Nikhil Bola Kamath

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Summary

As a Machine Learning Engineer with nearly two years of experience and the CTO of a startup, I possess a proven track record in crafting end-to-end machine learning pipelines and generating high-quality, maintainable code. My strength lies in effective collaboration, and I am dedicated to creating code that is both easily comprehensible and practical for my colleagues to leverage. Eager to embrace a new ML role, I am enthusiastic about my continued growth within this field.

Education

University of Southern California — Los Angeles, CA
Master of Science in Computer Science; ***GPA: 3.75/4.0*** — Aug 2022 - Present
Courses : Foundations of Artificial Intelligence, Machine Learning, Algorithms, Web Technologies

NMAM Institute of Technology — Nitte, India
Bachelor of Engineering in Computer Science and Engineering; ***GPA: 9.59/10*** — Aug 2016 - Aug 2020
Courses : Deep Learning, Data Structures & Algorithms, Business Intelligence, Data Analytics, RDBMS

Skills

Languages : Python, Dart, Java, C, C++, SQL, Javascript, Swift, HTML, CSS.
Frameworks & Tools : PyTorch, PyTorch Lightning, TensorFlow, Keras, JAX, Docker, Kubernetes, Git, Django, Flask, MongoDB, PostgreSQL, NodeJS, React, Flutter, GCP (Vertex AI and AI Platform), AWS, Azure (ML).

Experience

Robotics Embedded System Labs (USC) — Research Assistant — Oct 2022 - Present
- Designing and implementing deceptive target tracking algorithms to manipulate object behavior, compelling them into desired states while they respond to tracking robots and seek cover.
- Engaged in developing homogeneous multi-robot task assignment algorithms to achieve almost optimal allocation of robots for various tasks within the environment.

Insureka | Someshwara Software — Machine Learning Engineer — Dec 2020 - Jul 2022
- Integrated MLOps to design an OCR pipeline that captured data from Indonesian government IDs like STNKs, KTPs, and SIMs, encomapssing text detection, recognition, and entity association processes.
- Developed and hosted a web-based tool for annotating key points on vehicles, which helped solve the 2D to 3D mapping problem.
- Crafted a pose estimation model for vehicles utilizing the derived data (above), facilitating user-guided video capture (AR) of diverse parts of vehicle.
- Designed automated scripts and established CI/CD processes to enhance the efficiency of web app deployment. Utilized Docker containers on Kubernetes to implement microservices, leading to substantial time and effort savings for the team.
- Architected Restful APIs and analytical dashboards for VExhibit, an online exhibition and conference platform that hosted government events and academic conferences.
- Built a web application for the State Bank of India using Django, which increased their regional customer acquisition by 10%.

Bharat Electronics Limited — Student Intern — May 2019 - Jun 2019
- Built a web application using HTML, CSS and JavaScript that allowed devotees to conveniently manage religious events on campus. The application was backed by MongoDB supporting CRUD operations.

School of Information Science — Research Intern — Jun 2018 - Jul 2018
- Implemented an AI application with Support Vector Machines (SVM) in python to detect trigger words in user speech and perform speaker recognition to execute control commands for an Arduino-controlled prototype.

Projects

Self-Driving Car | *Published in the MDPI Sensors Journal* | *Video demo*
- Engineered a Level-3 autonomous vehicle within the Carla Simulator, incorporating image processing, motion planning, state estimation, and localization. Addressed tasks including but not limited to lane stability enforcement, execution of overtaking maneuvers, handling roadblocks, and navigating through jaywalking scenarios.
- Annotated a custom dataset for the visual perception stack, resulting in $\approx 5\%$ enhancement in IOU score and accuracy.
- Introduced a novel method to handle sensor failures and share inferred knowledge across various agents in the environment for efficient decision-making.

Image Cipher
- Devised and implemented an innovative data security application using image fusion technology, generating a distinct, uncrackable pattern for each session from trillions of potential combinations, effectively thwarting data breaches.

EMIO | *Patent under review*
- Created an efficient Flutter application that utilizes QR codes to swiftly retrieve data from non-relational databases and enable seamless online ordering with a single click, leading to an improved and streamlined user experience.