Amey Ramray Mahadik

www.github.com/saapo-ka-baadshah www.linkedin.com/in/amey-mahadik/

Personal Details

Address	Pfaffenwaldring 44E, 70569, Stuttgart
DOB	7th September 1996
Contact Number	+49 1635150912
Email	ameyarm@gmail.com

Education Details

Oct 2020 – Present	**MSc INFOTECH (1.7)** Universität Stuttgart, Vaihingen Specialization in Embedded System
June 2014 – May 2018	**B.E. Electronics and Telecommunication (1.8)** Mumbai University – Dwarkadas J. Sanghvi College of Engineering

Technical and Language Skills

Programming	Python, C, C++, Java, JavaScript, TypeScript, GO, SHELL
DevOps	Terraform, Ansible, Kubernetes, Docker, AWS, Azure DevOps
Full Stack	React, Angular, Flask, Django, MongoDB, Redis, SQL, Firebase
ML Frameworks	TensorFlow, PyTorch, Keras, Numpy, MATLAB, SciKit Learn
BI Tools	Superset BI, CubeJS
Languages	Deutsch – B1 (working proficiency) English – C1 (native proficiency)

Work Experience

BOSCH, Stuttgart – Deutschland
Werkstudent Autonomous Driving Cloud System, June 2022 – Present (as Master Thesis Student)

- Deployment of **ML pipelines** on **Azure DevOps** with **Azure ScaleSet VMs** as agents using **ARM templates**
- Development of resource lite alternative to **ADO** using **GitHub Workflows**, **Terraform** and **Kubernetes**
- Development of **Python** based **CATKIN** tools to extract, structure raw data feed and train from vehicles into datasets
- Implementation of continuous training environment for captured audio data called ***Acoustic Data Loop***

Ferdinand Steinbeis Institut, Heilbronn – Deutschland
Werkstudent Full Stack Engineer, March 2021 – June 2022

- Creation of low-cost pneumatic leakage detection system with **Machine Learning**
- Development of **Raspberry Pi** based edge computing unit with **Electron JS** UI and **Flask-REST** for local computation for **Tensorflow-lite** models; Resource provisioning with **SaltStack**
- Backend setup in ***StackIT*** cloud with **NodeJS Express**, **Grafana**, **Prometheus** and **Supabase**; Frontend in **React**
- Setup of **Azure CDN** between **Azure CN** and **Azure EU** for large data transfers between China and Germany

Kan Innovation Pvt. Ltd., Mumbai – India
Embedded System Designer, June 2019 – Nov 2019

- Development of lightweight encryption for fast data transfer over **RS232** interface
- Development of **I2C** and **RS232** based fault detection system for **Piezo-resistive FSR array**
- Integration of fast encryption standards into **Flask** backend; Migration from **Flask** to **Django**

Dhansai Laboratories, Mumbai – India
Systems Engineer, June 2018 – May 2019

- Designed IoT enabled end to end solutions for measurement devices in Diabetic Foot Ailment Industries, such as DSL HCP (Hot Cold Perception) and DSL VPT (Vibration Perception Threshold) using **Django** and **Firebase**

Projects

Investigation of Audio Data Loop Pipelines with Azure DevOps
Master Thesis - BOSCH, Oct 2022 – Present

- Implemented **Acoustic Data Loop** for end-to-end data prediction model in cars, improving performance.
- Designed system performance analysis test setup using **Kubernetes** and **Terraform**.
- Designed efficient On-Premises Data Loop Pipeline using **GitHub Actions** and **Docker** containerized runners for data collection as well as analysis.

DecenTT: Decentralized Telemetry Transport
Dec 2021 – June 2022

- Developed a secure communication protocol using a publisher-subscriber model that combines **MQTT** and **IPFS** messages.
- Analyzed and benchmarked the protocol for reliable and robust decentralized communication
- Deployed protocol package can be found here: https://pypi.org/project/DecenTT/

Classification of Musical Scales for Indian Classical Music
Bachelor Thesis, Aug 2017 – Mar 2018

- Conducted analysis of Indian Classical Music using probabilistic approaches, leveraging Mel-frequency cepstral coefficients (MFCC) as a key feature. (**numpy** and **scipy**)
- Developed multiple machine learning models to accurately identify MFCC vectors associated with Classical Music Scales, also known as Ragas. (**TensorFlow**)
- Employed both **supervised** and **unsupervised learning** methods to train and evaluate these models.

Extra-Curricular

Instructed and delivered lessons on Modern Physics and Electronics to aspiring engineers.

Was part of National Team in Sports Climbing.

Hobbies

Rock Climbing, Bouldering, Indian Classical Music, Flute, Painting, Table Tennis, Swimming

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