COSMO J. CHOU | Mechanical Engineer. Prosthetics & Orthotics.

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OBJECTIVE

Seeking entry into a doctoral program to continue my education in an environment that allows me to continue researching and publishing within my fields of interest and acquire the requisite skills and experience to progress to a postdoctoral research position.

RESEARCH INTERESTS

Prosthesis design, control, and instrumentation; orthosis design and instrumentation; bio-inspired and soft robotics; inertial sensing; sensor fusion; gait dynamics and kinematics; machine learning-aided stance prediction.

RESEARCH

Human-Inspired Biorobotics (HUB) Laboratory	*Dr. Xiangrong Shen*	May 2015 – present
Blast Furnace Flow Optimization	*American Cast Iron Pipe Company*	Jan. 2015 – Dec. 2015
Agile Robotics Laboratory	*Dr. Vishesh Vikas*	May 2016 – present
Instrumentation for Synthesis of Bipedal Gait	*personal interest*	Jan. 2017 – present
Gesture Recognition Suite for ASL Translation	*personal interest*	Aug. 2017 – present

DEVELOPMENT

Transfemoral Prosthetic Torque Sensor	*HUB Laboratory*	May 2015
Parametric Design of Power-Optimized Carbon Fiber Rotors	*personal interest*	August 2015
Gait / Stance Capture Sensor Orthotic	*HUB Laboratory*	October 2016
Perturbance Rejection Control in Knee Flexion-Extension Cycles	*HUB Laboratory*	January 2017
Pneumatic Sit-to-Stand Assist Orthosis	*HUB Laboratory; asst. Tao Shen*	August 2017
Rapid Silicon-Casting Medical Prototyping	*HUB & Agile Robotics Labs*	September 2017
Internal-lattice Flexible Orthosis Design	*personal interest*	September 2017
Driftless Digital Gyroscope Synthesis	*Agile Robotics Laboratory; asst. David Leech*	October 2017
TensorFlow Stance Prediction Library	*personal interest*	October 2017

PUBLICATIONS & PATENTS

Novel design of transfemoral prosthetic knee torque sensor	*patent*	submission pending
Fused deposition modeling raster parameter effects on mechanical properties of Taulman bridge nylon	*Rapid Prototyping*	submitted
INDEX: A gesture recognition prototype for robotics control	*Robotics and Autonomous Systems*	submitted

EDUCATION

M.S., Mechanical Engineering
University of Alabama, 2018
B.S., Mechanical Engineering
Minors; Aerospace Engineering, Mathematics
University of Alabama, 2016
GRE: Verbal 164 / Quantitative 164

EXPERIENCE

The University of Alabama
Graduate Teaching Assistant (August 2016 – present)
ME 450 – Dynamic Machine Components
Graduate Lab Instructor (August 2016 – December 2016)
ME 360 – Instrumentation and Control Components
Undergraduate Lab Instructor (May 2014 – August 2016)
ME 350 – Static Machine Components

PROFICIENCIES

C++, Python (TensorFlow), Matlab / SIMULINK; Arduino, Beagleboard, Raspberry Pi; SolidWorks / SolidWorks Simulation, ANSYS / ANSYS Fluent, EAGLE; Additive manufacturing (FDM), TAZ 6, Ultimaker 2, Stratasys Objet30; Design of molds, prosthetic and orthotic components; Silicon, epoxy-substrate carbon fiber, and foam casting; Custom CNC-based PCB fabrication; Class 4 laser certification; Human subject testing