Engineering Innovation in Health

Summer 2019 Newsletter

2019 TEAMS

InstaQTc

Student team: Nanye Du (ME), Marissa Shibuya (EE), Trinh Vo (ME), & Hengjia Zhu (MSE). Advisors: Jon Neher, MD (Family Medicine); Soyoung Kang, PhD (ME), Martin Poenot (EE)

Efficient QTc interval measurement for accessible monitoring of prolonged QTc

CathAlign

Student team: Cody Cooper (ME MS), Stephen Phillips (ME), & Shikhar Varshney (ME MS). Advisors: Greta Anaman, RN (Critical Care); Jonathan Liu, PhD (ME); Martin Poenot (EE)

Improving nursing workflow and treatment decisions in Critical Care

EpiSense

Student team: Laura Irons (ME), Sharon Ke (BioE), Darren Li (ME MS), Liang Tao (ME), & Daniel Zhu (ME). Advisors: Corrie Anderson, MD (Anesthesiology), Soyoung Kang, PhD (ME)

Aiding anesthesiology trainees to reliably and safety administer epidural anesthesia

GuideSafe

Student team: Rebecca Darrow (BioE), Erin Graf (ME), Yuri Hudak (ME MS), Cassidy Quigley (ME), & Joseph Wong (ME). Advisors: Renda Palo (Supply Chain); Amber Franz, MD (Anesthesiology); Jonathan Liu, PhD (ME)

Preventing loss of guidewire during central venous catheterization

DopCuff

Student team: Alexander Auld (EE), Ian Johnson (ME), Katie Maskal (MSE), Syzmon Sarnowicz (ME), & Connor Young (MSE). Advisors: Aaron Cheng, MD (Cardiology); Eric Seibel, PhD (ME)

Enabling outpatient blood pressure monitoring for LVAD patients

SaniClaw

Student team: Neel Damani (ME), Natasha O'Rourke-Perry (ME MS), Daniel Slade (MSE), & Margaret Winding (MSE). Advisors: Ken Jelinek, OT (Occupational Therapy), Soyoung Kang, PhD (ME)

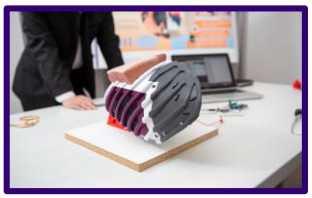
Preventing the spread of pathogens from germicidal wipe dispensers

Surgical Positioning Aide

Student team: Hector Iturribarria (ME), Jack Lalonde (BioE), Clara Orndorff (ME),& Emily Weller (MSE). Advisors: Dima Raskolnikov, MD (Urology), Eric Seibel, PhD (ME)

Preventing surgical injuries through pressure monitoring and regulation

RoboBeat



Student: Geng Qin (ME MS). Advisors: Adam Shimabukuro (CREST); Rainer Leuschke (CREST); David Traina (CREST); Soyoung Kang, PhD (ME)

