SHASHI KANT GUPTA

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EDUCATION	**Indian Institute of Technology,** Kanpur, India
	Major in Electrical Engineering with Minor in Cognitive Science — Aug. '16 – Jun. '20 (Expected)
	GPA: 8.88/10.0 (Four Semesters)
	Munam Public School, Hazaribagh, India
	Intermediate
	Percentage: 91.2% — April 2016
	DAV Public School, Hazaribagh, India
	Matriculation
	GPA: 10.0/10.0 — April 2014

ACADEMICS ACCOLADES

- Received **Academic Excellence Award** twice for outstanding academic performance (awarded to top 7% students in the institute) for the year 2016 and 2016-17
- Received an **A* grade** in Fundamental of Computing [ESC101] (awarded to top 1-2% students in a course)
- **99.89 percentile** in Joint Entrance Examination (**IIT-JEE 2016)** among 1.5 million students
- Secured **AIR 842** in **KVPY 2015,** a prestigious exam conducted by IISc Bangalore and funded by DST, Govt. of India

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INTERESTS

Computer Vision • Signal Processing • Machine Learning • Artificial Intelligence • Cognitive Science

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RESEARCH PROJECTS

Distance Measurement Module for Localisation of UAVs in Deep Tunnel — Jun. '18 – Jul. '18
Summer Internship, Dr Hock Beng Lim, Centre for Smart System, SUTD Singapore
- Worked on the **Optical Flow** algorithm based on **SAD block matching** to determine UAV position in deep tunnels i.e. GPS denied environment
- 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 flow
- Performed various experiments to collect data samples to measure and analyse performance
- Worked on implementing **Extended Kalman Filter** to use acceleration data to improve accuracy during less illumination.

Humanoid IITK — Dec. '16 – Ongoing
Dean of Research and Development Project, Dr Ashish Dutta, IIT Kanpur
- 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 following**
- Worked on developing the **bipedal walking algorithm** using **ZMP** for the stability creteria.
- Integrated all the packages and modules using the **ROS** platform
- Designed a GUI to control and debug the robot using **PyGTK** and **Glade** for Linux platform

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OTHER RELEVANT PROJECTS

How Close are Artificial Neural Networks to the Brain? — Sep. '18 - Ongoing
CS771A - Machine Learning, Prof Piyush Rai, IITK
- Studying different types of ANN models to compare their structure and peformance.

PixhawkArduinoMAVLink — Jun. '18 - Ongoing
Self Project
- Developed an Open Source Arduino library to communicate between Pixhawk and Arduino
- Using **MAVLink** messaging protocol to create the communication

SL-COM (Sign Language Communication) — Mar. '17
Robotics Club, IIT Kanpur
- Developed **customized sign language** & utilized it to generate **hand gestures** for each alphabet to help dumb and deaf people
- Used Bluetooth Module to send mapped texts to a Chat-App (based on nodeJS) using **ROS** as the platform for integration
- Demonstrated the prototype in **Techkriti Innovation Challenge** and was awarded the **3rd prize**

RELEVANT COURSES

- Statistical Signal Processing [o]
- Linear Algebra
- Probability and Statistic
- Data Structures & Algorithms
- Fundamental of Computing [*]
- Signals, Systems And Networks
- Computer Vision: Foundations and Applications (Stanford AI) [#]
- Introduction to Machine Learning [o]
- CNNs for Visual Recognition (Stanford AI) [#][o]
- Deep Learning Specialization (deeplearning.ai) [#][o]
- Natural Language Processing [!]

* - Exceptional Performance   ! - To Be Taken in Upcomming Semester   # - Online (Audit)   o - Ongoing

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TECHNICAL SKILLS

Languages: C • Python • JavaScript

Software and Tools: OpenCV • NumPy • ROS (Robot OS) • Matlab • Arduino • HTML/CSS • Jekyll • Git

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POSITIONS OF RESPONSIBILITY

Technical Head — May. '18 - Present
Humanoid IITK Team, IIT Kanpur
- Leading a team of 10 members to develop our fully functional **Humanoid**
- Overseeing various technical aspects and future goals of the project

UG Coordinator   *Aug. '17 - Present*
Electrical Engineering Association, IIT Kanpur
- Provided support and guidance to undergraduates to create a link between faculty and students
- Helped in organising department level fresher and farewell parties for incoming and outgoing batches

Secretary   *Apr. '17 – Mar. '18*
Robotics Club, IIT Kanpur
- Organized and took campus level lecture on the **ROS** during summer project '17
- Designed the Robotics Club website using **Jekyll** and **Material Design Framework**
- Mentored a group of 5 junior undergrads for their winter project
- Played a major role in the smooth conduct of fresher's level workshops and lectures

Secretary   *Apr. '17 – Mar. '18*
Fine Art Club, IIT Kanpur
- Performed various stage performance for the club
- Mentored a group of 3 students to the art of **Kirigami** for fresher's performance
- Played a major role in the smooth conduct of club level activities

Student Guide   *Aug. '17 – Jul. '18*
Counselling Service, IIT Kanpur
- Helped 6 freshmen adjust to campus life on their arrival to campus
- Providing emotional support and academic guidance to them during their first year