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EDUCATION

M.Sc.- Robotics and Autonomous Systems	**University of Lübeck, Germany**	Oct 2020 - Aug 2022
B.Tech - Mechanical Engineering	**Indian Institute of Information Technology Jabalpur**, India	Jul 2015 – Aug 2019

SKILLS

Programming Languages:	Python, C, C++, Java, MATLAB
ML Frameworks and Libraries:	PyTorch, TensorFlow, openAI Gym, OpenCV
Robotics:	ROS Gazebo, Linux, Simulink

WORK EXPERIENCE

Institute of Medical Informatics, Deep Learning Intern Sep '21 – present
University of Lübeck, Germany

- Depth estimation for Bronchoscopy Navigation (Navigation inside the lungs) from monoscopic RGB images.
- Self-supervised learning methods are being used to reduce the cost of labelled training dataset
- Project is still in progress and is expected to give satisfactory results by the time of completion.

Defence R&D Laboratroy, India Research Intern May '18 - Dec '18

- Design, analysis and simulation of the Flexible Nozzle for Trisonic wind tunnels.
- **Responsibilities**: My major responsibilities included comprehending various research papers and designing a mechanism to flex the plate, to give the potential contour to generate desired Mach number.
- **Concepts used**: Basic Mathematics, Finite Element Methods, Theory of Machines and C Language.
- This design is expected to be integrated in the upcoming Tri-sonic wind tunnels at the laboratory.

IIITDMJ Racing, India Team Lead Aug '17 – May '19

- Student built F1 car from scratch and is hosted by Maruti Suzuki
- As the team lead for Brakes department, I am responsible for design, fabricate and integrate the brakes system into the vehicle.
- Team has secured 26th position out of 120 participating teams

PROJECTS

Object detection for Autonomous Driving

- Successfully implemented the state-of-the-art YOLOv3 neural network in TensorFlow. Achieved a mAP score of 70% without any data augmentation.

Exploration Strategies in Deep Reinforcement Learning

- Conducted a thorough literature survey on all the existing exploration strategies involved in deep reinforcement learning and measured their performance against each other.

Camera-based Vehicle Tracking

- Used Histogram of Oriented Gradients (HOG) as feature descriptor and linear SVM as the classifier.
- After training phase, the traditional sliding window approach is used to track the preceding vehicles.

Medical Device for Dementia (Forgetfulness)

- A wearable device which used deep learning to aid human memory to recall the location of day-to-day objects.
- Out of 5049 teams, our team is one among the 70 selected teams to exhibit the prototype.