

Zackory Erickson

zackory@cmu.edu
zackory.com

Carnegie Mellon University
Robotics Institute
5000 Forbes Avenue
Pittsburgh, PA 15213

Current Positions

Assistant Professor, Carnegie Mellon University, Robotics Institute

Sept 2021–present

Education

Ph.D., Robotics

2016–2021

Georgia Institute of Technology
Advisor: Charles C. Kemp

M.S., Computer Science

2020

Georgia Institute of Technology
Advisor: Charles C. Kemp

B.S., Computer Science, Mathematics (double major)

2012–2016

University of Wisconsin–La Crosse

Honors and Awards

NVIDIA Fellowship Finalist

2020

Best Student Paper Award, IEEE International Conference on Rehabilitation Robotics (ICORR) 2019

“Multidimensional Capacitive Sensing for Robot-Assisted Dressing and Bathing”

Best Paper Award in Service Robotics Finalist, IEEE ICRA

2019

“Classification of Household Materials via Spectroscopy”

President’s Fellowship, Georgia Tech

2016–2020

4th Heidelberg Laureate Forum

2016

Honorable Mention, NSF GRFP

2016

Strzelczyk Award

2016

Awarded to the top graduating senior in the College of Science and Health
for academic achievement and service to the campus and community.

MIT CONVERGE

2015

One of 18 prospective PhD students in the nation invited to tour MIT.

Berkeley Engineering Preview Days

2015

One of 14 prospective PhD students nationwide invited to tour UC Berkeley.

Grace Olwell Memorial Endowment Fund Scholarship

2015

Xcel Energy Scholarship

2015

John and Lois Storlie Scholarship in Computer Science

2014

Undergraduate Research Grant, UW–La Crosse

2013

Scottish Rite Abbott Scholarship

2013

Dean’s List, UW–La Crosse

8 semesters

Mentoring

M.S. Students

Pratyusha Karnati , Georgia Tech, CS Current: Google X Robotics	2020–2021
Esther (Yijun) Gu , Georgia Tech, CS Current: PhD Student at Imperial College London	2019–2021

Undergraduate Students

Kavya Puthuveetil , Virginia Commonwealth University, BME	2021
Samantha Mutiti , Georgia Tech, BME	2021
Holden Schaffer , Georgia Tech, CS	2020–2021
Siyang (Sylvia) Li , Georgia Tech, CS	2018–2019
Jiaqi (Julia) Chen , Georgia Tech, CS Current: PhD Student at ETH Zurich	2018
Katelyn Sosnowski , University of Arizona, BME Current: BME PhD Student at University of Arizona	2018
Mallak Taleb , University of Michigan, BME	2018
Bharat Srirangam , Georgia Tech, CS Current: Woot, Inc.	2018–2020
Eliot Xing , Georgia Tech, CE	2017–
Vamsee Gangaram , Georgia Tech, CS Current: Microsoft	2017–2020
Jong Hwa (Austin) Jang , Georgia Tech, CS	2017–2018
Maggie Collier , University of Alabama at Birmingham, BME Current: Robotics PhD student at CMU, NDSEG fellow	2017
Nathan Luskey , Georgia Tech, BME Current: MSCS student at CMU	2017–2018

Teaching

Robotic Caregivers (BMED 4833/8813) , Co-instructor, Georgia Tech	Spring 2021
Robotic Caregivers (BMED 4803/8813) , Co-developer and instructor, Georgia Tech	Spring 2020

Invited Talks

<i>Robotic Caregivers—Sensing, Simulation, and Physical Human-Robot Interaction</i> Carnegie Mellon University University of Pennsylvania	2021 2021
<i>Physics-based Cloth Simulation and Learning Towards Robotic Caregiving</i> Workshop on Representing and Manipulating Deformable Objects, ICRA	2021
<i>Robotic Caregivers—Recent Advances in Physics-based Simulation</i> Medical Robotics Club, Georgia Tech	2021

<i>Robot-Assisted Dressing</i>	
Workshop on Smart and Robotic Homes, RESNA	2018
<i>Multimodal Anomaly Detection</i>	
Mathematics Colloquium, UW-La Crosse	2015

Academic Service

Associate Editor	
IEEE Conference on Robot and Human Interactive Communication (RO-MAN)	2021
Reviewer	
T-RO, ICRA, IROS, RA-L, Humanoids, HRI, Sensors, RO-MAN	
ICRA Workshop Organizer	
Learning for Caregiving Robots	2021
Seminar Organizer , Georgia Tech	
Life as a Professor: Student Advising and Recruiting	2020
Life as a Professor: Funding 101	2019
Life as a Professor: Starting a Start-Up	2018
Panelist	
Graduate Intro to Robotics Research, Georgia Tech	2018
Summer Undergraduate Research Experience (SURE) Program, Georgia Tech	2017–2019
RoboGrads (robotics graduate student organization), Georgia Tech	
Vice President for Robotics PhD	2019–2020
President	2018–2019

Outreach

RoboGrads , Vice President of Outreach, Georgia Tech	2017–2018
Organized K-12 outreach events for over 30 robotics labs at Georgia Tech	
Biomedical Robotics Club , Mentor, Georgia Tech	2016–2019
Mentoring over 50 undergraduate students in how to research and build assistive devices and robots for people with impairments.	
FIRST Lego League , Judge	2015–2021
CS Outreach & Diversity Club , UW-La Crosse	2015–2016
Organizing CS and robotics events for K-12 students.	
FIRST Robotics , Mentor, Central High School and Holmen High School	2012–2016

