Taha Shaheen

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EDUCATION

Ph.D. Computer Science **Expected May 2028**

Arizona State University, USA

○ Advisors: Yu "Tony" Zhang

Master of Informatics, Social Informatics **March 2023**

Kyoto University, Japan

○ Advisors: Dražen Brščić, Takayuki Kanda

○ Awarded Distinguished Master's Thesis Award in Feb 2023

Bachelor of Engineering, Electronic Engineering **November 2017**

NED University of Engineering and Technology, Karachi, Pakistan

○ CGPA: 3.698/4.0

○ Achieved rank 5 in batch of 142

PUBLICATIONS

Manuscript Submitted and Under Review

ACM Transactions on Human-Robot Interaction

1. **Shaheen, T.**, Brščić, D., Kanda, T. *Investigation of Low-Moral Actions by Malicious Anonymous Operators of Avatar Robots*

EXPERIENCE

RESEARCH EXPERIENCE

Graduate Researcher **October 2020 – Present**

Human-Robot Interaction Lab, Kyoto University

○ Advisors: Dražen Brščić, Takayuki Kanda

○ Investigated misuse of avatar robots by anonymous malicious operators.

○ Designed and executed hazard-identification workshops with users to generate a taxonomy of possible "low-moral actions".

○ Wrote and submitted manuscript which proposed detection and prevention mechanisms for each low-moral action.

Research Assistant **Nov 2018 – Sept 2020**

NCAI, NED University of Engineering and Technology

○ Engineered two low-cost socially assistive robots and investigated their use in autism therapy.

○ Collaborated with Center for Autism, Rehabilitation & Training Sindh (C-ARTS), Dow Institute of Physical Medicine and Rehabilitation (Dow-IPMR), and Center for Autism Karachi

○ Guided 12 undergraduate engineering students whose final-year projects were associated with robotics and autism. Arranged visits to centres for autism for training and observation. Held weekly meetings and monthly progress reports.

Intern **Summer, 2015**

Electronic Design Centre, NED University of Engineering and Technology

○ Tested and diagnosed electronic modules based on the Intel 8086 microprocessor. Programmed the modules in Assembly.

○ Replaced 8086 with an Arduino and expanded the capabilities of the modules.

TEACHING EXPERIENCE

Graduate Teaching Associate **Fall 2023 − Present**

School of Computing and Augmented Intelligence, Arizona State University

○ Class: CSE 230 Computer Organization and Assembly Language Programming

○ Taught lectures and helped undergraduate students with study material, programming exercises, and technical issues.

Graduate Teaching Assistant **Spring Semester, 2022**

Department of Social Informatics, Kyoto University

○ Class: Information System Analysis. Covered basic machine learning and data mining.

○ Helped graduate students with study material, programming exercises, technical issues, and final class project.

Group Leader **Nov 2021 − Present**

Empowerment Program, ISA

○ Lead groups of Japanese high school students in intensive programs designed to improve their English speaking, presentation, and discussion skills. Topics included the UN's Sustainable Development Goals, positive thinking, technology, personal identity, diversity, and critical thinking.

Instructor, DIY Science Course **May − Sept 2016**

Merit n Merit Coaching Center, Karachi

○ Taught a course centred on Arduino, basic electronics, and robotics. Students ranged from 6th grade to 12th grade.

Instructor, Course on Design and Fabrication of PCBs **March 2016**

NED University of Engineering and Technology, Karachi

○ Designed and taught a 16-hour summer course to undergraduate students on design and fabrication of printed circuit boards.

PRESENTATIONS

IEEE International Conference on Robotics and Automation (ICRA) **May 2023**

London, UK

○ Presented poster on the Low-moral Actions of Malicious Anonymous Operators of Avatar Robots at the Workshop on 'Avatar-Symbiotic Society'.

The 2nd Avatar Symbiotic Society Conference **Jan 2023**

Osaka, Japan

○ Presented poster on my Masters research on the Low-moral Actions of Malicious Anonymous Operators of Avatar Robots.

INDUSTRY EXPERIENCE

Fatima Fertilizer Company, Sadiqabad, Pakistan **Nov 2017 − Nov 2018**

Graduate Trainee Engineer, Instrumentation and Control

○ Oversaw day-to-day maintenance jobs at Offsites & Utilities and Nitric Acid plants.
○ Received training in documentation, field instrumentation, Bently Nevada vibration monitoring system, anti-surge control, Gas Turbine Generator operation, Waste Gas Boiler operation, Yokogawa DCS and ESD, process safety management elements, and work procedures.
○ Supervised training of interns and junior trainee engineers.

VOLUNTEER WORK

Volunteer Assistant   **Oct 2022**
IROS 2022, Kyoto, Japan
○ Helped organizers during the pre-planning phase and set up PCs and Zoom Webinars for online streaming of the conference. Assisted session chairs and speakers, and handled the functioning of equipment and computers during the conference.

Volunteer Assistant   **Oct 2022**
ROSCon 2022, Kyoto, Japan
○ Helped organizers set up the welcome booth. Guided participants, exhibitors, and speakers.

International Student/Guide   **May 2022 − August 2023**
WAK Japan, Kyoto, Japan
○ Guided Japanese high school students hailing from different prefectures of Japan through tours in Kyoto. Interacted in English to increase students' confidence in speaking a foreign language. Introduced them to Pakistani culture.
○ Introduced patrons of Sekai Cafe (World Cafe) in Kyoto to Pakistani culture, traditions, language, and clothing through presentations and conversations.

Field Officer   **March 2019 − April 2020**
1947 Partition Archive and Stanford University Libraries
○ Supervised and assisted three volunteers in rural Sindh and Karachi in recording and preserving the life stories and oral histories of witnesses of the 1947 Partition of British India. Collectively recorded 90 stories.

