



ARMS: Ph.D. Traineeship Program in Healthcare Robotics

Building a new diverse workforce in healthcare robotics

A black robotic arm with white joints, positioned on the left side of the slide, reaching towards the first goal circle.

Goal 1

Education

Establish new interdisciplinary graduate program in healthcare robotics

Goal 2


Diversity

Increasing diversity in fields of robotics and related engineering fields

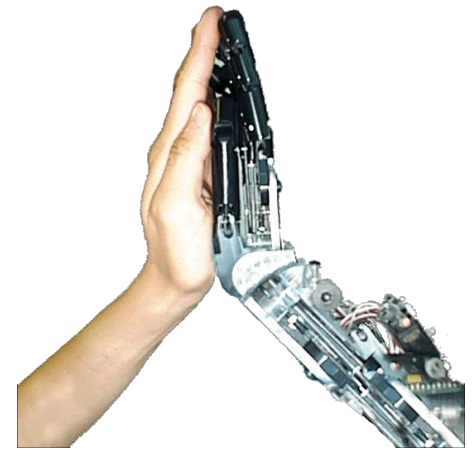
Goal 3

Partnership

Foster culture of invention and innovation through clinical partners and entrepreneurs to solve healthcare needs

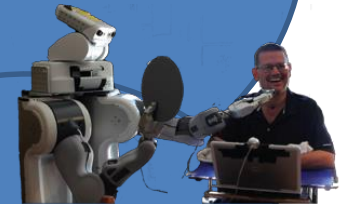
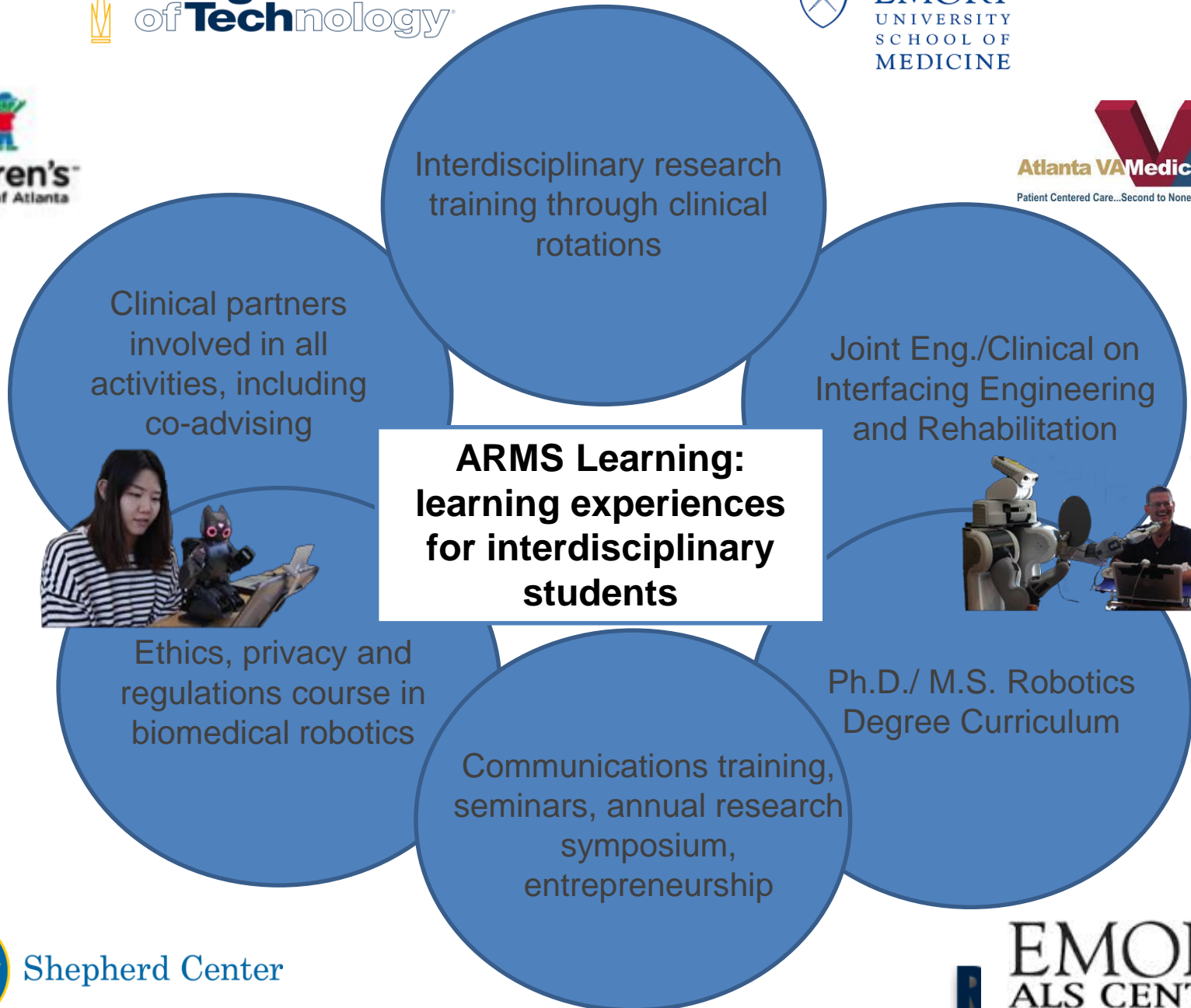
A black robotic arm with white joints, positioned on the right side of the slide, reaching towards the third goal circle.

