**Aaron Lorenzo Woods** alwoods@utexas.edu | aaronwoods.info

Department of Biomedical Engineering

Cockrell School of Engineering

The University of Texas at Austin

Austin, TX 78712

**EDUCATION**

**Ph.D. Biomedical Engineering** June 2026 *(expected)*

University of Texas at Austin GPA: 4.0

Portfolio in Imaging Science

**B.S. Engineering Leadership**  December 2020

University of Texas at El Paso (UTEP) GPA: 3.46

Minor in Commercial Music and Recording

**PUBLICATIONS AND PATENTS**

Niemeier, R., Schnoor, N., **Woods, A.L.,** Rogers, J.D. “Calibration of liquid crystal variable retarders using a common-path interferometer and fit of a closed-form expression for the retardance curve,” published to **Applied Optics**, October 2020.  
  
Malady, B., **Woods, A.L.,** Pogue, M., Purani, H. “Theranostic Delivery System,” **Provisional Patent** Application, No. 63/442436, granted March 2, 2023.

Engelmann, S.A., Tomar, A., **Woods, A.L.,** Dunn, A.K. “Pulse train gating to improve signal generation for in vivo two-photon fluorescence microscopy,” published to **Neurophotonics,** October 2023.

Chu, D.Y., Ravelli, M.N., Faltersack, K.M., **Woods, A.L.,** Almane, D., Li, Z., Sampene, E., Felton, E.A. (2023). “Hypocarnitinemia and its effect on seizure control in adult patients with intractable epilepsy on the modified Atkins diet,” submitted to **Frontiers in Nutrition, Nutrition and Metabolism**, September 29, 2023. Manuscript ID: 1304209.

**RESEARCH EXPERIENCE**

**Graduate Student Researcher,** University of Texas at Austin2021 – Present

Department of Biomedical Engineering | *Advisor: Dr. Andrew Dunn*

* Developed optical imaging techniques and alignment of laser microscope systems
* Investigating digital image processing, quantification, and visualization
* Training on surgical craniotomies and animal care for neurovascular imaging
* Conducted experiments, simulations, data analysis, and summarization of findings

**Graduate Rotation Student,** University of Texas at AustinSummer 2021

Department of Biomedical Engineering | *Advisor: Dr. Mia Markey*

* Design of decision support system for breast cancer patients
* Collaborated with researchers and clinicians to improve patient care
* Investigated the role of emotions, biases, and heuristics in decision making

**Graduate Rotation Student,** University of Texas at AustinFall 2021

Department of Biomedical Engineering | *Advisor: Dr. Evan Wang*

* Conducted EEG data acquisition and analysis to analyze the brain while sleeping
* Created SOP for fabricating state of the art dry electrodes for long recordings
* Assisted with the design and testing of novel electrode materials

**Undergraduate Student Researcher,** University of Texas at El Paso2019 – 2020

Create Lab | *Advisor: Dr. Peter Golding*

* Innovated on engineering education regarding ethics and leadership
* Programmed advising software to assist with course recommendation
* Optimized the advising process to better facilitate faculty and student

**Undergraduate Student Researcher,** University of Wisconsin-MadisonSummer 2019

Adult Neurology Ketogenic Diet Therapy Clinic | *Advisor: Dr. Elizabeth Felton*

* Data visualization of patient data for clinical and dietary analysis
* Managed HIPAA compliance, safety, and ethics for patient research
* Shadowed doctor-patient relationship and treatment of epilepsy

**Undergraduate Student Researcher,** University of Wisconsin-MadisonSummer 2018

Biomedical Optics Lab | *Advisor: Dr. Jeremy Rogers*

* Constructed an interferometer to measure phase delay
* Programmed an automated calibration software for optical equipment
* Inspected laboratory standards and practices for maintaining lab

**RESEARCH FUNDING**

**Ruth Kirchstein Imaging Science Fellowship,** National Institutes of Health 2021 – 2022

* $27,591 awarded over 1 year

**West Texas Fellowship,** The University of Texas at Austin2022 – 2024

* $32,000 awarded over 1 year

**Cockrell School Fellowship**, The University of Texas at Austin 2024 – 2025

* $20,000 awarded over one year

**Thrust Fellowship Supplement,** The University of Texas at Austin2021 – 2025

* $36,000 awarded over four years

**Dean’s Fellowship Supplement,** The University of Texas at Austin 2021

* $1,000 awarded over one year

**ACADEMIC APPOINTMENTS**

**Graduate Student Researcher** Summer 2021 – Present

University of Texas at Austin, Department of Biomedical Engineering

**Undergraduate Student Researcher** Fall 2019 – Spring 2020

UTEP, Department of Engineering Education and Leadership

**Undergraduate Student Researcher** Summer 2018, 2019

University of Wisconsin-Madison**,** Department of Biomedical Engineering

**Undergraduate Teaching Assistant** Spring 2018

UTEP, Department of Engineering Education and Leadership

**TEACHING EXPERIENCE**

**Undergraduate Teaching Assistant,** University of Texas at El Paso Spring 2018

Department of Engineering Education and Leadership | *Design Nature*

* Coordinated the trainings of students to use a fabrication laboratory
* Taught procedures on computer-aided design and simulation
* Directed the development process to build working prototypes

**HONORS & AWARDS**

**Texas Health Catalyst Finalist,** Dell Medical Center 2023

Awarded Industry Mentorship to Commercialize a Product.

**Marvin & Ellie Selig Entrepreneurship Award,** Texas Innovation Center2022

Awarded $2,500 to advance an entrepreneur effort by developing prototypes.