Oral History Apprentice   **April 2016 − July 2017**
1947 Partition Archive
○ Located and interviewed 83 witnesses of the 1947 Partition of British India to preserve their life stories and oral histories.
○ Organized two events called Voices of Partition where witnesses and survivors of the 1947 Partition told their stories. First was at Habib University in Karachi and the second was at Sindh Rural Support Organization in Sukkur. Also spoke about my personal experience of recording these life stories at these events.
○ Interviewed by BBC Radio for my volunteer work. The documentary titled 'Pakistan, Partition And The Present' can be found at:
  - `https://www.bbc.co.uk/mediacentre/proginfo/2017/32/the-documentary-pakistan-partition-and-the-present`
  - `https://www.bbc.co.uk/programmes/p05b70f4`

SCHOLARSHIPS AND GRANTS

MEXT (文部科学省) Research Scholarship   **April 2020 − August 2023**
Japanese government scholarship
○ Received full tuition and stipend until the completion of a PhD.
○ Selected on the recommendation of Japanese Consulate General in Karachi.

Final Year Project Grant   **2017**

From the Naim Siddique Final Year Project Fund

○ Received funding for full cost of final-year project.
○ Awarded by the NED Alumni Association at Southern California granted every year to ten teams for best proposals and on recommendation of faculty project advisor. Annual budget of 10,000 USD.

SOCIETY MEMBERSHIPS

Pakistan Engineering Council (PEC)   **2017 − Present**

Registered Engineer and Lifetime Member

○ PEC number ELECTRO/27494
○ The PEC is a statutory body that regulates the engineering profession in Pakistan. It is mandatory for all engineering graduates to be registered with PEC for their qualifications to be considered valid.

NED Robotics Society   **2015**

Member

○ Designed and programmed robots for inter and intra-university competitions as a team meber. Designed and printed PCBs. Programmed AVR ATmega32 and ATmega 328, controllers, Arduino boards, and Raspberry Pis for projects.

NOTABLE PROJECTS

Office Reception Robot   **2020**

○ Programmed and set up a robot to recognize office employees and guests and learn the faces of people it had not seen before.
○ Programmed and created three Android applications linked with the robot assistant to help office staff organize meetings, let in guests, and pick up packages.

Robot as Emotion Communication Tool for Children with ASD   **2018 − 2020**

○ Worked with therapists and two teams of 4 undergraduate students each to explore the use of an expressive robot as an emotion-communication tool.
○ Executed a pilot experiment in which placed items such as a birthday hat or a band-aid on the robot and programmed the robot to also show an appropriate expression on its face. Children with ASD then identified the emotion that matched the situation.
○ Added natural language processing and communication using Google Dialogflow. Wrote Android app for Wizard-of-Oz control.
○ Video of project can be found at `https://www.youtube.com/watch?v=3o5LQfDlxfQ`

Robot for Imitation Therapy for Children with ASD   **2018 − 2020**

○ Worked with a team of 4 undergraduate students and therapists from Dow IPMR to augment a Robosapien by WowWee robotics.
○ Used OpenPose and an ESP8266 nodemcu to have the robot copy a person's arm positions and to detect when a person had successfully copied the robot's arm position.

Smart Home Control   **2017 and 2018**

○ Wrote Android app in Java, designed and made a PCB, and installed electronic components to make a room's appliances (fans and lights) operate via Bluetooth commands.
○ Programmed and installed an ESP8266 nodemcu in an air conditioner and set up backend database on Google Firebase. Set up the AC to turn on at a certain time of the day. Also wrote an app to remotely operate the AC through WiFi.

Robo-Chotu - Assistive Social Robot   **2017**

Final Year Project, NED University

○ Designed a robot, named Robo-Chotu (chotu is Urdu for small), to interact socially with people around it. It delivered speeches and hosted events at NED University of Engineering and Technology and Dow University of Health Sciences.
○ Modified the robot to interact with children on the autism spectrum.
○ Utilized C# in the Unity game engine for its animated face, Java for Android to control expressions and Bluetooth connectivity to body, and C++ in Adruino for control of actuators. It also involved mechanical designing.

SKILLS

Programming Languages: C, Python, Java, C#, C++, R, MATLAB

Software: ROS, LaTeX, Unity, Android Studio, Autodesk Fusion 360, Autodesk Eagle

CERTIFICATIONS

ARTIFICIAL INTELLIGENCE

Deep Learning Specialization: DeepLearning.AI on Coursera   *2020*

○ Instructor: Andrew Ng
○ 17 weeks

Machine Learning: Stanford University on Coursera   *2019*

○ Instructor: Andrew Ng
○ 11 weeks

ROBOTICS

Modern Robotics, Course 1: Foundations of Robot Motion: *2019*

Northwestern University on Coursera

○ Instructor: Kevin Lynch
○ 4 weeks

Control of Mobile Robots: Georgia Institute of Technology on Coursera   *2019*

○ Instructor: Magnus Egerstedt
○ 7 weeks

DESIGN

Human-Centered Design: an Introduction: UC San Diego on Coursera   *2019*

Design Principles: an Introduction: UC San Diego on Coursera   *2019*

○ Instructor: Scott Klemmer
○ 7 weeks total

COMPUTER AIDED DESIGN

Intro to Digital Manufacturing with Autodesk Fusion 360: Autodesk on Coursera   *2019*

Autodesk Fusion 360 Integrated CAD/CAM/CAE: Autodesk on Coursera   *2019*

○ Various instructors
○ 9 weeks total

WRITING

Writing in the Sciences: Stanford University on Coursera   *2019*

- Instructor: Kristin Sainani
- 8 weeks