A high-fidelity auscultation trainer to improve medical training

Acknowledgements

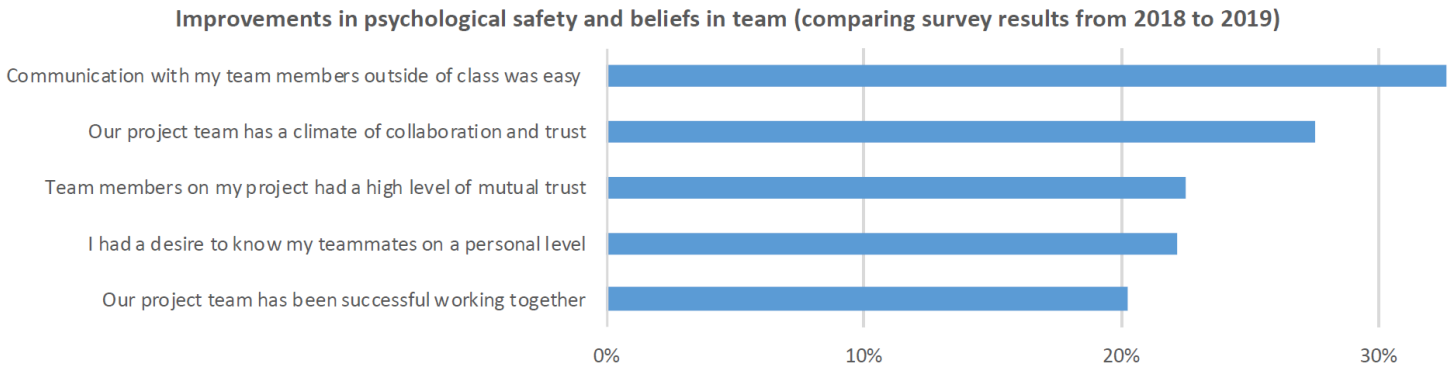
EIH would like to extend our warmest gratitude to the individuals who volunteered their time and effort to the program this year. Thank you to our clinical partners, the Team Science team, David Tan, Keith Chan, Ken Meyer, Matthew Thompson, Andrew Laughlin, David Hammond, Bianca Frogner, Erik Hagstrom, Darin Klemchuck, Kim Emmons, Shawn Swanson, Anthony Crawford, Ryan Buckmaster, Martin Poenot, and Dan Cornish.

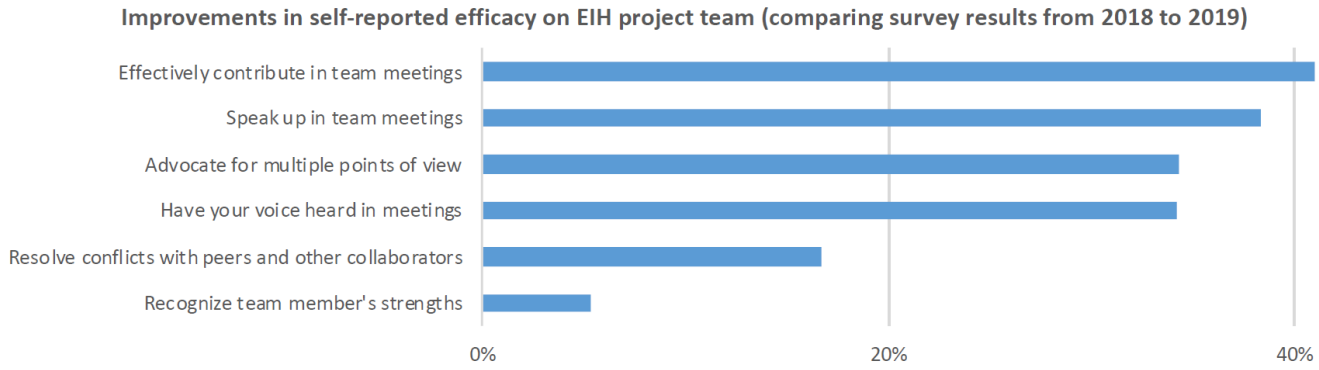
Team Science

ITHS Institute of Translational Health Sciences
ACCELERATING RESEARCH. IMPROVING HEALTH.

We are excited to announce that this year EIH partnered with the Team Science faculty at the Institute of Translational Health Sciences (ITHS) to bring tailored team science training to EIH student-clinician teams. The goals of this collaboration included measurable improvement in team dynamics, communication, and program participant satisfaction, as well as increasing the number of program deliverables, such as patent applications, startup formation rates, device clinical evaluations, and research papers.

After just one year of co-developing EIH curriculum with Team Science, self-reported efficiency and effectiveness measures have improved by over 75%, team meetings and communication by 40%, and trust and collaboration by over 20%, according to a comparison of surveys administered to students in the year prior to and after Team Science implementation (detailed results below).





Student-Reported Team Best Practices

Student Experiences

"[EIH] encouraged me to learn how to design for specific needs, work in ambiguous situations, [and] work as a team"

"I had a great experience on this team. At first, I wondered why when I asked questions about direction or if my teammates agreed or disagreed with a design decision I got kind of hazy answers, but after the personality activity I realized that they were generally on board with whatever direction someone provided and indecisiveness had nothing to do with me or what I was saying."

