Ph.D. Traineeship Program in Healthcare Robotics Faculty
Healthcare Robotics Faculty

- Ayanna Howard (ECE)
- Charlie Kemp (BME)
- Lena Ting (BME/Emory)
- Randy Trumbower (Emory)
- Frank L. Hammond III (ME/BME)
- Jun Ueda (ME)
- Minoru Shinohara (AP)
- Wendy Rogers (PSYCH)
- Steven Wolf (Emory)
Ayanna Howard

Assistive robotics, Intelligent Control, Human Interaction, Wearable Interfaces, Environmental Sensing

Biography:

Professor, School of Electrical and Computer Engineering, Georgia Institute of Technology; Coordinator – Robotics PhD Program

Ph.D. – University of Southern California
M.S. – University of Southern California
B.S. – Brown University

Current and past areas:
• 3D environmental sensing
• Tele-robotics and Manipulation
• Learning from Human Observation

New research directions:
• Robotic Applications for Child Therapy and Rehabilitation
• Tele-Presence for Individuals with Visual Impairments
• Haptic and Wearable Device Interfaces

Web: http://humanslab.ece.gatech.edu
Funded Positions Available!
Two Projects in the Healthcare Robotics Lab:

1) Assistive mobile manipulation for the home

2) Revolutionizing robot manipulation with whole-arm tactile sensing

Biography:
Assistant Professor
Department of Biomedical Engineering
Adjunct Assistant Professor
School of Interactive Computing
School of Electrical and Computer Engineering
Georgia Institute of Technology

Ph.D., M.Eng., B.S.
Massachusetts Institute of Technology

Visit healthcare-robotics.com and email charlie.kemp@bme.gatech.edu
Lena Ting

Neuromechanics
Balance and gait
Musculoskeletal modeling
Rehabilitation
Human-Robot Interaction

Biography:
Professor, Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory; Rehabilitation Medicine, Emory
Co-Director, Neural Engineering Center

Ph.D. – Stanford University
M.S. – Stanford University
B.S. – University of California, Berkeley

Current and past areas:
• Sensorimotor control of balance and gait in healthy and neurologically-impaired people
• Physical and computational models of movement
• Physical human-robot and human-human interaction for physical assistance

New research directions:
• Devices for assessment of motor symptoms in neurological and psychiatric disorders
• Principles of active sensing in humans
• Principles of human-human assistance for design of assistive robotic devices

Web: https://neurolab.gatech.edu/labs/ting/lena-ting
Research Interest: to study neural regulation of whole limb mechanics in persons with neurologic pathologies such as spinal cord injury (SCI).

We use haptic robotics to study neural strategies aimed at enhancing endogenous plasticity and improving multijoint limb function after SCI.

Biography:

Assistant Professor, School of Medicine
Department of Rehabilitation Medicine;
Program Faculty, Department of Biomedical Engineering

Ph.D. – University of Connecticut
M.S. – University of Connecticut
M.S., PT – Duke University

Web: http://www.inspirlab.com
Current and past areas:
- Adaptive robotic grasping
- Teleoperative robotic surgery
- Soft sensing and actuation

New research directions:
- Fluidically-controlled polymorphic robots
- Human motion characterization for co-robots
- Neural control of haptically-enabled wearables

Biography:
Assistant Professor, Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory
Ph.D. – Carnegie Mellon University
M.S. – University of Pennsylvania
B.S. – Drexel University

Frank L. Hammond III
Adaptive Manipulation, Soft robotics, Teleoperative Surgery, Human Augmentation, Polymorphic Robots

Web:
Adaptive Grasping, Wearable Robotic Devices, Redundant Manipulation, Teleoperative Robotic Surgery, Human Motion Characterization
Jun Ueda
Manipulation, Human Modeling, Biologically inspired Robotics, Haptics, Rehabilitation Robotics

Biography:
Assistant Professor, George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology
Ph.D. – Kyoto University
M.S. – Kyoto University
B.S. – Kyoto University

Current and past areas:
• Multifingered Object Manipulation
• Wearable Rehabilitation Devices
• Artificial Muscle Actuators

New research directions:
• MRI-compatible Haptics for Stroke Rehabilitation
• Sensorimotor Function Enhancement
• Robotic Camera that Mimics Eye Movement
• Generation of Natural Movements in Robots

Web: http://biorobotics.gatech.edu/
Minoru Shinohara

Human Motor Control
Sensorimotor System
Neurophysiology
Biomechanics
Aging
Motor Rehabilitation

Biography:
Associate Professor, School of Applied Physiology, Georgia Institute of Technology

Ph.D., Exercise Physiology & Biomechanics, University of Tokyo, Japan
M.S., Exercise Physiology & Biomechanics, University of Tokyo, Japan
B.S., Exercise Physiology & Biomechanics, University of Tokyo, Japan

Current and past areas:
• Brain Neuromotor Activity under Stress
• Neurophysiology of Motor Skills in the Elderly
• Human-Robot Motor Interactions

New research directions:
• Robotic Application for Sensorimotor Training and Rehabilitation
• Combined Physiologic and Robotic Stimulation for Neural Plasticity
• Augmented Human Sports with Technology

Web: http://ap.gatech.edu/shinohara/NeuromuscularLab.php
Wendy Rogers

Human-Robot Interaction, Technology Design for Older Adults, Healthcare Technology, Human Factors

Current and past areas:
• Potential of personal robots for older adults in the home
• Healthcare workers’ perceptions of robot utility
• Companion robots for healthy elders

Biography:

Professor, School of Psychology, Georgia Institute of Technology

Ph.D. – Georgia Institute of Technology
M.S. – Georgia Institute of Technology
B.A. – University of Massachusetts Dartmouth

New research directions:
• Telepresence robots to support social connectedness and physical activity
• Can companion robots reduce stress?
• Developing a framework of HRI to guide design

Web: http://hfaging.gatech.edu/index.html
Current and past areas:
• Cortical control of upper extremity movement
• Biofeedback
• Mixed reality
• Constraint induced movement therapy
• Stroke rehabilitation

New research directions:
• Telerehabilitation
• Clinical trials in stroke rehabilitation
• Robotic control
• Automation of clinical tests for movement control
• Regenerative rehabilitation
• Automation of clinical tests for movement control

Web: www.emorydpt.org
Robotics Ph.D. Traineeship Program Faculty

Robotics Ph.D. Traineeship Program Committee

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