Wenhao Yu

CONTACT INFORMATION

School of Interactive Computing
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RESEARCH INTEREST

My research interests lie at the intersection of computer graphics, robotics, and machine learning. I developed learning algorithms for animated creatures to perform complex motor control tasks such as locomotion and dressing, and for transferring these skills to real-world robotic systems. My research aims to enable automatic, efficient, and generalizable motor-skill learning for animated characters and robots by combining and innovating in computer simulation, policy search, and transfer learning.

EDUCATION

Georgia Institute of Technology, Atlanta, GA — *August 2015 - Present*
Ph.D. in Computer Science
Advisor: C. Karen Liu and Greg Turk

Georgia Institute of Technology, Atlanta, GA — *August 2013 - May 2015*
M.S. in Computer Science

Shanghai Jiao Tong University, Shanghai, China — *September 2009 - July 2013*
B.E. in Software Engineering

PUBLICATIONS

Learning Fast Adaptation with Meta Strategy Optimization, Wenhao Yu, Jie Tan, Yunfei Bai, Erwin Coumans and Sehoon Ha, in IEEE Robotics and Automation Letters (RA-L), 2020

Sim-to-Real Transfer for Biped Locomotion, Wenhao Yu, Visak CV Kumar, Greg Turk, and C. Karen Liu, in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2019

Personalized collaborative plans for robot-assisted dressing via optimization and simulation, Ariel Kapusta, Zackory Erickson, Henry M Clever, Wenhao Yu, C Karen Liu, Greg Turk, Charles C Kemp, Autonomous Robots, 2019

Learning Novel Policies For Tasks, Yunbo Zhang, Wenhao Yu, and Greg Turk, in International Conference on Machine Learning (ICML), 2019

Policy Transfer with Strategy Optimization, Wenhao Yu, C. Karen Liu, and Greg Turk, in International Conference on Learning Representations (ICLR), 2019

Learning To Dress: Synthesizing Human Dressing Motion via Deep Reinforcement Learning, Alexander Clegg, Wenhao Yu, Jie Tan, C. Karen Liu, and Greg Turk, in Transactions on Graphics (SIGGRAPH Asia), 2018

Learning Symmetric and Low-energy Locomotion, Wenhao Yu, Greg Turk, and C. Karen Liu, in ACM Transactions on Graphics (SIGGRAPH), 2018

Learning to Navigate Cloth using Haptics, Alex Clegg, Wenhao Yu, Zackory Erickson, C.

Karen Liu, and Greg Turk, in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2017

Preparing for the Unknown: Learning a Universal Policy with Online System Identification, Wenhao Yu, Jie Tan, C. Karen Liu, and Greg Turk, in Robotics: Science and Systems (RSS), 2017

Haptic Data Simulation for Robot-Assisted Dressing Wenhao Yu, Ariel Kapusta, Jie Tan, Charles C. Kemp, Greg Turk, and C. Karen Liu, in IEEE International Conference on Robotics and Automation (ICRA), 2017

What Does the Person Feel? Learning to Infer Applied Forces During Robot-Assisted Dressing Zackory Erickson, Alex Clegg, Wenhao Yu, Greg Turk, C. Karen Liu, and Charles C. Kemp, in IEEE International Conference on Robotics and Automation (ICRA), 2017

Data-Driven Haptic Perception for Robot-Assisted Dressing Ariel Kapusta, Wenhao Yu, Tapomayukh Bhattacharjee, C. Karen Liu, Greg Turk, and Charles C. Kemp, in IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN), 2016.

Dexterous Manipulation of Cloth Yunfei Bai*, Wenhao Yu*, and C. Karen Liu (*co-first author). Computer Graphics Forum (Eurographics), 2016.

Talks

Learning Generalizable Motor Skills. CS Colloquium, UC Davis, USA, 2020.

Learning Generalizable Motor Skills. CSE Colloquium, Penn State University, USA, 2020.

Sim-to-Real Transfer for Biped Locomotion. IROS, Macau, China, 2019.

Learning Symmetric and Low-energy Locomotion. Invited talk, GAMES Webinar, 2018.

Learning Symmetric and Low-energy Locomotion. ACM SIGGRAPH, Vancouver, Canada, 2018.

Preparing for the Unknown: Learning a Universal Policy with Online System Identification. RSS, Cambridge, USA, 2017.

Teaching Experience

Guest Lecturer, Computer Animation (CS7496, Georgia Tech)	*Fall 2018*
Guest Lecturer, Simulation of Biology (CS7492, Georgia Tech)	*Spring 2017*
Teaching Assistant, Computer Graphics (CS3451, Georgia Tech)	*Spring 2017*
Guest Lecturer, Computer Animation (CS4496, Georgia Tech)	*Spring 2016*
Teaching Assistant, Computer Animation (CS4496, Georgia Tech)	*Spring 2016*

Student Mentoring

Yunbo Zhang Learning diverse motor skills. (Now: Ph.D. at Georgia Tech)
Nitish Sontakke Learning human-like upper-body movements. (Now: Ph.D. at Georgia Tech)
Maksim Sorokin Vision-based searching and manipulation. (Now: Ph.D. at Georgia Tech)

Professional Activities

Conference Paper Reviewer, ICRA (2018 - 2020), IROS (2018, 2019, 2020), NeurIPS (2018, 2019), Eurographics (2019), SIGGRAPH (2019, 2020), ICML (2019), AAAI (2020), RSS (2020), WAFR (2020)

Journal Paper Reviewer, Transaction on Graphics (2018), RA-L (2020)

Work Experience

Google Inc., Mountain View, CA *May 2019 - August 2019*
Brain Robotics
Research Intern
- Taught legged robots to walk in novel environments.

Facebook Inc., Redmond, WA *June 2016 - August 2016*
Oculus Research
Research Intern
- Dexterous manipulation in virtual reality.

Google Inc., Mountain View, CA *June 2015 - August 2015*
Google Research
Software Engineer Intern
- Improved natural language database quality using Word2Vec technique.

Google Inc., Mountain View, CA *May 2014 - August 2014*
Google Research
Software Engineer Intern
- Investigated using perceptual similarity for minimizing 3D scan size without sacrificing perceived quality.

Skills

- Programming Language : Python, C/C++, Matlab
- Languages : English, Mandarin

Awards

- Academic Excellent Scholarship (Third-class) of SJTU for 2009 - 2010 academic year
- Academic Excellent Scholarship (Third-class) of SJTU for 2011 - 2012 academic year