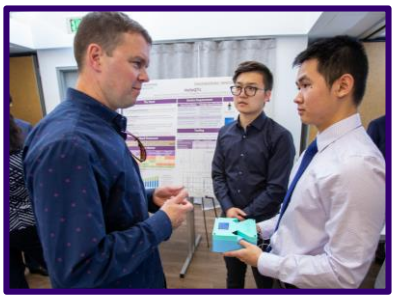
Highlights

Clinical Insights

Students received first-hand insight into their clinical challenges and the environments in which these challenges occur throughout the year. In the fall, a full lecture was dedicated to bringing together students and clinical partners to discuss clinical needs. Students also toured WWAMI Institute for Simulation in Healthcare (WISH), Center for Research in Education and Simulation Technologies (CREST), UW Dentistry, UW Digestive Health Center, UW Center for Cardiovascular Innovation, and the VA Center for Mobility and Limb Loss. *Thank you to all who opened your doors to our students for this incredible opportunity for immersion!*

Fall Showcase & Spring Symposium

13 student teams presented lightning pitches and poster presentations at the Fall Showcase, and 8 student teams presented lightning pitches and interactive prototype demonstrations at the Spring Symposium. Over 100 guests from medicine, academia, and the medical technology industry joined us at each of these events.



EIH Teams Recognized at Entrepreneurship Challenges

All EIH teams were awarded over $12,000 in prototyping funds from the UW Buerk Center for Entrepreneurship.

CathAlign, RoboBeat, and DopCuff were selected to compete in 2019 Holloman Health Innovation Challenge, where DopCuff was awarded the “Judges Also Really Liked” award ($1000). Read more.

DopCuff was awarded the $2,500 WRF Capital Best Health/Wellness Impact prize at the Dempsey Startup Competition. Read more.

EIH Features

Follow the links below to read about recent EIH news, and find more news at our website.

EIH recognized nationally as winner of Great Team Science Contest

Three clinical partners share their experiences with EIH

Soyoung Kang – Featured IPE and Team Science Faculty Member

Highlights

Soyoung Kang, PhD Hired as EIH Executive Director

EIH is excited to announce its first full-time hire and new Executive Director, Soyoung Kang, PhD. Dr. Kang has been involved with EIH as the teaching assistant since Autumn 2016 and has been an integral part of the program's growing success. She completed the doctoral degree in Mechanical Engineering at the University of Washington in 2018 under the supervision of Professor Jonathan Liu. Her research focuses on multiplexed molecular imaging of disease biomarkers to enable the early detection of cancer and to guide the surgical resection of tumors. Dr. Kang's academic and professional experiences prior to the University of Washington include a number of healthcare institutions and companies abroad, including Philips Research in the Netherlands, IBA and IMTEK in Germany, and Institute for Molecular Bioscience in Australia.

Dr. Kang joined us in this new role in September 2018 and is responsible for fostering new academic, clinical, and industry partnerships; direct mentoring of student teams in collaboration with clinical and external partners; and supporting the continuous improvement and growth of EIH. Please join us in welcoming Dr. Kang as the new Executive Director of EIH.

New Initiatives

This year we were thrilled to receive support to expand the EIH program. VentureWell awarded a Faculty Grant to support the development of cross-campus collaboration and explore commercialization potential of technical solutions to pressing healthcare challenges by integrating entrepreneurship students into EIH teams. Further, the Herbert B. Jones Foundation awarded a grant to EIH to create a ten-week summer incubator to provide resources and support for EIH teams to continue working on their projects beyond completion of the class.

Engage with EIH

Submit a clinical challenge

We are currently inviting any health care professional to submit an unmet health challenge for the upcoming academic year, starting in September 2019. The EIH process starts with submitting an unmet health challenge and ultimately ends with a working prototype solution, which can take the form of a device, process, or application. If you are interested in submitting an unmet need and participating in the program, please complete this application or visit our clinician's page for more information.

Contact Us

To learn more about EIH, visit our website at eih.uw.edu, and to engage with EIH, contact us at eihealth@uw.edu or fill out this brief questionnaire .

Teaching Team