

Abhijeet Agnihotri

Education

- June 2019 **Oregon State University.**
MS in Robotics
GPA: 3.9/4.0
Advisor: Dr. Heather Knight
- May 2017 **Indian Institute of Technology Patna.**
Bachelor of Technology in Mechanical Engineering: Robotics
GPA: 8.2/10
Advisor: Dr. Atul Thakur

Employment

- Jan 2020 - **Toyota Research Institute**, UX Developer, Cambridge, MA, USA.
I work with the robotics user experience and industrial design team, which is an interdisciplinary team working on need finding and user research for home robots. I primarily do human-robot interaction research along with prototyping and development of robotic systems.

Research Interests

Human Robot Interaction, Design of Social Robots & Robot Personality
Developing Personalized & Interactive Autonomous Systems

Publications

1. **Abhijeet Agnihotri**, Matthew O'Kelly, Houssam Abbas, Rahul Mangharam. "**Building Responsible Autonomous Systems at 1/10th-scale: A project based course and community**", in *proceedings of the 51st ACM Technical Symposium on Computer Science Education (SIGCSE)*, Portland, USA. March 2020. **Best paper runner-up**
2. **Abhijeet Agnihotri**, Amy Chan, Samarendra Hedao, Heather Knight. "**Distinguishing Robot Personality from Motion**", in *proceedings of the 15th ACM/IEEE International Conference on Human-Robot-Interaction (HRI): Late-Breaking Reports*, Cambridge, UK. March 2020.
3. **Abhijeet Agnihotri**, Heather Knight. "**Persuasive ChairBots: A (Mostly) Robot-Recruited Experiment**", in *proceedings of the 28th IEEE International Conference on Robot & Human Interactive Communication (ROMAN)*, New Delhi, India. October 2019.
4. **Abhijeet Agnihotri**, Heather Knight. "**Persuasive chairbots: A Robot Recruited Experiment**", in *proceedings of HRI Pioneers workshop at the 14th ACM/IEEE Conference on Human-Robot Interaction (HRI)*, Daegu, S.Korea. March 2019.
5. **Abhijeet Agnihotri**, Alison Shutterly, Abrar Fallatah, Brian Layng, Heather Knight. "**ChairBot Café: Personality-Based Expressive Motion**", in *Social Robots in the Wild workshop at the 13th ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, Chicago, USA. March 2018.
6. Krishna Agrawal, Kushagra Jain, Dhawal Gupta, Raunak Srivastav, **Abhijeet Agnihotri**, Atul Thakur. "**Bayesian optimization based terrestrial gait tuning for an 12-dof alligator-inspired robot with active body undulation**", in *proceedings of the 42nd ASME Mechanisms and Robotics Conference*, Quebec City, Canada. August 2018

Research Internships

- June 2019 - **Toyota Research Institute**, Robotics Research Intern, Cambridge, MA, USA.
Sep 2019 **Robotics**: Researching communication of robot state information in functional robots via social channels. Prototyped tools to methodically design robot expressions and conducted user studies as part of this research.

- June 2018 - **GoogleX**, UX Researcher Intern, Mountain View, CA, USA.
Sep 2018 **Robotics**: Worked on an unannounced robotics project to solve a very exciting and challenging robotics problem. Primarily, I developed software and designed robotic applications, worked on manipulation, and designed human-robot-interaction experiments.
- May 2016 - **Stanford University**, Interaction Design Lab, CA, USA.
July 2016 Advisor: *Dr. Wendy Ju*
Interactive Social Robots: Autonomous and human-in-the-loop control of multiple robotic chairs and lamps: Developed a vision control system on Raspberry Pi to drive robots' motors, with commands entered remotely through Node.js graphical user interface. Expressive robotic sounds: Analyzed audio/noise produced by robot servo motors to identify salient characteristics for human interaction.
- May 2015 - **New York University**, Mechatronics and Control Lab, NY, USA.
July 2015 Advisor: *Dr. Vikram Kapila*
Interactive Robotic Manipulator: Built a 3D vision-based feedback control system to recognize and localize objects in the environment. The algorithm controls lower-level robot manipulator routines to select contextually appropriate objects, such as a teddy bear to cheer a sad child.

