Zhonghao(Jonathan) Shi

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EDUCATION

University of Southern California(USC), Los Angeles, CA   August 2017 - May 2020
    Viterbi School of Engineering, Bachelor of Science, Computer Science   Cumulative GPA: **4.00/4.00**
    Relevant coursework: Robotics (graduate), Applied Natural Language Processing (graduate), Machine Learning for Data Science (graduate), Introduction to Artificial intelligence, Introduction to Algorithms and Theory of Computing and etc.
    Honors: USC Provost's Undergrad Research Fellowship, First award at USC Undergraduate Research Symposium in Digital Media, Academic Achievement Award, Dean's List (All semesters)
    Teaching: Undergraduate Teaching Assistant for CSCI360 Introduction to Artificial intelligence
    Outreach Activities: USC Robotic Open House, Family Robotics Night at Monterey Hills Elementary School

University College London(UCL), London, United Kingdom   September 2015 - May 2017
    UCL School of Engineering, Electronic and Electrical Engineering   Cumulative GPA: **3.89/4.00**
    Honors: UCL EE Department Goldsmid Prize for outstanding students (top 3 for Academic Excellence)
    Teaching: Academic Transition Mentor for all subjects

TECHNICAL SKILLS

Computer Languages:	Python, Java, C/C++, C#, Javascript
ML-related Libraries:	Scikit-Learn, Keras, Pandas, Numpy, Tensorflow/Pytorch
Web Related:	HTML&CSS, Javascript, Ember.js, MySQL/MongoDB, Spring

RESEARCH AND WORK EXPERIENCE

USC Interaction Lab, Los Angeles, CA   January 2018 - Present
Undergraduate Research Assistant (Advised by Prof. Maja Matarić, supervised by Dr. Caitlyn Clabaugh and collaborated with Dr. Ognjen Rudovic)
- Developing a multimodal model with statistical learning and deep learning methods to detect cognitive affective states (valence/arousal) for children with ASD such that a robot tutor can offer preemptive support and feedback
- Trained both normal and individualized Bayesian Knowledge Tracing Models to study the learning curves for individual participant with autism after studying with our socially assistive robot math tutor
- Developed scripts in Python to extract facial, body pose, audio and game performance features from the experiment videos and synchronized the multimodal features into a frame-by-frame dataset
- Helped design an autonomous Socially Assistive Robot (SAR) system that used reinforcement learning(RL) to personalize its instruction and feedback over time in 18 month-long, in-home interventions for children with ASD.

USC Interaction Lab, Los Angeles, CA   December 2018 - May 2019
Undergraduate Research Assistant (Advised by Prof. Maja Matarić and Supervised by Tom Groechel)
- Explored new modalities in affective expression using wearable AR headset for robot co-learners, and designed augmented reality robot extensions in Unity and robot behaviours to enhance a robot's ability in a peer learning scenario
- Integrated ROS into Unity 3D's C# environment along with software engineering using the Mixed Reality Toolkit for Mayfield's Kuri robot and the Microsoft Hololens

ARM Holdings, Cambridge, United Kingdom   July 2017 - August 2017
Embedded Software Intern
- Designed real-time operating system (RTOS) coursework in C on micro-controller Nucleo F401RE as part of the ARM University Program, and documented RTOS education kit for ARM University Program and introduced RTOS program to university clients

PUBLICATIONS

- **Zhonghao Shi**, Ognjen Rudovic, Shomik Jain, Thomas R. Groechel, Caitlyn Clabaugh and Maja J. Matarić, "Affect-Aware Socially Assistive Robot Tutors for Children with Autism Spectrum Disorder: Modeling Cognitive Affective States in Long-term In-home interventions", Under development
- Shomik Jain, Balasubramanian Thiagarajan, **Zhonghao Shi**, Caitlyn Clabaugh and Maja J. Matarić, "Modeling Engagement in Long-Term, In-Home Socially Assistive Robot Interventions for Children with Autism Spectrum Disorder", Under Revision for Science Robotics.
- Thomas R. Groechel, **Zhonghao Shi**, Roxanna Pakkar and Maja J. Matarić. "Using Socially Expressive Mixed Reality Arms for Enhancing Low-Expressivity Robots", 2019 IEEE International Conference on Robot and Human Interactive Communication (RO-MAN 2019), Oct-2019. Robotics Society of Japan and Korean Robotics Society Distiguished Interdiciplinary Research Award Finalist (3 nominated from 206). (Link)
- Caitlyn Clabaugh, Kartik Mahajan, Shomik Jain, Roxanna Pakkar, David Becerra, **Zhonghao Shi**, Eric Deng, Rhianna Lee, Gisele Ragusa and Maja J. Matarić. "Long-Term Personalization of an In-Home Socially Assistive Robot for Children with Autism Spectrum Disorders", Frontiers in Robotics and AI. (Link)
- Caitlyn Clabaugh, Shomik Jain, Balasubramanian Thiagarajan, **Zhonghao Shi**, Leena Mathur, Kartik Mahajan, Gisele Ragusa and Maja J. Matarić. "Attentiveness of Children with Diverse Needs to a Socially Assistive Robot in the Home", International Symposium on Experimental Robotics (ISER), Nov-2018. (Link)