Hitesh Kotte *Data Science and Machine Learning Engineer*

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Summary

In Data Science and Machine Learning, my focus is on real-time recognition systems, including gym activity recognition using the YOLO model. I integrate deep learning with deployment strategies like Kubernetes and Kafka for scalable, real-time data processing. My expertise covers the full machine learning stack, with a strong emphasis on applying AI to real-world problems. Additionally, my work in autonomous vehicles and multi-sensor fusion showcases my commitment to advancing technology. My research contributions, particularly in computer vision and AI, have been published in several papers, driving innovations in fitness tracking and posture correction.

Education

10/2020 – 10/2024 Saarbrücken, Germany
Saarland University
Master of Science (M.Sc)
Specialization: Data Science and Artificial Intelligence (DSAI)

06/2016 – 06/2020 Bengaluru, India
CMR University
Bachelor of Science (B. Sc)
Specialization: Computer Science Engineering (CSE)

Projects

07/2024 – present
LLM Chatbot for Health and Fitness
Specialized chatbot using Large Language Models (LLMs) focused on the health and fitness industry.
- Developing a specialized chatbot using **L**arge Language Models (LLMs) for the health and fitness industry.
- Implementing NLP techniques for personalized user interactions and focusing on scalable architecture.

01/2023 – 06/2024
Augmented Intelligence in Tutoring Systems
A Case Study in Real-time Pose Tracking to Enhance the Self-Learning of Fitness Exercises.
- Implemented a YOLO model for real-time human pose detection in fitness exercises.
- Developed a scalable system for instant posture correction using computer vision and machine learning.

09/2023 – 04/2024
Master Thesis
Tracking & Feedback Engine for Personalized Fitness Training
- Created a real-time posture tracking system using YOLOv7 for fitness training.
- Optimized models for deployment and integrated AI into user-centric health applications.

01/2022 – 12/2022
Multi Sensor Fusion for Autonomous Vehicles
Sensor fusion approach to fuse sensors for an autonomous vehicles for safe and secure drive.
- Integrated 5G, IMU, and GPS sensors for real-time attack detection in autonomous vehicles.
- Developed GPS spoofing attacks and validated solutions using Google Maps API and LGSVL Simulator.

Publications

01/05/2024
FitSight: Tracking and Feedback Engine for Personalized Fitness Training
In Proceedings of the 32nd ACM Conference on User Modeling, Adaptation and Personalization (UMAP '24), July 1–4, 2024, Cagliari, Italy.

01/05/2024
IMPECT-POSE: A Complete Front-end and Back-end Architecture for Pose Tracking and Feedback
In Proceedings of the 32nd ACM Conference on User Modeling, Adaptation and Personalization (UMAP '24), July 1–4, 2024, Cagliari, Italy.

08/09/2023 **Real-Time Posture Correction in Gym Exercises: A Computer Vision-Based Approach for Performance Analysis, Error Classification, and Feedback**
MILeS 2023 - the Third International Workshop on Multimodal Immersive Learning Systems, part of the Eighteenth European Conference on Technology Enhanced Learning (EC-TEL 2023)

28/08/2023 **Augmented Intelligence in Tutoring Systems: A Case Study in Real-Time Pose Tracking to Enhance the Self-learning of Fitness Exercises**
Springer ECTEL-2023

Professional Experience

01/2023 – present
Berlin, Germany

Junior Researcher,
Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI)
Lead Engineer, FitSight: Personalized Recommendation Engine

- Led the development of a real-time gym activity recognition system using YOLOv7, focusing on Machine Learning (ML), AI, and Python programming for data analysis, ML, and back-end development, alongside HTML, CSS, and JavaScript for front-end work.
- Deployed the system on Kubernetes with Kafka for real-time data processing. Implemented CI/CD pipelines and GitHub Actions for automated builds and deployments.
- Published research at major conferences. Maintained the project on GitHub **DFKI-fitsight** .
- Skilled in YOLOv7, TensorFlow, PyTorch, with strong Python expertise. Proficient in Kubernetes, Kafka, Git, CI/CD pipelines, and GitHub Actions. Used Pandas, NumPy, and Matplotlib for data analysis and visualization.
- **Contact**: Milos Kravcik - Milos.Kravcik@dfki.de

07/2022 – 12/2022
Saarbrucken, Germany

Testing Manager,
CTC Advanced Gmbh

- Proficient in ISO/IEC 7816 and ISO/IEC 14443 standards for smart cards.
- Experienced with cryptographic algorithms and protocols, such as AES, DES, and RSA.
- Skilled in using automated testing tools and frameworks for smart card validation.
- Conducted risk assessments to identify vulnerabilities in smart card systems and improve product performance

01/2021 – 06/2022
Saarbrücken, Germany

Research Assistant,
Cispa Helmholtz Center for Information Security (CISPA)

- Conducted research on multi-sensor fusion to enhance the security of autonomous vehicles.
- Integrated 5G, IMU, and GPS sensors to detect and mitigate real-time attacks through anomaly detection.
- Developed and tested GPS spoofing attacks, using 5G and IMU data to identify and counteract these threats.
- Employed Google Maps API and LGSVL Simulator to collect and analyze data, validating the effectiveness of the fusion approach in ensuring safe and secure autonomous driving.
- **Contact** : Mridula Singh - Singh@cispa.de

Skills

Docker and Kubernetes		CI/CD & Version control : Git	
Data Visualization		Natural Language Processing (NLP)	
Data Science		Artificial Intelligence	
SQL		Computer Vision	
Python Programming	●●●●○	R Programming	●●●●○
C	●●●○○	C++	●●●○○

Languages

English
IELTS: 8.0

German
Saarland University (German Couse): 1.3 GPA

Telugu
Native Language