

Third Year Undergraduate
Dept. of Electrical Engineering
Indian Institute of Technology Kanpur

GitHub: <https://github.com/shashikg>

EDUCATION	<div>Indian Institute of Technology, Kanpur, India</div> <div>Major in Electrical Engineering with Minor in Cognitive Science</div> <div>GPA: 8.88/10.0 (Four Semesters)</div> <div>Munam Public School, Hazaribagh, India</div> <div>Intermediate</div> <div>Percentage: 91.2%</div> <div>DAV Public School, Hazaribagh, India</div> <div>Matriculation</div> <div>GPA: 10.0/10.0</div>	<div>Aug. '16 – Jun. '20</div> <div>(Expected)</div> <div>April 2016</div> <div>April 2014</div>
ACADEMICS ACCOLADES	<ul style="list-style-type: none">Received Academic Excellence Award twice for outstanding academic performance (awarded to top 7% students in the institute) for the year 2016 and 2016-1799.89 percentile in Joint Entrance Examination (IIT-JEE 2016) among 1.5 million studentsSecured AIR 842 in KVPY 2015, a prestigious exam conducted by IISc Bangalore and funded by DST, Govt. of India	
INTERESTS	Computer Vision • Signal Processing • Machine Learning • Artificial Intelligence • Cognitive Science	
RESEARCH PROJECTS	<div>Distance Measurement Module for Localisation of UAVs in Deep Tunnel</div> <div>Summer Internship, Dr Hock Beng Lim, Centre for Smart System, SUTD Singapore</div> <ul style="list-style-type: none">Worked on the Optical Flow algorithm based on SAD block matching to determine UAV position in deep tunnels i.e. GPS denied environment (coded in python, for actual prototype PX4FLOW was used)Improved upon the optical flow performance using predictive analysis to predict future data's to overcome the issue of inconsistent feature detection by the optical flowPerformed various experiments to collect data samples to measure and analyse performanceWorked on implementing Extended Kalman Filter to use acceleration data to improve accuracy during less illumination. <div>Humanoid IITK</div> <div>Dean of Research and Development Project, Dr Ashish Dutta, IIT Kanpur</div> <ul style="list-style-type: none">Designed and developed Institute's first Humanoid (AUTOMI), which can perform statically stable biped walking, voice localisation, various computer vision tasks like face recognition, object tracking, line followingWorked on Line Following and Object Tracking using various computer vision algorithms in OpenCVWorked on developing the bipedal walking algorithm using ZMP for the stability creteria.Integrated all the packages and modules using the ROS platformDesigned a GUI to control and debug the robot using PyGTK and Glade for Linux platform	<div>Jun. '18 – Jul. '18</div> <div>Dec. '16 – Ongoing</div>
OTHER RELEVANT PROJECTS	<div>How Close are Artificial Neural Networks to the Brain?</div> <div>CS771A - Machine Learning, Prof Piyush Rai, IITK</div> <ul style="list-style-type: none">Studying different types of ANN models to compare their structure and peformance. <div>Cooperative Localization Using Posterior Linearization Belief Propagation</div> <div>EE602A – Statistical Signal Processing, Prof R. M. Hegde, IITK</div> <ul style="list-style-type: none">Implementation of a research paper, which presents the posterior linearization belief propagation (PLBP) algorithm for cooperative localization in wireless sensor networks with nonlinear measurements. <div>Achieving Cramer–Rao Lower Bounds in Sensor Network Estimation</div> <div>EE602A – Statistical Signal Processing, Prof R. M. Hegde, IITK</div> <ul style="list-style-type: none">Implementation of a research paper, which proposes a general framework for comparison of estimation strategies in sensor networks with achievable bounds. <div>PixhawkArduinOMAVLink</div> <div>Self Project</div> <ul style="list-style-type: none">Developed an Open Source Arduino library to communicate between Pixhawk and ArduinoUsing MAVLink messaging protocol to create the communication <div>SL-COM (Sign Language Communication)</div> <div>Robotics Club, IIT Kanpur</div> <ul style="list-style-type: none">Developed customized sign language & utilized it to generate hand gestures for each alphabet to help dumb and deaf peopleUsed Bluetooth Module to send mapped texts to a Chat-App (based on nodeJS) using ROS as the platform for integrationDemonstrated the prototype in Techkriti Innovation Challenge and was awarded the 3rd prize	<div>Sep. '18 - Ongoing</div> <div>Sep. '18 - Ongoing</div> <div>Sep. '18 - Ongoing</div> <div>Jun. '18 - Ongoing</div> <div>Mar. '17</div>
RELEVANT COURSES	<ul style="list-style-type: none">Computer Vision: Foundations and Applications (Stanford AI) [#]Probability and StatisticData Structures & Algorithms	<ul style="list-style-type: none">Introduction to Machine Learning [o]Statistical Signal Processing [o]Foundation of Cognitive Science [o]CNNs for Visual Recognition (Stanford AI) [#][o]

	<ul style="list-style-type: none">Fundamental of Computing [*]Signals, Systems And NetworksControl Systems and AnalysisLinear Algebra	<ul style="list-style-type: none">Deep Learning Specialization (deeplearning.ai) [#][o]Natural Language Processing [!]Computational Cognitive Science [!]		
	* - Exceptional Performance	! - To Be Taken in Upcomming Semester	# - Online (Audit)	o - Ongoing
TECHNICAL SKILLS	Languages: C • Python • Matlab • JavaScript Software and Tools: OpenCV • NumPy • ROS (Robot OS) • Git • Arduino • HTML/CSS • Jekyll • TensorFlow (Basic Ex.)			
TECHNICAL & ACADEMIC ACTIVITIES	Technical Head <i>Humanoid IITK Team, IIT Kanpur</i> <ul style="list-style-type: none">Leading a team of 10 members to develop our fully functional HumanoidOverseeing various technical aspects and future goals of the project UG Coordinator <i>Electrical Engineering Association, Dept. of Electrical Engineering, IIT Kanpur</i> <ul style="list-style-type: none">Provided support and guidance to undergraduates to create a link between faculty and students Secretary <i>Robotics Club, IIT Kanpur</i> <ul style="list-style-type: none">Delivered a lecture on ROS for the campus junta in my very first year (only first year to get this opportunity)Designed the Robotics Club website using Jekyll and Material Design Framework		<i>May. '18 - Present</i> 	