Ayush Sinha

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Education

- **University of Illinois at Urbana-Champaign**
  MS Mechanical Engineering, GPA: ***4.0*** *May 2019*
- **Indian Institute of Technology, Kanpur**
  BTech Mechanical Engineering , CPI: ***9.3/10*** *June 2017*

Internships

- **Max Planck Institute for Intelligent Systems | Stuttgart, Germany** *May 2016 – July 2016*
  Designed spider inspired pneumatic and cable driven robotic joint actuator and fabricated it using 3D printing, laser cutting and rubber molding. Built two experiments for its characterization under static and dynamic conditions.
- **Kyushu Institute of Technology | Kitakyushu, Japan** *Dec 2016*
  Built interface between EEG signals received from human subject and motion commands to robot via arduino and ROS modules.
- **Tata Motors Limited | Lucknow, India** *May 2015 – June 2015*
  Operated in Supplier Quality department and resolved a recurring fitment issue for a cross-member belonging to vehicle chassis by redesigning the riveting fixture used at the ancillary manufacturing that particular part for Tata Motors.

Publication

A. Spröwitz, C. Göttler, **A. Sinha**, C. Caer, M. U. Öztekin, K. Petersen and M. Sitti; "Scalable Pneumatic and Tendon Driven Robotic Joint Inspired by Jumping Spiders", **IEEE International Conference on Robotics and Automation (ICRA) 2017**

Awards and Achievements

- Jayesh Memorial Award 2017 for best undergraduate project
- Academic Excellence Awards IIT Kanpur 2017 & 2015
- DAAD WISE 2016 Scholar for research internship in Germany
- Japan-Asia Youth Exchange Program in Science 2016 (Sakura, Japan)

Leadership

Senior Member – Team RCON IIT Kanpur
- Led team of fifteen freshmen to create two robots for National Robocon 2015
- Arranged exhibitions at IIT's annual technical festival and Science and Technology Day
- Planned advertisement and conducted recruitment for next year's team

Competitions

- **Finalists in Lab2Moon 2017** Contest for teams to construct a useful projects which will be sent to the Moon by Team Indus, front-runners of Google's Lunar XPrize contest. We proposed 'NiTiNOL based self-assembling structures'.
- **Finalists in Pitch Your Product 2016** Presented our product 'CleanEasy' in Entrepreneur Summit IIT Kanpur's 'Pitch Your Product' to a panel of venture capitalists for seed funding.
- **Ranked 11 in 85 teams in National Robocon 2015** Senior Member in institute team for Robocon 2015.

Projects

- **Robocon 2015 - Robominton** *Sep 2014 – Mar 2015*
  Designed and built two badminton playing robots for doubles match on actual size court. Synthesized pneumatic and motor driven mechanisms to perform real racket strokes and implemented holonomic drive to enhance chassis' mobility.
- **SqueezeBin: Mechanically Actuated Garbage Compactor** *Aug 2016 – Apr 2017*
  Developed and prototyped inexpensive and robust foot-paddle driven garbage compressing solution for Indian circumstances. Declared best B.Tech project and awarded INR 100,000 by Indian National Academy of Engineering.
- **Teleoperated Bionic Arm** *Apr 2017*
  Recorded user arm movement using a glove equipped with IMU and flex sensors and converted sensor readings to appropriate motion commands for the bionic arm actuated using servo motors.
- **Soft Exoskeleton** *Dec 2017 – Ongoing*
  Developing a control system for soft pneumatic actuators and building a human upper-body model for exoskeleton testing.

Extra-curricular

- Volunteer with Physics Van (outreach program of UIUC Physics Department) performing shows consisting of simple science experiments for elementary schools in and around Urbana-Champaign
- Stood 1st in IITK Wild Soccer requiring teams to build robots aimed at playing soccer and destroying opponent's robots