LinkedIn
Portfolio

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WORK EXPERIENCE

Robert Bosch GmbH, Renningen, Germany — Master Thesis — Jul '22 – Dec '22

- Increased 2 AP (average precision) points by researching and analyzing the potential benefits of class prototyping and feature fusion in dense meta-detectors, when compared to traditional methods.
- Improved the performance by 3 AP points by implementing the SOTA Swin Transformer-based backbone into the meta-learning one-stage few-shot object, which is first of its kind.
- Achieved a state-of-the-art result with an impressive AP increase from 14.4 to 19.4 by conducting extensive experiments on benchmark datasets such as 10-shot COCO.

Robert Bosch GmbH, Renningen, Germany — Internship — Mar '22 – Jun '22

- Conducted literature review of object detection & meta-learning research papers, identifying key trends & patterns in the field.
- Trained and fine-tuned the YoloX model in the Detectron2 framework, based on meta-learning few-shot context.

University of Lübeck, Lübeck, Germany — Internship — Sep '21 – Feb '22

- Implemented U-net & Pix2Pix GAN networks to generate depth images from monocular RGB bronchoscopy images.
- Improved model performance by 4% increase in SSIM metric, by combining SSIM loss and mean gradient error with the L1 loss.
- Achieved sharper depth images with an SSIM metric of around 97%, surpassing the previous model from 93%.

University of Lübeck, Lübeck, Germany — Student Assistant — Oct '21 – Feb '22

- Collaborated with the Learn2Trust project team to integrate the software plugin into their AI course curriculum for medical students, to upload images and produce masks using Streamlit.

EDUCATION

M.Sc.- Robotics and Autonomous Systems — **University of Lübeck,** Germany — Oct 2020 – *present*
Bachelors - Mechanical Engineering — **Indian Institute of Information Technology**, Jabalpur, India — Jul 2015 – Aug 2019

SKILLS

Programming Languages:	Python, C, C++, Java, MATLAB, SQL
ML Frameworks and Libraries:	PyTorch, Detectron2, TensorFlow, MMLab, OpenCV, Numpy, Pandas, Streamlit
Robotics:	ROS Gazebo, OpenAI Gym, Linux, Simulink, Siemens TIA portal
Other Tools/Technologies:	AWS, Microsoft Azure, Git, VSCode

PROJECTS

Object detection for Autonomous Driving

- Implemented state-of-the-art YOLOv3 neural network in TensorFlow for object detection. Achieved a mean AP score of 70% without any data augmentation.

Camera-based Vehicle Tracking

- Trained the Histogram of Oriented Gradients (HOG) feature descriptor with SVM classifier to predict preceding vehicles with the traditional sliding window approach.

Probabilistic Linear and Non-Linear Regression

- Probabilistic linear and non-linear regression methods (developed from scratch) are applied to predict the temperature of an unknown location.

Medical Device for Dementia (Forgetfulness)

- Introduced object detection algorithms to the design of a wearable device, to aid human memory to recall the location of day-to-day objects. Out of 5049 teams, we are among the 70 selected teams to exhibit the prototype at India Innovation Challenge.

CERTIFICATIONS

Coursera:	Machine Learning, Deep Learning Specialization, Python, Control of Mobile Robots, IoT and Embedded Systems
Kaggle:	Introduction to Machine Learning and Intermediate Machine Learning
SoloLearn:	C, C++, Python, Java, JavaScript, SQL