Program Objective



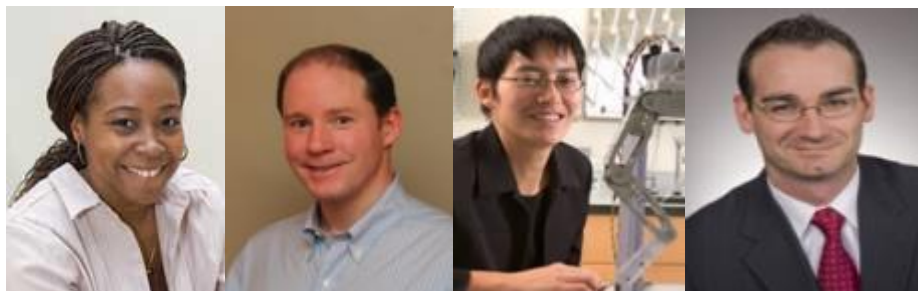
ARMS – Accessibility, Rehabilitation, and Movement Science (ARMS): An Interdisciplinary Traineeship Program in Human-Centered Robotics

- Train the next generation of engineering students in healthcare robotics technologies, so they can better understand the changing needs of patients and their caregivers and healthcare providers



Faculty

- Participating Faculty encompass BME, ECE, ME, AP & Psychology
- Healthcare Robotics Ph.D. Executive Committee
 - Dr. Ayanna Howard – ECE
 - Dr. Charlie Kemp – BME
 - Dr. Lena Ting – BME/Emory University
 - Dr. Randy Trumbower – Emory University
 - Toya Jordan – Program Coordinator



Healthcare Robotics Ph.D. Requirements

- Robotics Ph.D. Curriculum with a minor in Healthcare Technology
 - 36 hours of coursework which includes three courses on healthcare technology
- Engineering Advisor + Clinical Co-Advisor
- Qualifying Examination
- Original research, writing, and presentation
 - Dissertation Proposal
 - Final Dissertation and Defense

Ph.D. Coursework

- **36 hours of classes (includes 9 for the minor)**
- 9 semester hours of Required Fundamentals (7785, 8750, 8751)
- 18 semester hours of Robotics Core
 - Student must select 3 core areas
 - Mechanics, Controls, Perception, AI/Autonomy, HRI
 - Two courses must be taken in each core area (one foundation, one elective)
 - Course list is documented on website
- 9 hours for Healthcare Technology minor

Healthcare Technology Minor - Courses

- **Interfacing Engineering and Rehabilitation Course**
 - Engages both engineering and clinical students. Students will learn equally from clinical experts about their target demographics and the issues they face and from engineering faculty about how robotics can address these challenges.
- **Ethics of Biotechnology and Bioengineering Research**
 - This course examines the ethics of biotechnological research, including issues in the realm of research ethics, bioethics, and healthcare robotics.
- **Bioengineering Course**
 - This course can be selected from a number of bioengineering/biotechnology courses found in various departments, including Applied Physiology, Bioengineering, etc. The full list will be adapted in conjunction with the Healthcare Robotics students.

Additional Training Opportunities

- 8750/8751 Fundamental Course
 - The Multidisciplinary Robotics Research courses will provide students with hands-on research experience related to healthcare – either through rotations at medical companies, start-ups, hospitals, or clinics.
- Annual Research Symposium
 - Each year, students will be provided the opportunity to present their research at our annual research symposium
- Monthly Seminar Series
 - Monthly seminars related to healthcare and robotics that are offered on the Georgia Tech and Emory campus will be highlighted. The series will include periodic social hours, to facilitate networking between the distinguished speakers, faculty, and students to maximize training opportunities.
- Communication Skills Training
 - Participation in a learning module on “Communicating with Research Partners and Stakeholders” that will provide trainees with the skills to communicate effectively with diverse stakeholder groups.

Participating ARMS Faculty

Comprised of
biomedical engineers,
computer scientists,
electrical engineers,
mechanical engineers,
neurophysiologists,
physical therapists,
and roboticists

