

David Botana

davidbotana2024@u.northwestern.edu | (219) 916-0863 | <https://www.linkedin.com/in/david-botana/>

EDUCATION

Northwestern University, Evanston, IL June 2024 B.S. in Biomedical Engineering: GPA 3.4/4.0

SKILLS

Computer: chatGPT, Python, Swift, MATLAB, Microsoft Office, and Photoshop

Modeling: SolidWorks, Fusion 360, and Blender

Manufacturing: Carpentry, Mill and Lathe, CNC Mill, Waterjet, Soldering, 3D printing (resin, nylon, PLA, ABS)

Language: Fluent in English and Spanish, conversational in Italian and French

EXPERIENCE

Manufacturing Consultant McCormick School of Engineering, Northwestern University, Evanston, IL September 2023 - March 2024

- Dedicate 10 hours weekly to the development of a cost-effective, battery-powered blood sample incubator designed for deployment in remote areas.
- Engage in a collaborative effort with a team of three peers, guided by Professors Thomas McDade and Mathew Glucksberg
- Employ Computer-Aided Design (CAD) to conceptualize and fabricate 3D printed components critical to the incubator.
- Acquire specialized manufacturing shop skills, including milling and soldering, to construct the conductive heating element.
- Spearhead the production of an initial batch of 10-20 units, subsequently contributing to clinical studies assessing the device's efficacy in the Philippines and other regions pertinent to Professor McDade's research on inflammation related to COVID-19.

Fehribach Center Intern, Institute for Accessible Science, Purdue University, West Lafayette, IN June 2023 – August 2023

- Worked 40 hours per week through The Gregory S. Fehribach Center at Eskenazi Health, which facilitates internships for people with disabilities
- Designed innovative assistive technology devices tailored for wet-lab environments, enabling individuals with disabilities to engage independently
- Engineered micropipette adapter to provide mechanical advantage and utilize finger flexion instead of thumb opposition
- Developed a 3D-printed fractal vise to hold containers of various sizes, freeing up the non-dominant hand for other tasks

Undergraduate Research Assistant, Center for Advanced Regenerative Engineering, Evanston, IL March 2022 – June 2023

- Complete dry and wet lab research on menstrual blood stem cells to treat diabetic wounds
- Collected menstrual blood from 10 donors that were then anonymized
- Isolated, propagated, and characterized the menstrual mesenchymal stem cells (MSC) to be seeded into a deoxidized amniotic membrane (DAM)
- Cultured cells and confirmed MSC presence using fluorescent immunocytochemistry
- Developing proprietary DAM to minimize supply-chain challenges and improve cost efficiency
- Lead a four-person committee investigating the FDA certification process, patents, and business model
- Initiating animal experiments with db/db mouse model

Project Manager, Segal Design Institute, Evanston, IL September 2020 – March 2021

- Prototyped a therapeutic system to improve wrist mobility for patients with spinal cord injuries for the Shirley Ryan AbilityLab
- Developed a COVID-19 check-in system for the afterschool program for the St. Joan of Ark School Evanston

Design Consultant, Autodesk, San Francisco, CA September 2014 – June 2016

- Completed 3D-scan of the arm to create a personalized fit for the device
- Fabricated fore-arm exoskeleton with modular capabilities using FDM 3D printer with carbon fiber nylon and TPU

LEADERSHIP

Committee Athlete Representative, Olympic and Para-Equestrian Committee January 2021 – Present

- Four Year Term representing as Para Eligible Athlete
- Develop and recommend policy for the discipline, including fundraising and allocation of resources to improve financial accessibility of the sport

Co-Director, Sexual Health and Assault Peer Educators (SHAPE), Evanston, IL January 2022 – Present

- Lead executive board in organizing events and improving availability of sexual and reproductive health products on campus
- Completed 40-hour trauma-informed training as a peer educator to serve the Northwestern student community
- Facilitated 30+ conversations about consent, healthy relationships, supporting survivors, and bystander intervention with student organizations and incoming first-year and transfer students

President, Happiness Club, Evanston, IL December 2020 – Present

- Coordinate weekly newsletter and social media posts advertising upcoming barrier-free events promoting mental health
- Organize and manage weekly meetings with general members and the executive board