

KASHISH GOYAL

Evanston, IL kashishgoyal2019@u.northwestern.edu, (312) 358-0541, <https://kashugoyal.github.io>

EDUCATION

Northwestern University, Evanston, IL

Master of Science in Mechanical Engineering, Specializing in Robotics and Control, GPA: 3.92/4.00

Anticipated Dec, 2018

Thapar University, Punjab, India

Bachelor of Engineering in Mechanical Engineering, GPA: 8.83/10.00

Jun, 2015

SKILLS

- ROS (Robot Operating System), V-Rep, OpenCV, VSLAM, Gazebo, Mathematica, Simulink (MATLAB)
- Baxter, Arduino, PIC32, Raspberry Pi, IMU, Stereo Cameras
- Python, C, C++, Markdown, Git, HTML5/CSS, JavaScript
- PTC Pro- Engineer/ Creo Elements, DDS SolidWorks, AutoCAD, KeyShot, CorelDraw

ACADEMIC PROJECTS

[Autonomous Aircraft for Ag Application](#), Northwestern University, IL

Apr, 2018 - Present

- Working with Parrot Bebop2 developer drone, loading it with Ardupilot
- Using MAVROS package with custom scripts for controlling the aircraft
- Coverage planning and execution for a geographic bounding Box
- Skills: GPS RTK, Ardupilot, ROS, Optimal Control, Visual Odometry

[Camera Smear Detection for Street View](#), Northwestern University, IL

Apr, 2018

- Calculated average difference between images followed by adaptive histogram equalization (CLAHE)
- Generated contours from the output image
- Filtered out the actual smear based on area constraint
- Skills : Python, OpenCV

[Autonomous Quadrotor Flight](#), Northwestern University, IL

Jan, 2018 - Mar, 2018

- Computed roll and pitch angles from raw IMU data using complementary filters
- Used HTC VIVE as external motion capture system for autonomous mid-air position hold
- Added joystick control for mixed autonomy
- Skills : Raspberry Pi, IMU, HTC VIVE, C, PID control

[Brushed DC motor control](#), Northwestern University, IL

Mar, 2018

- Programmed PIC32 microcontroller for motor control circuit - C programming
- Used cascaded control loops (using interrupt sequences) for current and position control
- Interfaced with Matlab using serial communication over UART
- Skills: PIC32, Matlab, Interrupts, PID cascaded control, C

[Robotic Manipulation](#), Northwestern University, IL

Nov, 2017 - Dec, 2017

- Simulated manipulation of KUKA youBot along a given trajectory in V-Rep
- Implemented closed loop PI control to correct initial and odometry error
- Skills: VRep, Mathematica, Robotic Manipulation

WORK EXPERIENCE

Siemens CT, Princeton, NJ

Jul, 2018 - Sep, 2018

- Working in Siemens Future of Automation (FoA) lab to integrate UR collaborative robots and vision systems
- Implemented task planning for Pick and Place type Intelligent Industrial Robotics System
- Working in Siemens AgPods project, using grasp quality neural networks (GQ-CNN) to plan parallel jaw grasps for Robotiq grippers
- Skills: Python, C++, Data structures, ROS, OpenCV, Deep Learning, Runtime Systems, UR robots

VE Commercial Vehicles Ltd. , Bangalore, India

Jun, 2015 - Mar, 2017

- Supported strategy development for enhancing Brand parameters such as Advocacy, Positioning and Perception, initiated
- Planned and conducted activities for improving market penetration through adding and sustaining corporate connections
- Skills: Project Management, Strategy Development, Product Branding and Marketing

Eicher Tractors Ltd. (A subsidiary of TAFE Motors and Tractors Ltd.), Bhopal, India

Jan, 2014 - Jun, 2014

- Won "Best Kaizen Award" for pioneering device for diesel fuel system priming, saving INR 6 Lacs annually
- Reduced defect in from 290000 parts per Million to 160000 within a period of three months
- Skills: Industrial Management, Process Engineering