

MICHAEL WILKINSON

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PROFESSIONAL SUMMARY

- Skilled engineer with broad experience in the analysis and design of novel sensorimotor control systems.
- Possess expertise in control system identification techniques, neuroscience applications, and modeling of locomotor systems informed by multi-modal sensation.
- Established and led multiple cross-disciplinary collaborations at Johns Hopkins University and Medical Institutions to address specific research challenges in sensorimotor control in biological systems.

EDUCATION

D.Eng Johns Hopkins University, Mechanical Engineering	May 2024
M.S.E Johns Hopkins University, Robotics 3.74 GPA	May 2021
B.S.E. University of Alabama, Electrical Engineering 4.0 Overall GPA, 4.0 Major GPA Minor in Mathematics and Physics Graduated from Honors College	May 2019
H.S. Mentor High School, Mentor, Ohio 4.0 GPA, Class Rank: 8/666 President of Ecology Club and Anti-Suicide Club	May 2015

HONORS AND AWARDS

Distinguished Graduate Student Fellowship, JHU Kavli NDI Competitive graduate fellowship (\$40,000 per year for 2 years) for mid- and advanced stage graduate student trainees at Johns Hopkins University to pursue cross-disciplinary research in neuroscience, engineering, and data science.	May 2021
Honorable Mention, National Science Foundation GRFP Competitive nationwide graduate research fellowship program (GRFP); only 2076 awards and 1787 honorable mentions in 2020.	April 2020
JHU Mechanical Engineering Department Fellowship Full stipend and tuition fellowship for one year, granted to select PhD applicants in Mechanical Engineering each year.	July 2019 – July 2020
University of Alabama Capstone Engineering Society ECE Outstanding Senior Award, April 2019 Prestigious award given to only one outstanding senior by UA CES and ECE departmental staff each semester.	
ECE Undergrad Research Fellows	April 2018

Granted for two semesters of research under Dr. Aijun Song, University of Alabama ECE department, on Autonomous Kayaks for Naval Data Collection.

Presidential Scholarship Fall 2016 – Spring 2019

Full tuition at the University of Alabama, awarded to me upon my sophomore year for my GPA, school involvement, and ACT scores.

President's List Spring 2016 – Fall 2018

Awarded to those with a 4.0 GPA or above each semester, every semester from the Spring of 2016 to the Fall of 2019.

RESEARCH EXPERIENCE

Bat Echolocation Project, Johns Hopkins University, Baltimore, MD

Jan. 2019 – Present

Mechanical Engineering PhD Researcher, Advisors: Dr. Noah J. Cowan and Dr. Cynthia F. Moss

- Investigating the underlying mechanisms behind echolocation call modulation in bats while they track airborne targets, leading to applications of acoustic-based sensing in aerial robotics.
- Established collaboration with the Psychological and Brain Sciences department leading to NSF Collaborative Research in Computation Neuroscience (CRCNS) funding.

Human Cerebellar Control Project, Johns Hopkins University, Baltimore, MD

March. 2021– Present

Mechanical Engineering PhD Researcher, Advisors: Dr. Noah J. Cowan and Dr. Amy J. Bastian

- Recording and analyzing VR target tracking data from patients with cerebellar ataxia and aged matched controls to model deficiencies caused by ataxia and create assistive technologies to combat deficiencies.
- Established collaboration with the Kennedy Krieger Institute leading to NSF funding and a conference poster presentation (100+ attendees).

MURI Dome Project, Johns Hopkins University, Baltimore, MD

July 2019 – Jan. 2020

Mechanical Engineering PhD Researcher, Advisors: Dr. Noah J. Cowan and Dr. James J. Knierim

- Recorded neural activity from brain hippocampus (CA1 region) of rats while they were jumping to analyze brain representation of 3D space for navigational applications in locomotor robotics.
- Established collaboration with the Neuroscience department leading to DoD Multidisciplinary University Research Initiative (MURI) funding and a conference poster presentation (400+ attendees).

R.E.U. Ionospheric Studies, University of Florida, Gainesville, FL

May 2018 – Aug. 2018

Undergrad Researcher, Advisor: Dr. Robert Moore

- Performed an analysis of ELF/VLF wave data generated by the High-frequency Active Auroral Research Program (HAARP) in order to map Ionospheric current densities for long distance communications applications.
- Research was funded through the NSF Research Experience for Undergraduates (R.E.U.) Program.

R.E.U. Autonomous Kayaks, University of Alabama, Tuscaloosa, AL Aug. 2017-May 2020
Mechanical Team Lead, Advisor: Dr. Aijun Song

- Assisted in the development of an automated kayak to be used for marine based sensing for applications such as weapons detection, biological sampling, etc.
- In Fall 2018 my research received funding through the NSF's R.E.U. program and I became an R.E.U. undergraduate researcher.

