

# Praveen Kumar

# Rajendran



## + Personal info

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## + Summary

I'm currently pursuing M.S. degree at KAIST. Earlier, I worked with SL Corporation as a Software Engineer on Software Testing for LDM, E-Shifters and ADAS systems. My research interests include deep learning, 3D computer vision and autonomous driving.

## + Work experience

03/2021 – PRESENT DAEJEON, SOUTH KOREA  
**Graduate Student Researcher**  
**Korea Advanced Institute of Science and Technology**

- Worked on *accident prevention ADAS* system using OpenCV, Deep learning-CNN, and Transfer Learning.
- Worked with ROS for the *parking robot* project.
- Collaborated on *PMD path planning* and trajectory prediction in heterogeneous traffic
- Working on *camera pose estimation* problems with deep learning
- Working on *point cloud GAN*

11/2017 – 02/2021 CHENNAI(IN), DAEGU(KR)  
**Automotive Embedded Software Engineer**  
**SL Lumax and SL Corporation**

- Part Leader** for the Indian software verification Team at SL Corporation.
- creating and carrying out unit testing plans for LDM, Chassis, ADAS, Door side object detection system, Intelligent battery management system, and Camera monitoring system.
- Performed more than 250+ unit testing projects.**
- creating test cases and regression testing of application and board support package software.
- Analysing design documents, managing defect detection, test report and closure activities.
- Sent to HQ to closely work with developers and test engineers of various countries such as the USA, China, Korea and India.

01/2016 – 03/2016 CHENNAI, INDIA  
**Robotics & Embedded Systems Intern**  
**Aerobotix**

- Trained to work with Arduino UNO, Electronics, Sensors, Actuators and Programming microcontrollers
- Built different robotics applications such as line follower, RC boat, RC hovercraft
- Hands-on experience on Bluetooth and various modules for navigation

## + Education

03/2021 – PRESENT  
**Korea Advanced Institute of Science and Technology | GPA 3.9/4.3**  
**M.S. (Future Vehicle Program)**  
Subjects: AI/ML, DL, Computer Vision, Autonomous Vehicle Systems

2021  
**Udacity**  
**Self-Driving Car Engineer Nanodegree | 9 Projects**  
Term 1: Computer Vision, Deep Learning, and Sensor Fusion  
Term 2: Localization, Path Planning, Control, and System Integration

06/2013 – 05/2017  
**Anna University, Chennai | CGPA 8.10 / 10**  
**B.E. (Electrical and Electronics Engineering)**  
Subjects: Mathematics, Circuit Theory, Electrical Machines, Power Electronics, Embedded Systems, Control Systems, Object-Oriented Programming

## + Achievements & Recognitions

- Accepted to the **Oxford ML Summer School(OxML)** Jun 2022
- Full-funding support by **KAIST scholarship** for MS in Future Vehicle Program, Mar 2021
- Chosen for a **leadership position for a team of 24** people in SL Corporation.
- Recipient of **Udacity Technology Scholarship** powered by Bertelsmann for AI Track, Nov 2019
- Awarded **Korea cycling road grand slam** by K-Water for completion of cycling route of 1837KM, Republic of Korea, Aug 2019
- Go green award** for making an efficient solar vehicle for Asia's largest solar vehicle competition, ESVC, Mar 2017
- Won **2nd prize** for the Robotics event of PATHFINDER(Line Follower) in the national level technical symposium VISION 2016 organized by Anna University, Chennai, Apr 2016
- School topper** in on Higher secondary public examination, Mar 2013

## + Certifications

**Self Driving Car Engineer Nanodegree**  
Udacity

**Probabilistic Graphical Models 1: Representation**  
Stanford University

**Deep Learning Specialization (Prof. Andrew Ng)**  
deeplearning.ai

**Machine Learning (Prof. Andrew Ng)**  
Stanford University

## + Certifications

**TensorFlow in Practice Specialization**  
deeplearning.ai

**TensorFlow: Data and Deployment Specialization**  
deeplearning.ai

**ISTQB Certified Tester**  
Korean Software Testing Qualifications Board

**Korea Cycling Road Grand Slam**  
K-Water

## + SKILLS SUMMARY

### TECHNICAL SKILLS

Embedded systems  
Software testing  
Multiview Geometry  
Computational Photography  
Deep learning  
Robotics  
Pose Estimation

### PROGRAMMING

Python	Professional
C	Professional
MATLAB	Limited
C++	Limited

### TOOLS & FRAMEWORKS

Codescroll controller tester	Professional
VectorCAST	Professional
Git	Professional
PyTorch	Professional
TensorFlow	Professional
ROS	Limited

### LANGUAGES

Tamil	Native
English	Professional
Korean	TOPIK Level 1

## + Academic Projects

📅 2021  
**End-to-End Autonomous Driving - PD551 KAIST**  
End-to-End autonomous driving using imitation learning (Inspired by the famous NVIDIA paper) with the data collected from CARLA

📅 2021  
**Perception for AVs - PD803 KAIST**  
Camera Calibration, 3D Reconstruction

📅 2021  
**Deep Learning - AI502 KAIST**  
DCN Model Analysis with various optimizers and regularization techniques. LSTM, Transformer, BERT for extractive Q&A.

📅 2021  
**Operating System - EE415 KAIST**  
Kernel Threading, Process Scheduler, Nullptr Dereferences and Shared Page Handler, Filesystem Optimization( for small files)

📅 03/2017  
**Electric solar vehicle**  
**ESVC-2017**  
Made a Conventional Solar vehicle from scratch at low cost with a team of twenty five members for the Asia's largest solar

## + Academic Projects

vehicle championship. Secured 21st place out of 150 teams from all over asia. I was the vice captain of the team.

📅 02/2017  
**MPPT Controller**  
**Bharat heavy Electricals Limited - Trichy 2017**  
Arduino based MPPT controller for solar-powered two-ton trolley for the extraction maximum available power from the solar panel advised by Dr Kevin ark kumar, BHEL Trichy.

📅 2016  
**Robotic Arm**  
**2016**  
With the help of flex sensors, various motors and 3D printed objects made a robotic arm which will perform all the actions done by human hand simultaneously.

## + Publications

**RelMobNet: End-to-end relative camera pose estimation using a robust two-stage training**  
Praveen Kumar Rajendran, S Mishra, L F Santos V, and D Har  
<https://arxiv.org/abs/2202.12838> [ECCV Workshop - Accepted]

**Sensing accident-prone features in urban scenes for proactive driving and accident prevention**  
S Mishra, Praveen Kumar Rajendran, L F Santos V, and D Har  
<https://arxiv.org/abs/2202.12788> [IEEE-ITS IF=9.551 - Review]

**Socially acceptable route planning and trajectory behavior analysis of personal mobility device for mobility management with improved sensing**  
S Mishra, Praveen Kumar Rajendran, and D Har  
<https://arxiv.org/abs/2112.03526> [RiTA2021 - Accepted]

## + Public Profiles



LinkedIn



GitHub



Medium

## + Volunteering

📅 2016 📍 CHENNAI  
**Workshop Co-ordinator**  
**Aerobotix**

📅 2016 📍 CHENNAI  
**Student Co-ordinator for Robotics club**  
**Veltech Multitech Engineering College**

## + Hobbies



Cycling



Hiking



Cricket



Exploring



Photography



Running