

Pulkit Goyal

in <https://www.linkedin.com/in/impulkitgoyal/>
✉ pulkitgoyal.work@gmail.com | ☎ +81-704-385-0834

INTERESTS

- Robotics • Computer Vision
- Mathematics • Control Theory

EDUCATION

IIT ROORKEE | B.TECH

MAJOR: MECHANICAL ENGINEERING

MINOR: COMPUTER SCIENCE

Grad. Oct 2018 | Roorkee, India

GPA: 85.68%

DELHI PUBLIC SCHOOL

Grad. April 2014 | Indore, India

GPA: 89.4%

COURSEWORK

- Advanced Robotics
- Automatic Control
- Mathematical Imaging Techniques
- Artificial Neural Networks
- Computer Graphics
- Programming and Data Structures
- Design and Analysis of Algorithms
- Mathematical Statistics
- Numerical Methods
- Discrete Structures

SKILLS

PROGRAMMING

- C/C++ • Python • Bash • C#
- JavaScript/TypeScript • \LaTeX

SOFTWARES

- MATLAB • Mathematica • openCV
- GNU Octave • AWS • GCP • Git
- SolidWorks • AutoCAD • ANSYS

LANGUAGES

- English (Native) • Hindi (Native)
- Japanese (Basic \sim JLPT-N5)

MISCELLANEOUS

JEE ADVANCED, 2014

National Rank: 1331 in 150,000 selected candidates from 1.5 million students

TEACHING ASSISTANT | IIT-R

- Programming and Data Structures
- Engineering Drawing

NATIONAL SPORTS ORG. | IIT-R

Member (Proficiency - Table Tennis)

HOBBIES

- Amateur Photographer
- Guitarist
- Avid Soccer Player
- Occasional Swimmer
- Automation Fanatic

WORK EXPERIENCE

JIG-SAW INC. | SOFTWARE ENGINEER

Oct 2018 - Present | Tokyo, Japan

- Developed edge processing algorithms for sensing in IoT using image processing.
- Designed libraries for custom JS firmware for IoT gateway device.
- Created internal automation tools for testing, and deployment with CI/CD.
- Lead a team of engineers to design experiments and test sensors.
- Worked extensively with AWS cloud services (Lambda, EC2, CF, S3, IoT Core).

ITC LTD. | ENGINEERING INTERN

May 2017 - July 2017 | Guntur, India

- Investigated robotic solutions to automate the de-stemming of dried whole chilli.
- 7-fold decrease in the manufacturing cost at high IRR of \$500,000/year.

TEAM ROBOCON IIT ROORKEE | CONTROLS ENGINEER

Jan 2015 - Apr 2018 | IIT Roorkee

- Worked in team of 40 members to represent IIT-R in the nationals of ABU Robocon.
- Engineered control systems for several automatic wheeled robots.
- 5th in 2016, and 7th with best innovation award in 2018 out of >100 teams.

ACADEMIC PROJECTS

HUMANOID MODELLING FOR WALKING ON VIBRATING BEAM

Aug 2017 - May 2018 | B.Tech Project, IIT Roorkee

- Human gait modelling and analysis of vibrations due to human-beam interaction.
- Mathematical dynamics modelling using bond graphs and Lagrangian formulations.
- Developed control system for stable walking of simple supported biped on a beam.

DESIGN OF 8-DOF MANIPULATOR ON HOLONOMIC PLATFORM

May 2016 - Dec 2016 | Summer Undergraduate Research Award, IIT Roorkee

- Designed, analyzed and fabricated redundant manipulator on omni-wheel platform.
- Automated the base using optical flow sensor and the manipulator using encoders.
- Simulated path planning algorithms for trajectory optimization in MATLAB.

+ OTHER INDEPENDENT PROJECTS | IIT Roorkee

- (Omni)Wheeled robot to trace any mathematical curve in explicit notation.
- Coordinate (point-to-point) based navigation for four (Mecanum-)wheeled robot.
- Fuzzy Logic library in C++ with generalised rule-set for wheeled-robot navigation.
- 3D line following robot using image processing using on-board camera.
- SVM classifier for satellite images in C++ using LIBSVM library.
- Stereo Imaging using hierarchical segmentation and iterative cluster comparison.
- Automation of equatorial mount telescope using Raspberry Pi and stepper motors.
- A method for digital circlism art using mean-shift segmentation and EDT algorithm.
- Comparison of GA, PSO, SA and ACO to solve a multi-objective job-shop problem.
- Comparison of LSTM, SVR and ARIMA for short-term time-series prediction.

AWARDS AND SCHOLARSHIPS

- | | |
|------|---|
| 2019 | Trust Scholarship Dean of Resources and Alumni Affairs, IIT Roorkee |
| 2017 | Annual Excellence Award IIT Roorkee Heritage Foundation |
| 2016 | Summer Undergraduate Research Award SRIC, IIT Roorkee |
| 2014 | Merit Certificate in Mathematics, Top 0.1% (100% Marks) AISCCE-CBSE |

POSITIONS OF RESPONSIBILITY

- | | | |
|-----------------|-----------------|--|
| Jan'18 - Mar'18 | Convener | Srishti (Techno-Hobby Exhibition), IIT-R |
| Aug'17 - Apr'18 | Secretary | Tinkering Lab (Rapid Prototyping Lab), IIT-R |
| Jan'17 - Apr'18 | Exc. Member | Students' Technical Council, IIT-R |
| Sep'16 - Apr'18 | Senior Mentor | Student Mentorship Program, IIT-R |
| Apr'16 - Apr'17 | Joint Secretary | Models and Robotics Section, IIT-R |
| Feb'16 - Mar'16 | Coordinator | Cognizance 2016 (Technical Festival), IIT-R |