

Abhijeet Agnihotri

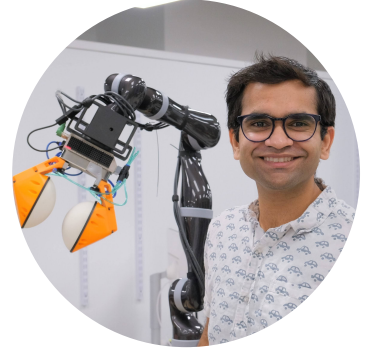
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Humans and Robotics/AI Research Engineer with dual expertise in UX Research and Design Engineering. Proven track record of inventions that enhance human collaboration with 5+ years of experience across leading research institutions including GoogleX, TRI & Aurora.



Education

- June 2019 **Oregon State University.**
MS in Robotics. Advisor: Dr. Heather Knight
- May 2017 **Indian Institute of Technology Patna.**
B. Tech in Mechanical Engineering. Advisor: Dr. Atul Thakur

Work Experience

- Feb '22 - **Aurora Flight Sciences**, Staff Humans and Autonomy Research Engineer, Cambridge, MA, USA.
Present
- Led research on human-AI collaboration in aerospace systems & patented interface designs
 - Designed and developed UI/UX for Skiron-X platform, recognized with Boeing's PI Award by CTO
 - Conducted user research with pilots and operators to drive data-informed design decisions
- June '19 - **Toyota Research Institute**, UX Developer, Cambridge, MA, USA.
Dec '22
- Created interactive prototypes for home robots, iterating designs based on qualitative user feedback
 - Pioneered 'SLiM' expressions system, improving robot communication
 - Led cross-institutional collaboration on robots for older adults, published in Int'l Journals
 - Led HRI research for 'Punyo' soft robotics platform, establishing design principles for safe HRI
- Summer 18 **GoogleX - Everyday Robots Project**, UX Researcher Intern, Mountain View, CA, USA.
- Designed and prototyped interactions for personal robots with adaptive learning capabilities
 - Developed software for robotic applications focusing on intuitive human-robot communication
 - Created and conducted human-robot interaction experiments to evaluate user experience
 - Contributed to manipulation strategies for robots performing everyday household tasks

Research Interests

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

Publications + Patents

1. **Abhijeet Agnihotri**, Max Greene. "**Design of Decision Support Display Interface for Proximal Maneuvering of Marine Crafts**", *US Patent*. 2024.
2. Waki K., LJ Hsu, S. Joshi, N. Randall, **Abhijeet Agnihotri**, Kate Tsui, Selma Sabanovic. "**Making meaning together: co-designing a social robot for older adults with Ikigai experts**", *International Journal of Social Robotics*. 2023.
3. N. Randall, S. Joshi, Waki K., LJ Hsu, **Abhijeet Agnihotri**, Grace Li, D. Williamson, Kate Tsui, Selma Sabanovic. "**Finding ikigai: How robots can support meaning in later life**", *Frontiers in Robotics and AI*. 2022.
4. **Abhijeet Agnihotri**, Naveen K., Alex Alspach, Kate Tsui. "**Input devices having a deformable membrane and methods of using the same**", *US Patent*. July 2022.
5. **Abhijeet Agnihotri**, Kate Tsui. "**How Does the General Population Understand Robot State?**", in *proceedings of the 16th ACM/IEEE International Conference on Human-Robot-Interaction (HRI): Late-Breaking Reports*, Boulder, USA. March 2021.



6. **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
7. **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.
8. **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.
9. **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.
10. **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.
11. 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.

Undergraduate Research Internships

Summer 2016 **Stanford University - Interaction Design Lab**, CA, USA.

Advisor: *Dr. Wendy Ju*

- Implemented autonomous and human-in-the-loop control systems for interactive robotic furniture
- Analyzed and quantified expressivity patterns in robot motor sounds, leading to an HRI publication

Summer 2015 **NYU - Mechatronics and Control Lab**, NY, USA.

Advisor: *Dr. Vikram Kapila*

- Built 3D vision-based feedback control system for object recognition and localization
- Developed context-aware algorithms enabling robots to select appropriate objects

Teaching Experience

Spring 2019 **TA**, Autonomous Driving (*f1tenth.org*), Oregon State University.

Winter 2019 **TA**, Autonomous Driving (*f1tenth.org*), Oregon State University.

Winter 2018 **TA**, Web Design, Oregon State University.

Winter 2018 **TA**, Defense Against the Dark Arts, Oregon State University.

Technical Skills

UX Research User studies, interviews, contextual inquiry, A/B testing, usability testing, ANOVA/t-tests

Design UI/UX prototyping, interaction design, Adobe Creative Suite, Figma, Solidworks, rapid ideation

Front-End React.js, Next.js, TypeScript/JS, TailwindCSS, responsive & accessible design

Robotics/AI ROS, OpenCV, PyTorch, CUDA, reinforcement learning

Backend/Tools Node.js, Python, C/C++, Git/GitHub, REST APIs, SQLite, data visualization

Fabrication Rapid prototyping, 3D printing, laser cutting, electronics integration, physical computing

Past Projects

Feb 2025 **Tagore Speaks - AI Conversational Agent.**

- Built interactive web experience featuring Nobel laureate Rabindranath Tagore
- Integrated Claude LLM with real-time TTS for natural voice conversations
- Designed responsive UI optimizing for conversation flow and engagement
- Implemented React.js/Next.js frontend with accessibility-first approach

Sept 2017 - **Oregon State University - CHARISMA Robotics Lab**, OR, USA.

April 2019 Advisor: *Dr. Heather Knight*

- Engineered context-aware personalization system for service robots
- Developed robot control software enabling autonomous navigation
- Created expressive motion behaviors for non-anthropomorphic ChairBots
- Led user studies on persuasive robotics with quantitative analysis
- Optimized ML algorithms for motion generation, reducing latency 35%

July 2015 - **IIT Patna - MICL Lab**, India.

May 2017 Advisor: *Dr. Atul Thakur*

- Designed 12-DOF alligator-inspired robot for uneven terrain traversal
- Implemented vision-based motion planning and SLAM for autonomous navigation
- Optimized locomotion efficiency through body undulation analysis
- Published research in ASME Mechanisms and Robotics Conference

Honours and Awards

Boeing's PI Award (2024) - Executive recognition from CTO for innovative interface design on SKIRON-X Project

Most Innovative Invention (2023) - Company-wide Boeing recognition for human-centered interface design on LINC project

Conan O'Brien Podcast Feature - Selected as first roboticist to demonstrate and discuss cutting-edge robot technology

Best Paper Runner-up, SIGCSE 2020 - Recognized for pioneering curriculum in autonomous systems education

HRI-Pioneer 2019 - Competitive selection for HRI emerging researchers workshop with international visibility

Outstanding Undergraduate Thesis Award (2017) - Top thesis among Mechanical Engineering graduates at IIT Patna

IEEE ISED Grand Innovation Challenge Runner-up (2016) - Second place in international engineering design competition

KVPY & INSPIRE Scholarships (2012) - Elite national scholarships awarded to top science students in India

Professional Services

Accessibility Chair **HRI**, 2021, International conference on Human Robot Interaction.

Reviewer **HRI**, 2018-present, International conference on Human Robot Interaction.

RoMan, 2018-present, International Symposium on Robot and Human Interactive Communication.

ICRA, 2022, 2024, International Conference on Robots and Automation.

CHI, 2021, Conference on Human Factors in Computing Systems.

ITSC, 2020, International Conference on Intelligent Transportation Systems.