

CLAUDIA KANN

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EDUCATION

California Institute of Technology

Ph.D. in Social Sciences

M.S. in Social Sciences

Pasadena, CA

In Progress

June 2022

California Institute of Technology

M.S. in Mechanical Engineering, PhD Candidate, GPA: 4.0

Pasadena, CA

September 2019

Rice University

B.S. in Mechanical Engineering, GPA: 3.8

Houston, TX

Graduated May 2017

EXPERIENCE

Teaching Assistant

Introduction to Political Science

California Institute of Technology

Sept 2021 - Dec. 2021

- Created a lesson plan and taught one class a week to supplement the instructor

Introduction to Political Science

March 2022 - June 2022

A History of Budgetary Politics in the United States

March 2021 - June 2022 **Graduate Student**

Researcher

California Institute of Technology

Theoretical and experimental research in bipedal robotics

Sept. 2017 - Sept. 2020

- Managed six undergraduate summer researchers to create a semi-soft ankle exoskeleton
- Conducted research into cutting edge robotic theory for robotic assistive devices
- Worked on software, simulation, and experimentation for a lower body exoskeleton used to enable patients with paraplegia to walk without crutches

Undergraduate Student Researcher

Rice University

Design of mechatronic systems to rehabilitate or augment human motor control

Sept. 2015 - May 2017

- Investigated collaboration with Pediatric Orthopedic Surgeon to create a way to assess the effectiveness of surgery meant to negate the effects of Cerebral Palsy in young children
- Created software and hardware to use the OptiTrack Motion Capture System to analyze wrist movement in space
 - Utilized optimization methods presented by E.V. Biryukova in 2000 to artificially create wrist axes
 - Created a simple calibration and assessment game using MATLAB and QUARC
 - Built experimental hardware and investigated best arrangement of cameras and wearable markers
 - Processed data using a SavitzkyGolay filter
 - Prepared a pilot study and publication for Fall 2016
- Diagnosed and repaired legacy experimental robotic hardware

Teaching Assistant

Thermal System Design Course

Rice University

Aug. 2016 - Dec. 2016

- Graded and assessed student performance
- Held office hours to help students further understand the class material

Structural Engineering Intern

Structural analysis for jet engine turbomachinery

Pratt and Whitney

June 2016 - Aug. 2016

- Assessed current mid turbine frame geometry for new application
 - Used finite element analysis to convert thermal and barometric information for a full mission onto a structural model
 - Investigated key time points and geographical locations on model and pulled detailed information such as stresses, temperatures, strains, and displacements

- Analyzed the low cycle fatigue and thermal mechanical fatigue life cycles of the part
- Modeled high pressure turbine blades to simulate frequency testing
- Analyzed Low Pressure Turbine Case to assess displacement due to thermal and pressure gradients as well as external loading

Robotics Intern

NASA Johnson Space Center

Robotic assistive devices for space station and space suit applications

June 2015 - Aug. 2015

- Conducted research on Human Joint Position Sensing Technology
 - Performance trade study
 - Implemented Cartesian sensing into high level controls software
 - Performed integrated testing with robotic system
- Designed, tested, and implemented housings
- Developed a “Design of Experiments” for addressing wearable robotic control sensitivities using the Taguchi Method
 - Carried out testing and provided report and recommendations to team
 - Assisted in human in the loop testing of wearable robotic systems

Engineering Intern

LumaDyne, LLC

Electromechanical design and fabrication for aerospace and academic clients

June 2014 - Dec. 2014

- Key contributor to a machine used by Baylor School of Medicine to research brain trauma in rats
 - Independently researched, designed, and engineered a pneumatic control system
 - Designed and fabricated release mechanism
 - Tested to ensure desired results and safety
- Independently updated and recreated a spectrometer cooler
 - Populated PCB's and integrated them into designs
 - Edited drawings to accurately represent the updated project
- Created and tested a Solar Steam Generator to be used in underdeveloped nations
 - Researched, designed, and engineered pulley system to enable horizontal and vertical rotational movement

Marketing Intern

Terex Corporation

Global manufacturer of lifting and material processing products

May 2013

- Corporate Marketing Review – review of customer facing material to ensure consistency
- Marketing Budget Analysis – created a comprehensive report on spending
- Trade Show Review – presented summary of findings regarding how the company approaches trade shows and the effectiveness of the most recent one

AWARDS AND HONORS

IST/AWS AI4Science Cloud Credit Programs (Political Polarization, Geographic Sorting, and Novel Methods for Large Administrative Data) Cloud Computing Credits \$5,000	2022
GCP Research Credit (Tracking Protest Movements with Twitter) Cloud Computing Credits \$1,000	2022
First Year Award \$5,000 Stipend Supplement	2020
Big Ideas Fund \$75,000 in research funding for exoskeleton work	2019
National Science Foundation Graduate Research Fellowship (NSF GRFP) Graduate Student Stipend \$138,000	2017 - 2020
Henry L. Guenther Graduate Fellowship in Mechanical Engineering	2017

STANDARDIZED TESTING

- GRE: Verbal 162, Quantitative 165, Analytical Writing 4.5
- SAT: Critical Reading 760, Math 800
- SAT Subject Tests: Physics 750, Chemistry 750, Biology 800, Math II 800

TECHNICAL SKILLS

- Mastered: Python, R, Google Office Suite, LaTeX, Mathematica, MATLAB, Microsoft Office Suite, Simulink, SolidWorks
- Proficient: ANSYS, C++, ProE

PUBLICATIONS

- Reher, Jenna, Claudia Kann, and Aaron D. Ames. "An inverse dynamics approach to control lyapunov functions." 2020 American Control Conference (ACC). IEEE, 2020.
- Tucker, Maegan, Ellen Novoseller, Claudia Kann, Yanan Sui, Yisong Yue, Joel Burdick, and Aaron D. Ames. "Preference-based learning for exoskeleton gait optimization." 2020 IEEE international conference on robotics and automation (ICRA). IEEE, 2020.
- C.G. Rose, E. Pezent, C.K.Kann, A.D. Deshpande, M.K. O'Malley., "Assessing Wrist Movement with Robotic Devices," in IEEE Transactions on Neural Systems & Rehabilitation Engineering (TNSRE), 2017
- C. G. Rose, C. K. Kann, A. D. Deshpande, M. K. O'Malley., "Estimating Anatomical Wrist Joint Motion with a Robotic Exoskeleton," in IEEE Intl. Conf. on Rehab. Robotics (ICORR), 2017

PRESENTATIONS

- "Personal and Collective Identity in the 2020 Black Lives Matter Protests," Midwest Political Science Association. Chicago, IL, April 2022.

INTERESTS

Rock climbing, weight training, reading non fiction, cooking, international travel

ACTIVITIES

Bartender at Willy's Pub	2016 - 2017
Brown College Academic Fellow	2015 - 2016
Rice University Cheerleader	2013 - 2015
Tutor at Caroline house, Education Center for Immigrant Women and Children	2008 - 2013