

TAHA SHAHEEN

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SUMMARY

Ph.D. student in Computer Science at Arizona State University working on human-robot collaboration with over 4 years of research experience. Background in engineering low-cost socially assistive robots for autism therapy, preventing misuse of teleoperated robots, studies involving human-robot interaction, and preference-based reinforcement learning.

EDUCATION

Ph.D. Computer Science Arizona State University, USA <i>Research focus: Preference-Based Reinforcement Learning for AI Alignment</i>	Expected May 2028 4.00/4.00 GPA
M.S. Social Informatics Kyoto University, Japan <i>Received MEXT Research Scholarship by Japanese Government Awarded Distinguished Master's Thesis Award</i>	April 2023 3.92/4.00 GPA
B.E. Electronic Engineering NED University of Engineering and Technology, Pakistan <i>Achieved rank 5 in batch of 142</i>	November 2017 3.70/4.00 GPA

PUBLICATIONS

Taha Shaheen, Dražen Brščić, and Takayuki Kanda. "Investigation of Low-Moral Actions by Malicious Anonymous Operators of Avatar Robots." *ACM Transactions on Human-Robot Interaction*, 2024.

EXPERIENCE

Graduate Student Researcher <i>Human-Robot Interaction Lab, Kyoto University, Japan</i>	October 2020 – August 2023
<ul style="list-style-type: none">Investigated misuse of avatar robots by anonymous malicious operators under mentorship of Dr. Takayuki Kanda and Dr. Dražen Brščić.Designed and executed 3 hazard-identification workshops with 4 participants each where participants controlled and interacted with robots. Incorporated Python and ROS for teleoperation of robots and data gathering during workshops. Generated taxonomy of low-moral actions.Proposed detection and prevention mechanisms for each low-moral action.	
Research Assistant <i>National Center for Artificial Intelligence, NED University, Pakistan</i>	November 2018 – September 2020
<ul style="list-style-type: none">Engineered two low-cost socially assistive robots and investigated their use in autism therapy. Utilized Unity, Android, and Arduino in the robot design.Collaborated with therapists and management at Center for Autism, Rehabilitation & Training Sindh (C-ARTS), Dow Institute of Physical Medicine and Rehabilitation (Dow-IPMR), and Center for Autism Karachi to carry out field observations of children interacting with the robot and collect input from staff and parents which informed robot designs, safety features, and functions of future iterations.Mentored 12 undergraduate engineering students (3 teams) whose final-year projects were associated with robotics and autism. Arranged visits to centers for autism for training and observation. Held weekly meetings and monthly progress reports. All three projects culminated in pilot experiments exploring (1) a robot's ability to catch and keep a child's attention, (2) robot-mediated emotion cognition therapy, and (3) robot-mediated imitation therapy.	

SKILLS

Programming Languages: Python, Kotlin, Java, C, C#, C++, R, MATLAB, MIPS, x86-64 Assembly
Software ROS, Android Studio, Unity, Autodesk Fusion 360, Autodesk Eagle, L^AT_EX
Hardware Arduino, Raspberry Pi

NOTABLE PROJECTS

Office Reception Robot

2020

- Developed and programmed a robot capable of recognizing office employees and guests, with the ability to learn and identify new faces using Python-based facial recognition libraries.
- Built three Android front-end applications and a Python back-end to automate office tasks such as scheduling meetings, welcoming guests, and managing package deliveries.
- Integrated Google's Dialogflow to enable Natural Language Processing (NLP) capabilities for user interaction.

Assistive Social Robot

2017

- Created and operated a childlike robot that engaged in social interactions with people. Implemented the Wizard-of-Oz technique to make the robot deliver speeches and host events at NED University of Engineering and Technology and Dow University of Health Sciences.
- Adapted the robot to interact with children on the autism spectrum.
- Worked with 3 teammates to employ C# in the Unity game engine for the robot's animated face, Java for Android to control expressions and Bluetooth connectivity to body, and C++ in Arduino for control of actuators. Project also involved mechanical designing of base and body.
- Secured funding from Pakistan's Higher Education Commission's Technology Development Fund in 2018 (TDF-02145) for further development of project. Led to Research Assistantship position.

TEACHING EXPERIENCE

Graduate Teaching Associate

Fall 23, Spring & Fall 24

School of Computing and Augmented Intelligence, Arizona State University, USA

- Classes: CSE 230 Computer Organization and Assembly Language Programming, CSE 535 Mobile Computing, CSE 543 Information Assurance
- Delivered lectures, designed projects and course material, hosted office hours, and assisted undergraduate and graduate students with study material, programming exercises, and technical issues.

Graduate Teaching Assistant

Spring 2022

Graduate School of Informatics, Kyoto University, Japan

- Class: Information System Analysis. Covered machine learning and data mining.
- Helped graduate students with study material, programming exercises, technical issues, and final class project.

OTHER EXPERIENCE

Graduate Trainee Engineer, Instrumentation and Control

Nov 2017 - Nov 2018

Fatima Fertilizer Company, Sadiqabad, Pakistan

- Completed training in field instrumentation, Bentley Nevada vibration monitoring system, anti-surge control, Gas Turbine Generator operation, Waste Gas Boiler operation, Yokogawa DCS (Distributed Control System) and ESD (Emergency Shutdown), PLCs, process safety management elements, documentation, and work procedures.
- Managed day-to-day maintenance jobs at Offsites & Utilities and Nitric Acid plants.

NOTABLE VOLUNTEER EXPERIENCE

Oral History Apprentice and Field Officer

2016 - 2019

1947 Partition Archive, Berkeley and Stanford University Libraries

- Interviewed and filmed 83 witnesses of the 1947 Partition of British India to document their life stories and oral histories of life before the creation of Pakistan and India and their journeys of migration. Traveled to remote rural areas of Pakistan and spoke to people from all walks of life.
- Appeared on BBC Radio in the documentary titled 'Pakistan, Partition And The Present.' One oral history was featured in Stanford University Library's collection titled 'Survivors and their Memories'.
- Supervised three volunteers in recording and saving 90 life stories and oral histories from Karachi and rural Sindh.