon MTurk** for real-time data collection.
- Created custom **Flask APIs** to store and manage **1000+** trial results in a **MySQL** database, improving trial accuracies by **35%** by integrating balanced probe distribution, real-time accuracy feedback, and modified timeline parameters.

Software Engineer — Jan 2021 - Jun 2022
IXXO Lambda Vision — *France (Remote)*

- Built a **ReactJS** based dashboard capable of detecting **3** key physical features: body color, body shape, and door count of a car through **object localization** and **computer vision**, integrated with an API gateway using **Axios**.
- Engineered a **Flask** based backend to serve a **YOLOv3** object detection model as a **REST API** and deployed on **AWS EC2**. Conducted thorough unit and integration testing using **Pytest**, achieving an overall code coverage of **75%**.
- Designed an **AWS Lambda** pipeline on **Python** to automate feature extraction from 8000+ car images stored in an **AWS S3** bucket and ingest extracted feature values into a **PostgreSQL** database for model training.
- Trained the **YOLOv3** model on extracted features using the **Adam** optimizer from **Keras**, achieving a mean Average Precision (mAP) of **0.86**. Used **TensorBoard** to track model training and debugging in real-time.
- Improved color detection accuracy by **20%** leveraging ROI localization, pixel scaling, histogram equalization, color mapping, and color clustering techniques implemented from **OpenCV**, **scikit-image**, and **Pillow**.
- Facilitated seamless feature integration across the dashboard, achieving a **42%** reduction in deployment time by collaborating in a cross-functional **Agile** team of 7, leveraging Agile methodologies and effective team communication.

PROJECTS

Jotter - To Do App *PostgreSQL — Express.js — ReactJS — Node.js* — GitHub

- Constructed a **ReactJS**, **Express.js**, and **Node.js** based full-stack web application enabling users to create, update, and delete to-do lists for task management. Built an interactive progress bar component improving user engagement.
- Utilized a **PostgreSQL** database and increased data querying speeds by **17%** through indexing, query optimization, and caching mechanisms. Integrated database using **node-postgres** and monitored server-side rendering using **nodemon**.
- Implemented user authentication for login and sign-up by leveraging the **JSON Web Token (JWT)** encryption and enabled password security through **bcrypt** hashing.

PageTurner *ReactJS — TailwindCSS — MongoDB — Netlify* — Demo

- Led a team of 4 to build a social media platform with **ReactJS** and **TailwindCSS** for frontend, with **MongoDB** for backend, engineering key **CRUD** features to create posts, delete posts, comment on posts and search for other users.
- Integrated **Google OAuth** and **Firebase** for user authentication and signup, increasing average session duration by **50%**; which further boosted user experience by **20%**. Hosted the website using **Netlify** and **mongodb** package.
- Utilized **Python** and **ScraperAPI** to implement web scraping functionality, extracting 2000 images with metadata from Pinterest for database initialization.

Neural Style Transfer (NST) Web Application *Python — OpenCV — Flask — MongoDB* — Demo

- Created a **Flask** based web application for implementing **neural style transfer**, enabling users to blend uploaded images with 8 distinct artistic styles. Employed **Bootstrap** and **TailwindCSS** framework to stylize the frontend.
- Published the application on **Heroku** and connected a **MongoDB** database using **PyMongo** and **GridFS** to accelerate image storage and retrieval speeds by **25%**, generating faster outputs for end users and increasing retention.
- Leveraged **CNN**-based **deep learning** models, along with **OpenCV**, **scikit-learn** and **TensorFlow** for image processing.

CERTIFICATIONS & ACHIEVEMENTS

- **AWS** Solution Architect Associate (CAA-03) ‘
- **Awarded $1500** for creating a **Streamlit** dashboard in IU’s *CRNY* data visualization competition.