Peer-Reviewed Publications (Conferences and Journals)

- [1] **Assistive VR Gym: Interactions with Real People to Improve Virtual Assistive Robots**
IEEE Conference on Robot and Human Interactive Communication (RO-MAN), 2020
 Zackory Erickson*, Yijun Gu*, and Charles C. Kemp
- [2] **Multimodal Material Classification for Robots using Spectroscopy and High Resolution Texture Imaging**
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020
 Zackory Erickson, Eliot Xing, Bharat Srirangam, Sonia Chernova, and Charles C. Kemp

- [3] **Bodies at Rest: 3D Human Pose and Shape Estimation from a Pressure Image using Synthetic Data**
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020 (**Oral**)
 Henry M. Clever, Zackory Erickson, Ariel Kapusta, Greg Turk, C. Karen Liu, and Charles C. Kemp
- [4] **Assistive Gym: A Physics Simulation Framework for Assistive Robotics**
IEEE International Conference on Robotics and Automation (ICRA), 2020
 Zackory Erickson, Vamsee Gangaram, Ariel Kapusta, C. Karen Liu, and Charles C. Kemp
- [5] **Learning to Collaborate from Simulation for Robot-Assisted Dressing**
IEEE Robotics and Automation Letters (RA-L), 2020
 Alexander Clegg, Zackory Erickson, Patrick Grady, Greg Turk, Charles C. Kemp, and C. Karen Liu
- [6] **Active Robot-Assisted Feeding with a General-Purpose Mobile Manipulator: Design, Evaluation, and Lessons Learned**
Robotics and Autonomous Systems, 2020
 Daehyung Park, Yuuna Hoshi, Harshal P. Mahajan, Ho Keun Kim, Zackory Erickson, Wendy A. Rogers, Charles C. Kemp
- [7] **Multidimensional Capacitive Sensing for Robot-Assisted Dressing and Bathing**
IEEE International Conference on Rehabilitation Robotics (ICORR), 2019 (**Best Student Paper**)
 Zackory Erickson, Henry M. Clever, Vamsee Gangaram, Greg Turk, C. Karen Liu, and Charles C. Kemp
- [8] **Classification of Household Materials via Spectroscopy**
IEEE Robotics and Automation Letters (RA-L), 2019 (**Best Paper Award in Service Robotics Finalist at ICRA 2019**)
 Zackory Erickson, Nathan Luskey, Sonia Chernova, and Charles C. Kemp
- [9] **Personalized Collaborative Plans for Robot-Assisted Dressing via Optimization and Simulation**
Autonomous Robots, 2019
 Ariel Kapusta, Zackory Erickson, Henry M. Clever, Wenhao Yu, C. Karen Liu, Greg Turk, and Charles C. Kemp
- [10] **Autonomous Tool Construction Using Part Shape and Attachment Prediction**
Robotics: Science and Systems (RSS), 2019
 Lakshmi Nair, Nithin Srikanth, Zackory Erickson, Sonia Chernova
- [11] **Deep Haptic Model Predictive Control for Robot-Assisted Dressing**
IEEE International Conference on Robotics and Automation (ICRA), 2018
 Zackory Erickson, Henry M. Clever, Greg Turk, C. Karen Liu, and Charles C. Kemp
- [12] **Tracking Human Pose During Robot-Assisted Dressing using Single-Axis Capacitive Proximity Sensing**
IEEE Robotics and Automation Letters (RA-L), 2018
 Zackory Erickson, Maggie Collier, Ariel Kapusta, and Charles C. Kemp
- [13] **3D Human Pose Estimation on a Configurable Bed from a Pressure Image**
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2018
 Henry M. Clever, Ariel Kapusta, Daehyung Park, Zackory Erickson, Yash Chitalia, Charles C. Kemp
- [14] **Semi-Supervised Haptic Material Recognition for Robots using Generative Adversarial Networks**
Conference on Robot Learning (CoRL), 2017
 Zackory Erickson, Sonia Chernova, and Charles C. Kemp
- [15] **What Does the Person Feel? Learning to Infer Applied Forces During Robot-Assisted Dressing**
IEEE International Conference on Robotics and Automation (ICRA), 2017
 Zackory Erickson, Alexander Clegg, Wenhao Yu, Greg Turk, C. Karen Liu, and Charles C. Kemp

- [16] **Learning to Navigate Cloth using Haptics**
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2017
Alexander Clegg, Wenhao Yu, Zackory Erickson, C. Karen Liu, and Greg Turk
- [17] **A Multimodal Execution Monitor with Anomaly Classification for Robot-Assisted Feeding**
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2017
Daehyung Park, Hokeun Kim, Yuuna Hoshi, Zackory Erickson, Ariel Kapusta, and Charles C. Kemp
- [18] **Multimodal Execution Monitoring for Anomaly Detection During Robot Manipulation**
IEEE International Conference on Robotics and Automation (ICRA), 2016
Daehyung Park, Zackory Erickson, Tapomayukh Bhattacharjee, and Charles C. Kemp