Kartik Soni

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EDUCATION

University of Massachusetts Amherst - BS. Computer Science with Honors AUG 2019 - MAY 2023

Computer Science Major | Recognised on Dean's List | Awarded for being in the top 20% in academics consistently

GPA 3.9/4.0

Relevant Courses: Artificial Intelligence | Machine Learning | Object Oriented Programming | Data Structures | Analysis of Algorithms | Computer Vision | Systems Programming | Operating Systems | Computer Networks | Automata Formal Lang & Logic | Search Engines | Computer Graphics | Problem Solving with C | Reasoning Under Uncertainty | Algorithms for Data Science | Digital Design & Computer Organisation | Microprocessor & Computer Architecture | Web Development | Software Engineering

PROGRAMMING SKILLS

Python | Java & JUnit | Spring MVC | Mockito | Neural Networks | Computer Vision (OpenCV, PyTorch) | NLP | Data Preprocessing | MongoDB | Express.js, React.js, Node.js | JavaScript | Typescript | Django, MySQL | REST APIs | Reddis | CI/CD Pipelines | NGINX | Design Patterns | Postman | Selenium | Jenkins | Component based architecture | Angular | HTML | CSS | C++| Multithreading | Git, Github, GitLab |

EXPERIENCE

Whova, San Diego(CA) - Software Engineer AUG 2023 - PRESENT

- Working as a Full Stack Engineer (2+ yoe), to maintain the Whova event management software that supports large-scale bookings.
- Appointed as an Engineering lead for end-to-end product shipment from designing to development to testing, with duties including coding POC, MVP, Epic estimation, quality testing, working with managers & stakeholders, and cross-team collaboration
- Enhanced UI of Event management web page using Angular framework, architecture design with MVVM & added features like routing, lazy loading, asynchronous event queues, & structured code with TypeScript, HTML, and CSS
- Brainstormed the best solution for the team by doing a framework comparison RestAPI POC in Python & RestAPI POC in Spring Boot, creating HLD and LLD of backend modules, and technical reports based on KPI (response time, scalability, resource utilization, reliability, maintainability)
- Spearheaded the development of the APM tool (Dynatrace APIs) in a GitLab job to analyze performance, availability, & reliability of apps, along with synthetic monitoring and RUM, to troubleshoot issues in large-scale apps
- Deployed apps on the Kubernetes platform & troubleshooting various parts of the apps, such as writing deployment, service & virtual manifest files
- Modernized legacy Java application into an optimized Spring Boot microservice & tested via JUnit. Documented RESTful APIs using Swagger
- Mentored interns and new hires through onboarding, project bootstrapping, and Agile practices; recognized as Employee of the Month for innovation and

University of Massachusetts, Amherst(MA) - ML Researcher (paper) FEB 2023 - MAY 2023

- Worked under Prof Jaime Davila as a Machine Learning researcher to develop CNNs to classify images for disease detection & prevention
- Designed and trained CNN models with varying architectures and kernel sizes on datasets of 4,000 to 13,000 images, iteratively improving model performance and addressing overfitting challenges.
- Implemented 4-fold cross-validation and optimized hyperparameters such as learning rate and network depth, resulting in enhanced model stability and generalization.
- Enhanced dataset quality and scale by sourcing diverse, well-distributed images and transitioning to the SGD optimizer, achieving a high F1 score of 91%

University of Massachusetts, Amherst(MA) - Teaching Assistant SEP 2022 -MAY 2023

- Supported students in systems-level programming, including concurrency and synchronization, pointers, dynamic memory allocation, control flow, etc.
- Designed interesting assignments, conducted labs, and office hours to assist students with debugging code.

ISO New England, Holyoke(MA) - Software Engineer Intern JUN 2022 - AUG 2022

- Modernized a legacy C++ application into an optimized Spring Boot Java microservice and conducted testing with JUnit.
- Participated in agile-style software development, used Postman to test APIs
- Built auth & role-based access, integrated SLF4J with Sentry for error logging, improved code quality with Lombok, SonarLint, JUnit & Mockito, scheduled emails via SendGrid (cron), and optimized API/DB calls using Redis caching

AWARDS & CERTIFICATES

- Awarded with **Cum laude Recognition** for academic excellence
- Awarded the **Bay State Scholarship** to pursue a master's in computer science at UMass Amherst
- Awarded **Employee of the Month** for delivering high-impact engineering solutions at Whova
- Awarded **Dean's List honors** for multiple semesters

PROJECTS

Smart Home System (project)

- Developed a smart home system using Raspberry Pi, using DTH11 sensor, relays.
- Built a Raspberry Pi-based temperature and humidity monitoring system using Python, storing sensor data in Supabase PostgreSQL and exposing it through a Node.js API.
- Deployed Node.js and Angular apps on Vercel to visualize room conditions and enable remote interaction with the system.
- Added DNS-level ad blocking using Pi-hole and implemented relay-based scheduled lighting control.

Scalable CI/CD Deployment with Kubernetes (project)

- Migrated CI/CD pipelines from static machines to Kubernetes on Google Kubernetes Engine, enabling scalable and flexible deployments.
- Managed cluster deployments using Helm and kubectl, ensuring reproducibility and environment-specific configuration.
- Worked with deployments, services, config maps, secret keys, roles, rolebindings, service accounts, pods, ingress, namespace, and persistent volumes.
- Doubled deployment throughput by increasing concurrent CI/CD job slots.
- Reduced cloud costs by 50%, lowering monthly expenditure from ~$600 to ~$300.
- Optimized sporadic workloads (8-16 hrs/week), maximizing resource efficiency while maintaining fast CI execution.

Personal Website (project):

- Designed and developed a responsive personal website using Angular and TypeScript.
- Implemented core Angular concepts, including components, templates, services, dependency injection, routing, lazy loading, and lifecycle hooks.
- Developed custom directives to enhance DOM behavior and custom pipes for reusable data transformation.
- Integrated Angular HttpClient with a custom HTTP interceptor service to handle request modification and centralized error handling.
- Implemented one-way and two-way data binding to synchronize UI and application state.
- Structured the application using a modular architecture to improve maintainability, scalability, and performance through lazy-loaded feature modules.

COVID Mask Detection (project):

- Designed a real-time mask detection application during COVID to support open-source initiatives and promote public safety.
- Trained a Convolutional Neural Network (CNN) on a manually labeled and augmented image dataset (using rotations, flips, brightness/contrast shifts, and zoom) to simulate real-world face variations.
- Used image processing & deep learning (TensorFlow and Keras) to produce 92% accurate results.

Robotics IOT Project (project):

- Made an autonomous wireless robot that can livestream video feed to YouTube
- Built a robot integrating computer vision (OpenCV), ultrasonic sensors, and motor control for real-time obstacle detection and avoidance; implemented autonomous decision-making for navigation using Python
- Enabled real-time video livestreaming to YouTube with H.264 encoding on a Raspberry Pi; used Shell scripting for task scheduling; configured wireless networking for remote data transmission and control.

Spam Filter (project):

- Developed a spam detection system using NLP and Naïve Bayes to filter unwanted SMS & emails.
- Addressed long-standing spam issues by implementing an AI-driven classification model
- Built an efficient solution to automatically detect and block advertisements in messages with an F1 score of 87%.