Daniel T. Knaus

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EDUCATION

University of Arizona, Tucson, Arizona
Bachelor of Science in Biomedical Engineering | GPA: 3.5 May 2025

WORK EXPERIENCE

Undergraduate Researcher August 2024 – Present
Dr Philipp Gutruf Lab | BIO5 Institute | Tucson, Arizona

- Explored single-arm ECG methods to evaluate the potential for accurate signal acquisition in wearable technology.
- Designed and optimized carbon-based electrodes using AutoCAD, enhancing signal quality in experimental testing.
- Developed a custom-fit shoulder mesh to stabilize electrode placement, enabling consistent signal detection during trials.

Undergraduate Researcher August 2022 – December 2023
Dr Ying-Hui Chou | BIO5 Institute | Tucson, Arizona

- Contributed to clinical trials involving transcranial magnetic stimulation for memory enhancement in Alzheimer's patients.
- Led discussions on integrating insights from scientific journals, resulting in adjustments to stimulator output calculations considering scalp-cortex distance.
- Designed detailed diagrams of on-sight medical equipment, streamlining equipment setup for lab members and improving operational efficiency.

Undergraduate Learning Assistant Jan 2025 – May 2025
University of Arizona Salter Lab, Tucson, Arizona

- Selected as Undergraduate Leading Assistant for the Medical Device Design Class, beginning Spring 2025 semester.

SKILLS

Technical: Eagle CAD, SolidWorks, AutoCAD, Soldering, 3D Printing, Microsoft Office: Word, PowerPoint, Python, Laser Cutting
Professional: Verbal communication, project management, quick learner, product design, self-management, team collaboration, leadership, adaptability, analysis, testing, experimental experience

PROJECTS

Heart Rate Monitor Watch **Tucson, Arizona, USA**

- Structured a comprehensive Gantt Chart to coordinate efficient team execution of the heart rate monitor watch within a strict timeframe.
- Designed a printed circuit board using Eagle CAD, integrating pulse oximeter functionality and wireless communication capabilities.
- Led the PCB manufacturing process, including soldering components and debugging to ensure functionality.
- Designed mechanical components using Fusion 360, including a rubber wristband, aluminum buttons, and polycarbonate covers.
- Manufactured mechanical parts using diverse methods, including lathe turning, laser cutting, and water jet cutting, ensuring precise fabrication.
- Collaborated on Arduino ICE coding for wireless signal transmission, enabling seamless communication between the device and server.

LEADERSHIP EXPERIENCE

Senior Capstone Project August 2024 – Present

Team Lead | Point of Care Device for Detection of Heavy Metals, Inorganics, & Microplastics in Water

- Coordinated timeline and deliverables with supervisors to confirm all tasks and assignments were completed in a timely manner
- Designed, manufactured, and tested a paperfluidic device to accurately detect heavy metal and inorganic concentrations in water samples.

Kappa Sigma Fraternity November 2021 – May 2023

Founding Father, Social Chair

- Reestablished the Kappa Sigma fraternity at the University of Arizona.
- Contributed to recruitment of members with strong characters and academic backgrounds increasing membership from 18 to over 100 members.
- Planned and executed collaborative events with external organizations, resulting in strengthened partnerships and increased community engagement.
- Performed regular community service at various locations including homeless shelter, food pantry, and animal shelter with a notable achievement of breaking the record for speed and efficiency at the food pantry.

Medical Device Club

Vice President August 2022 – December 2024

- Hosted recruitment events resulting in a 200% increase in recurring attendance since the prior executive committee.
- Organized and led hands-on workshops for club members, teaching proper soldering techniques to enhance practical skills and support technical project development.
- Represented the Medical Device Club at Engineering Body meetings, advocating for proper allocation of funds to our club, resulting in the maximum allowable yearly funding allocation.