




Bharat Somashekar

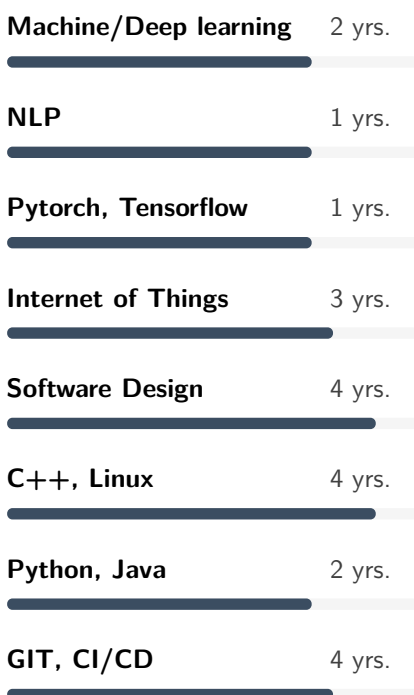
Senior Software Engineer at Mercedes
Benz Innovation lab

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Area of Expertise

- Artificial Intelligence
- Embedded/Speech Software Development
- C++ , Python, Java Applications

Skills



Biography

I am an Software/AI engineer with a master's degree in Information Technology from University of Stuttgart, Germany. I have extensive industrial software development experience as well as expertise in Artificial Intelligence, and I feel that by integrating the two domains, I can produce something truly spectacular.

Research Work

Master Thesis Student - Grade: 1.0

01/2021 - 07/2021

Institut für Signalverarbeitung und Systemtheorie (ISS)
University of Stuttgart

GANs for LiDAR point cloud denoising and synthetic-to-real translation:

- Development of Deep learning networks to denoise the Lidar point clouds obtained from severe weather driving conditions, as well as the domain adaptation from synthetic Lidar 3D point cloud to real Lidar 3D point Cloud.
- Implementation of CycleGAN, CNNs based denoising, Variational Autoencoder based translation and a novel approach called the MaskGAN which uses mask priors to detect outlier and reconstruct the LiDAR data
- Tools: Python, PyTorch, GANs, CNNs, NumPy, mayavi

Conversational AI

10/2020 - 03/2021

Institute for Natural Language Processing
University of Stuttgart

Engagement Tracking using Deep Neural Networks:

- Development of a Deep Neural Network application that can predict the dynamic engagement level of a person in a conversation using head pose, gaze, and facial action units of the person.
- OpenFace library is used to extract the facial features of the person. Pre-processing and cleansing of the extracted data.
- Tools: Python, TensorFlow, Openface, BLSTM with Attention

Interaktive Systeme: Machine Learning for HCI

10/2019 - 03/2020

Department of HCI and Cognitive Systems
University of Stuttgart

Spatio-temporal visual saliency prediction on GUI:

- A machine learning and a deep learning based approach to predict where the user would focus his attention on the GUI using his mouse, keyboard activities without the need of an eye tracker.
- Tools: Python, Jupyter Notebook, Logistic regression, LSTM based prediction

Smart cities and IoT

04/2020 - 09/2020

Institute of Architecture of Application Systems
University of Stuttgart

Smart study room:

- Artificial Intelligence Planning based IoT project that can track the people count in the room.
- MQTT messaging protocol used for the wireless data transfer
- Tools: Python3, MQTT, Tkinter, AI planner

Language

English C1

German B1

Education

10/2018 - today

M.Sc in INFOTECH

University of Stuttgart | Stuttgart, Germany

Deep learning ■ Machine Learning ■ Embedded Systems ■ IoT
Master's thesis: „GANs for LiDAR point cloud denoising and synthetic-to-real translation“.

07/2010 - 06/2014

B.E in Electronics and Communication

Visvesvaraya Technological University | India

Embedded Systems ■ IoT ■ Automotive ■ Real time Systems
Bachelor's thesis: „Multibot communication“.

Hackathons

- **Unity Hackathon 2019:** 3rd prize.
- **IVS Hackathon 2019:** Best idea award.
- **Bosch Hackathon 2016 India:** Obtained Sponsorship
- **ARM Symposium 2014 India:** 2nd runner up prize

Work experience

Senior Software Developer for Mercedes Voice Assistant

10/2021 - Present

Mercedes Benz Innovation Lab (MBition) | Berlin, Germany

- Development of speech based dialogue management application in Mercedes Voice assistant
- Modern C++, event driven software, docker, Qemu, NLP, ASR, TTS

IoT Software Development | HiWi

02/2021 - 09/2021

Fraunhofer-Institut für Arbeitswirtschaft und Organisation IAO | Stuttgart, Germany

- Design and development of an Internet of things (IoT) based application that can control and update the meeting room displays connected to raspberry pi display clients.
- Python3 based server and client Linux application which uses MQTT as messaging queue. A PHP based web application acts as a user interface for the entire application

Java Application Development | Working Student

02/2019 - 07/2020

Robert Bosch GmbH | Stuttgart, Germany

- Java application design and development for automotive network protocols simulation and the development of the corresponding graphical user interface.
- The GUI was developed using Eclipse Windows Builder in Java adhering to MVC design pattern

Software Developer 2 | C++ Applications

08/2017 - 08/2018

Infinera India Private Limited | Bangalore, India

- Development and maintenance of C++ based FCAPS applications (Fault, Configuration, Accounting, Performance, Security) for optical amplifiers and multiplexers.
- Fault tolerant scratch pad application development to overcome the shortcomings of FPGA memory bitflips.
- Tools: C, C++, Linux, QNX, PPC, simulated hardware, Perforce, Designing Tools, vim based IDE

Senior Software Engineer | C++ Applications

07/2014 - 08/2017

Robert Bosch Engineering and Business Solutions Private Limited | Bangalore, India

- Development of car multimedia and connectivity software for trucks.
- C++ based Gateway application framework development to connect middleware applications to the user application.
- Development of Bluetooth, WiFi and GSM Multiplexer middleware applications
- Google Test and Google Mock based Unit Testing.
- Tools: C, C++, Git, static tool analysers, QT creator, Linux, Windows environment