Teaching Experience

- Spring 2019 **TA**, Autonomous Driving, Oregon State University.
Winter 2019 **TA**, Autonomous Driving, Oregon State University.
Winter 2018 **TA**, Web Design, Oregon State University.
Winter 2018 **TA**, Defense Against the Dark Arts, Oregon State University.

Past Projects

- Sept 2018 - **Oregon State University**, CHARISMA Robotics Lab, OR, USA.
April 2019 Advisor: *Dr. Heather Knight*
Social Robotics: contextualized personalization system for service robots through perception-based context sensing and history based customization. Developed control software for robot teleoperation, sensing, autonomous navigation & developed machine learning algorithms for motion generation and robot behaviors.
- Sept 2017 - **Oregon State University**, CHARISMA Robotics Lab, OR, USA.
June 2018 Advisor: *Dr. Heather Knight*
Social Robotics: designed robot personality via expressive motion behaviors in non-anthropomorphic robotic chairs: Chairbots. Conducted user studies to research persuasive strategies in ChairBots.
- July 2016 - **Indian Institute of Technology Patna**, MICL Lab, India.
May 2017 Advisor: *Dr. Atul Thakur*
Bachelor Thesis project: Fabricated and developed autonomous control for a 12-DOF robotic platform maneuverable on uneven terrains. Vision-based robust motion planning, onboard simultaneous localization, mapping and decision making.
- July 2015 - **Indian Institute of Technology Patna**, MICL Lab, India.
May 2016 Advisor: *Dr. Atul Thakur*
Bio-Inspired Robotics: Simulated and built control system for an alligator inspired robot using cyclic gaits. Analyzed its speed and energy to discover the importance of body undulations and tail movement.
- July 2016 - **Indian Institute of Technology Patna**.
Dec 2016 **Smart Home Control**: Equipped a home with sensors and actuators and developed a mobile app interface. The system incorporated facial recognition along with security measures. Developed a network of interconnected devices capable of learning from sensor data, as well as prior user and system decisionmaking.

Technical Skills

Design	Solidworks, AutoCAD, Creo, Catia, ADAMS, Matlab
Programming	Python, Java, C/C++, Javascript, HTML, PHP, Nodejs, OpenCV, ROS, L ^A T _E X, Linux, Windows
Manufacturing	Rapid Prototyping, Laser Cutting, Additive Manufacturing, Wood and Metal-works

Honours and Awards

HRI-Pioneer 2019. Awarded funding support to attend Human-Robot-Interaction (HRI) Pioneers workshop, a selective workshop that seeks to foster creativity and collaboration across the disciplines of HRI researchers.

Outstanding Undergraduate Thesis Award. Given for the best undergraduate thesis from the graduating class of 2017, Mechanical engineering - IIT Patna.

Runner-up at the *5th IEEE International Symposium on Embedded computing and system Design(ISED)* **Grand Innovation Challenge.** 2016.

Awarded the prestigious **Kishore Vaigyanik Protsahan Yojana** Scholarship, awarded by *D.S.T., Govt. of India* to top 200 science students in India. 2012

Awarded the prestigious **INSPIRE** Scholarship by *D.S.T., Govt. of India* as one of the top 100 science students in Rajasthan, India. 2012

Organisational Activities

July 2016 - **Tinkerer's Club**, IIT Patna.

May 2017 **Student Coordinator**

A maker environment for students to express themselves, manage small teams, conduct cool classes and organize "Invent Sessions".

July 2015 - **Training and Placement Cell**, IIT Patna.

July 2016 **Student Internship Coordinator**

Managed all contacts and logistics related to company/institute visits, and ensured internships for the mechanical engineering class.

July 2014 - **Entrepreneurship Club**, IIT Patna.

July 2016 **Media-PR Coordinator**

Expanded media and public outreach, resulting in 200% increase in online outreach via maintaining blogs and forums.