Electric Vehicle Emulator, University of Alabama, Tuscaloosa, AL Aug. 2018-May 2019
Senior Design Project Team Lead, Advisor: Dr. Mithat Kisacikoglu

- Directed and organize a team of peers in the creation of an Electric Vehicle (EV) Emulator capable of simulating the load behavior of a battery during high-power charging for EV charger and grid integration testing.
- Lead team in creating the power electronics circuit with active rectification and closed loop current control to simulate load power dissipation

Materials/Chemical Sensing, University of Alabama, Tuscaloosa, AL Jan. 2018-May 2019
Undergrad Researcher, Advisor: Dr. Adam Hauser

- Took careful measurements of designed materials exposed to water, DNT, and nitrobenzene to test the reactivity for use in military safety applications.

PRESENTATIONS/ PUBLICATIONS

D. Cao, **M. Wilkinson**, "The Cerebellar Contribution to Human Feed-forward and Feedback Visuomotor Control", *Society for Neuroscience (SfN) Conference*, Nov. 15, 2022

Y. Yang, **M. Wilkinson**, N. Cowan, L. Whitcomb, "Modeling Nonlinearities of Refuge Tracking in *Eigenmmania virescens*", *Society for Integrative and Comparative Biology (SICB) Conference*, Virtual Conference, Jan. 3-7th, 2021.

S. Lashkari, **M. Wilkinson**, B. Krishnan, J. Knierim, N. Cowan, "Decision-Making and Path Planning for Jumping Rats", *Dynamic Walking Conference*, Virtual Conference, May 14th, 2020.

M. Wilkinson, R. Moore, "Time of Arrival Analysis – Narrow versus Broad Beam Heating of Ionosphere", *American Geophysical Union (AGU) Conference*, Washington DC., December 10th – 14th, 2018.

M. Wilkinson, R. Moore, “Time of Arrival Analysis – Narrow versus Broad Beam Heating of Ionosphere”, *Radio Frequency Ionospheric Interactions (RFII) Conference, 25th Annual RF Ionospheric Interactions Workshop*, Washington D.C., July 29th – August 2nd, 2018.

PROFESSIONAL TRAINING

Deshazo Automation/LLC., CO-OP, Electrical Engineering, Aug. 2016 – Aug. 2017

- Trained to program industrial scale robotics and relevant software for applications in a wide range of industries, leading to being one of the lead programmers of a robot installation at the Amerex Corporation and of a computer vision system used for part sorting.

COMPUTER SKILLS

Languages: Matlab, C/C++, R, Python, Visual Basic, Assembly, Fanuc Robot Coding, Quartus

Softwares: Matlab, ROS, Simulink, SolidWorks, RStudio, AutoCad, PSpice, LTSpice, Halcon Vision Software

LEADERSHIP AND ADVOCACY

Graduate Representative Organization (GRO), Co-Chair, JHU May 2022 – Present
Manage and lead the largest (2000 students) graduate student organization at Johns Hopkins Homewood Campus. I serve as the primary liaisons between the GRO and University administration and all other University and non-University bodies or representatives, and many other organization specific roles.

Doctor of Philosophy Board, Student Member, JHU Aug. 2022 – Present
Advise the Provost about University-wide issues pertaining to the Ph.D. and approve and review Ph.D. programs

Police Accountability Board, Student Member, JHU Aug. 2022 – Present
Help directly shape the development and operation of the future Johns Hopkins Police Department

LCSR Graduate Association (LCSRGA), Treasurer, JHU Sept. 2022 – Present

Teachers and Researchers Union (TRU), Communications Team Co-Chair, Johns Hopkins University, Jan. 2021 – Present
TRU is the student worker union at Johns Hopkins University. Our goal is to ensure fair labor rights and practices for all of our students who are performing research at the university. I communicate important information to our members about opportunities for the union as we work towards official recognition by the university.

Graduate Representative Organization (GRO), Treasurer, JHU Feb. 2022 – May 2022

Mechanical Engineering Graduate Association (MEGA), Social Events Co-Chair, JHU
Aug. 2021 – Present

Graduate Representative Organization (GRO), Robotics MSE Departmental
Representative, Johns Hopkins University, Sept. 2021 – Feb. 2022

MentorUPP Program, Outreach Committee Chair and Alumni Mentor, University of
Alabama, Aug. 2017 - Present

ECE Ambassador, College of Engineering, University of Alabama, Aug. 2018 – May 2019

COMMUNITY SERVICE

Charles Village Civic Association Charles Village in Baltimore, Maryland
July 2020 - Present
Member of the neighborhood association for the Charles Village community in Baltimore
City which addresses community concerns and hosts various programs such as community
events, food and news distribution, educational programs, etc.

Donations and Work through Free and Accepted Masons and the Shriners
Sept. 2017 - Present
Rising Virtue Lodge #4 and Zamora Shrine, Tuscaloosa, Alabama,

Mission Trip to the Hanbury Home in Mandeville, Jama
June 18, 2017 - June 27, 2018
Northport First United Method Church in Northport, Alabama

REFERENCES

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Dr. Cynthia Moss, Chair and Professor
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Dr. Amy Bastian, Chief Science Officer and Director
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