# Sushant Vijay Chavan

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## WORK EXPERIENCE

### Student Research Assistant

**KELO Robotics GmbH**

📅 Jul 2020 – Aug 2022    📍 Sankt Augustin, Germany

- Propose and use a novel indoor semantic map representation
- Design and implement single/multi robot simulation software using Gazebo and Unity3D (with ROS-Sharp) respectively

### Student Research Assistant

**ROPOD Project, Hochschule Bonn-Rhein-Sieg**

📅 Jun 2019 – Apr 2020    📍 Sankt Augustin, Germany

- Develop a flexible Gazebo-based simulator for testing high-level execution of tasks by an arbitrary sized fleet of mobile robots
- Setup and maintain continuous integration of software packages

### Senior Software Engineer

**Robert Bosch Engineering and Business Solutions Private Limited**

📅 Sep 2013 – Dec 2017    📍 Bangalore, India / Hildesheim, Germany

- OpenSceneGraph & Navigation Data Standard (NDS) based 3D map visualization application for in-vehicle infotainment systems
- Implement highly optimized algorithms for rendering 3D building models on embedded devices with limited computing power

## RELEVANT PROJECTS

### Composable Ontology-based Indoor Semantic Map ▶

**Master Thesis, Hochschule Bonn-Rhein-Sieg**

- A novel framework to flexibly compose new maps from a prior collection of heterogeneous metric-semantic indoor maps
- Employ an ontological knowledge-base together with the composed maps to plan context-dependent indoor navigation plans

### Simulator for modular KELO ROBILE mobile robots ⌂

**KELO Robotics GmbH**

- A ROS package to simulate arbitrary configurations of modular mobile robots in Gazebo with an option to activate true physics-based wheel motion, resulting in the motion of the platform

### Comparative evaluation of experience-based path planners for multi robot systems ⌂

**Hochschule Bonn-Rhein-Sieg**

- Port and quantitatively evaluate the suitability of using single robot experience-based path planners for a fleet of logistic robots, using a custom-developed benchmarking framework

## EDUCATION

### M.Sc. in Autonomous Systems

**Hochschule Bonn-Rhein-Sieg, Germany**

📅 Apr 2018 - Sep 2022

German GPA 1.1

### B.E. in Electronics and Communications

**Visvesvaraya Technological University, India**

📅 Aug 2009 - Jun 2013

Distinction with an aggregate score of 82%

## ACHIEVEMENTS

- Co-authored a patent filed by Robert Bosch Car Multimedia GmbH
- Awarded the *Deutschlandstipendium* (German Scholarship) 2019/20
- Awarded the *Fresher Of The Year 2013* at Robert Bosch, India
- Awarded the *CSSS 2009 Scholarship* by the Ministry of Human Resource Development (MHRD), India

## TECHNICAL SKILLS

### Programming Languages

Modern C++ | Python | Shell Scripting

### Libraries/Frameworks/Tools

Git | ROS | PCL | CGAL | OpenCV | hdl_graph_slam | mcl_3dl | OctoMap | URDF | Xacro | ROS# | Gazebo | Unity | OWL 2 | SWRL | Protégé | Owlready2 | PlantUML | Doxygen | GitLab CI | Docker | CMake | Jupyter | VS Code | Linux

### Competencies

Indoor robot navigation | Robot simulations | Classical AI (Search, Logics, & Planning) | Semantic mapping | Multi-agent systems