JACK KOLB

Email: jack@jackkolb.com
Website: https://jackkolb.com

EDUCATION

- **Ph.D.** *Robotics — in progress* *Aug 2020 - present*
  Georgia Institute of Technology (Georgia Tech)
  Advisor: Sonia Chernova

- **B.S.** *Mechanical Engineering (Honors)* *Sept 2016 - June 2020*
  University of California at Riverside (UC Riverside)
  Capstone Title: "An Autonomous Robot Capable of Scaling a Self-Built Structure"

RESEARCH EXPERIENCE

- **Graduate Research Assistant** *Aug 2020 - present*
  Advisor: Sonia Chernova
  Research Focus: Improving human-robot team performance by utilizing individual human traits.

- **Undergraduate Research Assistant** *Mar 2018 - June 2020*
  Advisor: Sundararajan Venkatadriagaram
  Research Focus: Predicting electric motor failure by analyzing motor vibrations.

WORK EXPERIENCE

- **Robot Autonomy and Interactive Learning Lab @ Georgia Tech**
  Graduate Research Assistant *Sept 2020 - present*
  - Applied cognitive models of individual humans to improve the task assignment of humans to operator roles in interactive human-robot teams.
  - Conducted user studies and data analysis in support of research objectives.

- **NextGen Assistive Technology**
  Cloud Developer *June 2020 - Sept 2020*
  - Transformed idea sketches for an in-home remote caregiving system into NextGen's flagship product, now deployed in over 100 homes.
  - Leveraged Microsoft Azure's Event Grid, Power Apps, and IOT Hub platforms.

- **Sundararajan Venkatadriagaram Research Group @ UC Riverside**
  Undergraduate Research Assistant *Mar 2018 - June 2020*
  - Developed an intelligent sensor network system to record and analyze the vibrations of electric motors to identify motor damages and predict mechanical failure.
  - Worked with UCR's Office of Technological Partnerships and UCR's Facilities Services to trial the system on campus ventilation and water pump motors.
  - Worked with UCR's Office of Technological Partnerships to commercialize the system.

- **UC Riverside Autonomous Underwater Vehicles (UCR RoboSub)**

  Project Lead *Aug 2018 - Aug 2020*
  Mechanical Lead *Aug 2017 - Aug 2018*
  Mechanical Team *Sept 2016 - Aug 2017*

  - Led 25+ members in the development of two autonomous marine robot platforms capable of autonomous aquatic navigation and interaction.
  - Researched and implemented systems for heading control, depth control, computer vision, autonomous mission control, object interaction, and 3D sandbox simulation.
  - Competed in the international RoboSub competition (2017, 2018, 2019, 2020).
  - Worked with university departments, corporate sponsors, and student organizations for funding, technical theory, logistics, and outreach to local youth communities.
  - Awarded “Best Project” (2019) by UC Riverside’s College of Engineering for our accomplishments and community engagement.

- **UC Riverside, Department of Residential Life**

  Resident Advisor *Sept 2018 - June 2020*

  - Managed a building of 75 first-year undergraduate students through mentorship, community programming, and targeted community building.
  - On-call responder for fire, medical, mental, and safety crises for a ~1200 resident area.
  - Peer-awarded MVP for both ‘18-19, and ‘19-20.

- **IEEE Student Chapter, UC Riverside**

  Projects Chair *May 2019 - June 2020*

  - Taught technical workshops for students: Arduino, CAD/3D Printing, Linux, Python, Raspberry Pi, Robot Operating System, Soldering, and Web Servers.
  - Advised project leads of three large-scale student projects on management practices, and facilitated joint discussions for cross-project technical topics.

PUBLICATIONS

[C1] Jack Kolb, Mayank Kishore, Kenneth Shaw, Harish Ravichandar, and Sonia Chernova. "Predicting Individual Human Performance in Human-Robot Teaming." *IEEE International Conference on Robot & Human Interactive Communication (RO-MAN)*, 2021.

[T1] Jack Kolb*, Li-Ming Richard Yeong*, Swathi Vittalbabu*, Aliasgar Badani*, Campbell Dinsmore. “An Autonomous Robot Capable of Scaling a Self-Built Structure.” *University of California at Riverside Undergraduate Honors Capstone Thesis*, 2020.