Himanshu Nimonkar

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Education

University of California Davis — Davis, CA
Master of Science in Computer Science, GPA: 4.00/4.00 — *Aug. 2024 – May 2026*

K. J. Somaiya College of Engineering — Mumbai, MH
Bachelor of Technology in Information Technology, Honors in AI, GPA: 3.81/4.00, 1500$ Scholarship — *Aug. 2020 – May 2024*

Experience

Graduate Research Assistant (Software Engineering Team) — January 2025 – Present
Dr. Dongyu Liu's Visualization and Intelligence Augmentation (VIA) Lab, UC Davis — *Davis, CA*

- Refactored Sintel/Orion's anomaly detection framework, implementing modular design and optimized data transformations, thus reducing computational overhead by 9%. Researched Context-Aware Prediction on time-series data and built pipeline software by integrating additional trained models, merging new compatible formatted datasets, and establishing performance benchmarks.

Graduate Research Assistant (Machine Learning Team) — February 2025 – Present
Wildlife, Fish and Biology Department, UC Davis & School of Renewable Natural Resources, LSU — *Davis, CA*

- Built CNN audio retraining pipeline processing 720+ hours of data, parsing RavenPro spectrograms and aligning .flac files via timestamp shifts, thereby improving gunshot detection by 8%. Set up reproducible Conda environment with GUI deployment.

Software Engineering Intern — June 2022 – June 2024
DeepCytes Cyber Labs (UK) — *Mumbai, MH*

- Engineered an Android security testing app with Kotlin to find permission issues in system functions like location (Google Maps API), camera, mic, SMS, media; reducing incidents by 42% in 5 firms, while leveraging Firebase for secure data management.
- Built real-time CVE/CWE data tracker with auto email alerts via user watchlists for network monitoring/encryption. Added host file tweaks boosting malware defense by 29%. Optimized deployments using GitHub Actions, AWS EC2, Nginx and Cloudflare.
- Built a CLI-based red-teaming automation toolkit to stress test apps and model threats which detected 37 unidentified attack vectors with Burp Suite, Reconnaissance, Maltego, Shodan, BeEF, Metasploit, Nessus, John the Ripper and Nmap to remediate vulnerabilities. Implemented CI/CD on AWS EC2 using Ansible playbooks and Jenkins, reducing deployment time by 8%.
- Architected DarkwebGPT, an threat intelligence tool using the DarkBERT API and Agile methods for dark web analysis.
- Built a LangChain based legal assistant with Hugging Face transformers for IPC queries, increasing engagement by 25% while implementing QA models and LLMs with a Gradio interface. Set up a Docker pipeline on AWS EC2 to deploy MySQL databases, for scaled data operations. Developed RESTful CRUD API based dashboards using postman, lifting user retention by 41%.
- Built test automation suite (UI, unit, integration) for DC website with Jest and Selenium, cutting bug detection time by 35%.
- Built an OSINT framework for cyber fraud analysis, improving case response time by 15% across UK, EU, and APAC regions.
- Optimized deepfake detection via hybrid ResNeXt CNN-LSTM architecture, improving accuracy by 9% for media forensics.

Machine Learning Research Intern — January 2022 – July 2023
Dr. Irfan Siddavatam and Prof. Ashwini Dalvi Lab, K.J. Somaiya College of Engineering — *Mumbai, MH*

- Published "A Transfer Learning Approach for Classification of Knee Osteoarthritis" (ICEEICT 2023, IEEE Xplore) achieving 82.5% accuracy and 97.62% precision with a transfer-learned DenseNet-201 CNN model trained on 5,748 X-ray images for early OA detection with AI. Awarded BEST PAPER in technical session CS 03. DOI: 10.1109/ICEEICT56924.2023.10157147
- Published "User Reception is Everything: Using a Neural Network to Predict iOS App Ratings" (ICDSA 2023, Springer LNNS), implementing ELECTRA transformer architecture on 97 multi genre apps' reviews, achieving 73% accuracy and 0.705 F1 score, with seaborn, sklearn, PyTorch, and NLTK for multi-class rating prediction. DOI: 10.1007/978-981-99-7820-5_34.
- Built air canvas framework for gesture-based character recognition, gaining 88.79% accuracy with TensorFlow and Mediapipe.

Projects

Vultra- Transitive Dependency Vulnerability Detector | *GraphQL, CI-CD, REST API, Bash Scripting* — March 2025

- Integrated GitHub's GraphQL API (GHSA) and NVD REST API to detect direct and transitive dependency vulnerabilities.
- Created GraphQL queries and mutations with Jest unit tests for live search, reducing production bugs by 5%.
- Engineered a modular framework with plug-and-play handlers (NpmParser/MvnParser tree traversal, regex CPE validation), having batched API queries with caching to reduce CI/CD workflow calls by 40%, while automating GitHub package manifest ingestion and vulnerability dashboards delivery with CWE/CVSS classifications. Project: github.com/ananya0996/vultra

ResAuc- Decentralized Auction System | *React, NodeJS, MongoDB, ExpressJS, REST API* — November 2024

- Developed ResAuc, a fullstack decentralized auction platform, using React, Node.js with Express.js, and MongoDB to support real-time bidding for 1000+ concurrent users, providing seamless integration in a distributed environment via RESTful APIs.
- Integrated ResilientDB with its immutable ledger for blockchain-based transparency. Included live bid tracking and secure auction finalization, reducing processing time by 40%. Blog: blog.resilientdb.com/2024/12/08/ResAuc.html
- Top project of ECS-265 (UC Davis), transferred to ResilientApp org (ExpoLab) for Apache incubation.

PassCon- Graphical Password Authentication | *asgiref, Django, sqlparse, tzdata, Javascript* — March 2022

- Architected PassCon, blockchain-based graphical password system with Django, JavaScript, Bootstrap and MySQL to prevent brute-force attacks and password theft. Integrated salted hashing, account lockout, and icon shuffling with icon-based password selection and custom image upload modes for added security. Demo: youtube.com/watch?v=BP32iRmkmN0
- Optimized server logging with Logstash, storing data in Elasticsearch for improved management.

Dynamic Website Connectivity Graph | *Python, Pandas, Javascript, Neo-4j, network-x* — November 2021

- Built Python web app visualizing 116,000+ crawled sites with interactive force graphs and inspection tools using Pandas, Bokeh, Neo4j, and Strawberry GraphQL. Applied data mining for cluster detection and dimensional modeling for efficient queries.
- Made ETL pipeline to extract metadata in enhanced data warehouse. Deployed on Digital Ocean VPS with Cloudflare Security.

Technical Skills

Languages: Python, SQL (PostgreSQL, MySQL), JavaScript, HTML/CSS, Bootstrap, NoSQL (MongoDB), Typescript, Tailwind
Frameworks: Flask, Auth0, Selenium, Chakra UI, Pandas, NumPy, Matplotlib, OpenCV, Beautifulsoup, Kubernetes, Agile, Scrum
Tools: GitHub, Docker, GCP, AWS, Azure, Jira, Jenkins, Power BI, Kali, Ubuntu, Elasticsearch, Snowflake, Salesforce, Wireshark
Coursework: Data Structures, Algorithms, Database, Software Engineering, Networks, Cloud, OS, Programming, DevOps, Security