

# Ayush Goel

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## EDUCATION

<b>Thapar Institute of Engineering and Technology</b> <i>B.E. in Mechatronics Engineering (CGPA: 9.29/10)</i> <ul style="list-style-type: none"><li>Awards: Certificate of Merit for 3 consecutive years</li><li>Achievements: 3<sup>RD</sup> rank in Undergrad, Merit-based Scholarship for all 4 years</li></ul>	<b>Punjab, India</b> June 2018
<b>Lancer's Convent</b> <i>High School (Percentage: 91.6%)</i>	<b>Delhi, India</b> March 2014

## WORK EXPERIENCE

<b>Unicommerce eSolutions Pvt. Ltd.</b> <i>Senior Software Development Engineer</i> <ul style="list-style-type: none"><li>Hired and mentored new team members to fulfill 80% more business requirements per sprint.</li><li>Integrated and maintained over 50 e-commerce marketplaces and logistic providers with the core product through REST APIs and Spring.</li><li>Spearheaded integration of International marketplaces like Lazada and Shopee, establishing the company's presence in 7 middle-eastern regions.</li><li>Awards: Above and Beyond Call of Duty (ABCD) Award</li><li>Tech stack: Spring, Java, Mongo, SQL, Zookeeper, ActiveMQ, Elastic Search</li></ul>	<b>Gurugram, India</b> Aug. 2019 - Present
<b>Capgemini India Pvt. Ltd.</b> <i>Senior Software Engineer</i> <ul style="list-style-type: none"><li>Upgraded the financial services web application of CIMB Bank, Malaysia by developing a banking project in a team of 10 to convert SOAP APIs to REST APIs.</li><li>Planned and headed the development of Capbook, a social media web application developed using AngularJS and Spring Framework, used by over 500 employees.</li><li>Tech stack: Spring, AngularJS, Java, REST, Yaml, Swagger</li></ul>	<b>Maharashtra, India</b> Sept. 2018 - June 2019
<b>Programme in Autonomous Robotics, IIT Delhi</b> <i>Research Intern</i> <ul style="list-style-type: none"><li>Developed a mobile robot capable of moving autonomously in a pre-defined path or being operated remotely. <a href="#">[Report]</a></li><li>Worked on CAD design, stress analysis, component selection, Odometry, PID control, and GUI development of the robot. Developed and installed a 4 DoF Robotic arm with a payload capacity of 300 gm.</li><li>Tech stack: Python, OpenCV, MATLAB, ROS, Gazebo, Solidworks</li></ul>	<b>Delhi, India</b> Jan. 2017 - July 2017

## LEADERSHIP EXPERIENCE

<b>Mechatronics and Robotics Society, TIET</b> <i>Convener</i> <ul style="list-style-type: none"><li>Secured an additional Rs. 60,000 funding for the society and bought several new components.</li><li>Organized several robotic workshops and events, with an average footfall of over 500 people.</li><li>Founded a competition, INNOVATICA, where around 25 student groups presented ideas to solve real-life problems and we helped them in the implementation.</li><li>Responsible for society's finance policies, procedures, and controls.</li></ul>	<b>Punjab, India</b> Aug. 2017 - June 2018
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## PROJECTS

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### Object Following Robot using ROS and OpenCV Aug. 2019

- Developed a Raspberry Pi based robot that chases an object using PID control and a combination of sensory data (Camera and LiDAR). [\[Github\]](#)
- Created a ROS package with three python scripts; one for detecting the location of centre of object being tracked from images from Raspberry Pi; second for publishing angular position using LiDAR and camera data; third to send appropriate velocity values to the actuators.

### Development of Service Robot Aug. 2017 - Apr. 2018

- Developed and installed a 4 DoF Robotic arm with a payload capacity of 300 gm on RoboMuse3XT. [\[Poster\]](#)
- Implemented the ROS Navigation Stack to map the surrounding environment.
- Implemented Pattern Recognition to identify different medical equipment and developed an Android application to recognize the voice commands.

### Development of Semi-Autonomous Mobile Robot (RoboMuse3XT) Jan. 2017 - July 2017

- Developed a Semi-Autonomous mobile robot from scratch capable of being operated remotely or autonomously in a pre-defined path. [\[Video\]](#)
- Incorporated the capabilities of live video surveillance and face recognition to enhance security.
- The robot is cheap and flexible, and has implementations in several domains: surveillance, industries, research.

### Image Projection Jan. 2017 - July 2017

- Implemented the concepts of Projective Geometry and Homographies to project an image onto a scene in a natural way that respects perspective. [\[Video\]](#)
- Used Tracking and Pose Estimation to implement a simple augmented reality application.

## TECHNICAL SKILLS

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**Languages:** C, C++, Python, Java, MATLAB, JavaScript, 8081 and 8051 Assembly Programming

**Operating systems:** Linux, Windows, Unix

**Software:** VCS (Git), ROS, Gazebo, Solidworks, MATLAB, Android Studio, Keil uVision, Proteus

**Libraries:** OpenCV, PyTorch, Sklearn, NumPy, pandas, Matplotlib

**Hardware:** RaspberryPi, Cameras, NVIDIA Jetson, Arduino, PLC, Sabertooth, Kinect

## EXTRA-CURRICULAR ACTIVITIES

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- Volunteer, Pratigya Society - provided elementary knowledge to underprivileged children
- Volunteer, SIYAHHI - an initiative towards environment protection
- Convener, Mechatronics and Robotics Society, TIET, India
- Member of Organizing Committee, 3<sup>RD</sup> International Conference on Advances in Robotics held at IIT Delhi
- Co-Convener, Mechatronics and Robotics Society, TIET, India
- Technical Head, Mechatronics and Robotics Society, TIET, India
- Participated in Tryst - Technical Fest, IITD, India

## RELEVANT COURSEWORK

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**Undergraduate Courses:** Control Systems, Advanced Control Systems, Robotics Engineering, Signals and Systems, Digital Signal Processing, Kinematics and Dynamics of Machines

**Self-learned:** Autonomous Mobile Robots ([edX](#)), Robotics Specialization ([Coursera](#)), ROS for Beginners: Basics, Motion and OpenCV ([Udemy](#)), ROS for Beginners II: Localization, Navigation and SLAM ([Udemy](#)), Machine Learning ([Coursera](#)), Machine Learning A-Z™: Hands-On Python & R In Data Science ([Udemy](#)), Python For Everybody Specialization ([Coursera](#)), Image Processing and Deep Learning ([PyImageSearch University](#))