**Imaging Science Best Poster Award,** The University of Texas at Austin 2022

**Engineering Leadership Character Award,** University of Texas at El Paso 2020

Awarded by department to one graduating student with exceptional character.

**Hunt Startup Sponsorship,** Arrowhead Center 2020

**Bob & Diane Malone Leadership Scholarship** University of Texas at El Paso 2016 – 2020

**Theta Delta Lambda Education Scholarship,** University of Texas at El Paso 2016

**Robert G Neill, Jr Scholarship,** University of Texas at El Paso 2016

**College of Engineering Dean’s List,** University of Texas at El Paso 2016 – 2018

**POSTER PRESENTATIONS**

* Aaron L. Woods; Andrew K. Dunn. **Investigating Neurovascular Angiogenesis through Optical Imaging.** University of Texas at Austin T32 Retreat, Austin, TX, USA, May 10, 2022
* Arron L. Woods; Daniel Y. Chu; Michele N. Ravelli; Kelly Faltersack; Elizabeth Felton. **Carnitine Deficiencies: Clinical Insights for Ketogenic Diet Therapies.** UW- Madison SURE Poster Session, Madison, WI, USA, July 31, 2019
* Arron L. Woods; Jeremy D. Rogers. **Automated Calibration of Liquid Crystal Variable Retarder**. UW- Madison SURE Poster Session, Madison, WI, USA, July 31, 2018
* ESW-UTEP. Project Mine-Rcycler: **Producing filament and 3D printed consumer goods from plastic waste.** Engineers for a Sustainable World 2019 Annual Conference Poster Session, El Paso, TX, USA, April 5, 2019

**ACADEMIC SERVICE**

**Chairman of the Board of Directors,** ICC Austin 2022 – Present

501(c)(3) Non-Profit | *ED: Ashleigh R. Lassiter*

* Facilitated meetings to align groups with the strategic vision and mission.
* Guided discussions with various stakeholders on property management.
* Directed the board's initial strategic plan to improve staff retention and housing.

**Black Graduate Student Agency Director,** Graduate Student Assembly 2022 – Present

The University of Texas at Austin

* Built relationships with underrepresented groups committed to equality
* Plan professional development, advocacy, and social events.
* Promote the interests of the graduate student population

**Community Organizer,** Sunrise Movement El Paso 2020 – 2021

* Strategized solidarity and trust building with local allies
* Plan and organize with other organizations for joint efforts
* Established weekly virtual meetings for safe discussions

**Social Chair,** Green Team (UTEP) 2020

**Webmaster,** Engineers for a Sustainable World (UTEP) 2017 – 2019

**College Recruiter,** University of Texas at El Paso 2018

**Volunteer Leader,** Young Life College (UTEP) 2016 – 2018

**PROFESSIONAL EXPERIENCE**

**Sr. Intern (Co-op),** *Thermo Fisher Scientific Inc. (MSD)*  2023 – December 2023

Pioneered a neural network project, applying CNNs for enhanced image classification pivotal to semiconductor defect analysis. Implemented and refined machine learning algorithms using TensorFlow and Keras, leading to improved diagnostic capabilities. Developed a Python script to automate image data collection, yielding a large-scale image repository that facilitated the advancement of AI model training and accuracy in material analysis.

**Co-founder,** *Therosafe (Startup)*2021 – Present

As co-founder of a startup in the field of theranostics, I play a multifaceted role with a focus on operations. I contributed to the development of the company's concept, deliverables, and presentations, created visualizations to showcase the product, and applied to various competitions to clearly articulate the need we are solving.

**Community Outreach Specialist,** *University of Texas at El Paso*  2020

Experienced in developing and implementing marketing programs for outreach/recruitment. Assisted in curriculum and materials development. Evaluated program success and adjusted. Conducted program education and exhibit presentations.

**Project Manager,** *US Army NETCOM*  2020

Project Manager with experience leading a team of engineers to improve military data collection tools. Produced technical reports, organized processes, and evaluated evaluation methods and database UX design.

**Project Analyst,** *University of Texas at El Paso*  2018 – 2019

Extracted and visualized retention rates using historical enrollment data. Assisted with in-person, online, and telephone inquiries for academic department operations. Improved the advising process for 200+ students and mentored student staff for future data management and reporting.

**College Recruiter,** Department of Engineering Education and Leadership 2018 -2020

Experienced in leading STEM events, increasing student enrollment and retention. Implemented innovative sessions for K-12 students.

**Sound Engineer,** Beacon Hill Recording Studios, LLC 2018 – 2019

Experienced in microphone placement and sound recording. Verified signal-flow configurations and used industry-standard DAWs for editing and mixing. Collaborated with musicians and producers to deliver high-quality recordings.

**Student Ambassador,** Amazon | Riddle and Bloom 2018 – 2019

Improved brand awareness through coordinated events with 300+ student interactions. Developed and executed digital, experiential, and peer-to-peer tactics for student engagement. Collaborated with school organizations for growth opportunities and mutual support.

**Project Finance Engineer,** Sonora Bank2017

Experienced financial engineer with a focus on personal financial statement design and formatting. Shadowed bank operations and presented financial operations in group meetings. Improved financial operations for community banks.

**CONFERENCE PARTICIPATION**

**Latinx Student Leadership Community Summit,** Google 2020

**Neuroscience Initiative to Enhance Diversity Program,** UC Davis 2020

**Social Change Leadership Summit,** UTEP 2019 – 2020

**Opportunities in Engineering Conference,** UW-Madison 2018