Rachel Brockman

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EDUCATION

University of Southern California, Los Angeles, CA

Master of Science, Mechanical Engineering — **GPA:** 4.00 — **May 2024**

Bachelor of Science, Biomedical Engineering (Mechanical Emphasis) — **GPA**: 3.86 — **May 2022**

Computer Programming Minor

Relevant Coursework: Mechatronics, Advanced Mechanical Design, Design for Manufacturability and Assembly

SKILLS

SolidWorks (CSWA Certified), Tolerance Analysis, ASME Y14.5, DFMA, C++, Python, Arduino, LabVIEW, MATLAB, Minitab, 3D-Printing, Swift, Java, Javascript, HTML/CSS, Photoshop, Microsoft Suite, G-Suite, Basic Spanish

EXPERIENCE

Medtronic, Northridge, CA

Mechanical Design Engineer I — **August 2022 - Present**

- Leading technical effort to engineer rework methods for $16 million of defective pump inventory, resulting in successful reclamation of 20,000 pumps to date.
- Designing and manufacturing test fixtures to support development of next-generation pumps in SolidWorks
- Engineering novel insulin delivery system via internal innovation initiative after pitching and securing project development approval and $20,000 funding from VP of Product Innovation
- Prototyping strategic design changes for continuous glucose monitor patch liner to mitigate patient complaints and enhance product usability
- Informing mechanical drawing updates through CETOL and Excel-based tolerance analysis and testing of insulin pump components

Mechanical Engineering Intern — **June 2021 - August 2021**

- Designed charger and latching mechanism in SolidWorks for next generation insulin pump programs, resulting in filing of two patent applications
- Coded Python script for sensing and tactile feedback improvements for next generation pumps
- Drove cross-functional collaboration for user-centric designs to reduce patient burden in physical prototypes, resulting in 20% increase in ease-of-use rating in product usability survey

ENGINEERING PROJECTS

MEDesign Speculum Redesign — **August 2019 - May 2022**

- Led team of three undergraduate students in development of novel vaginal speculum for obese patients
- Moderated team discussions with 20+ physicians and industry professionals to inform design of device
- Created prototype in SolidWorks based on physician input and team research
- Competed in USC Viterbi Maseeh Entrepreneurship Prize Competition and pitched product to panel of investors and senior engineering faculty, resulting in fourth place out of hundreds of submissions

Next Level Grip (USC BME Senior Design Project) — **August 2021 - December 2021**

- Spearheaded product development process, encompassing needs finding, requirement definition, functional decomposition, concept screening, and software state diagramming and wireframing
- Utilized SolidWorks and LabVIEW to design and develop a device to aid stroke survivors recover grip strength in both flexion and extension
- Oversaw manufacturing efforts of device, including 3D printing, CNC milling, and assembly

LEADERSHIP

USC Associated Students of Biomedical Engineering (ASBME) Executive Board — **May 2019 - May 2022**

Mentorship Chair (‘19-‘20), Secretary (‘20-‘21), Corporate Chair (‘21-‘22)

- Organized corporate development workshops and networking events for members of organization, including annual corporate dinner event with 17 industry representatives
- Authored corporate sponsorship solicitation packet and facilitated communications between ASBME and corporations to form a mutually beneficial relationship resulting in $2000 in funding
- Planned meetings and events to enrich academic and social experience of 100+ Biomedical Engineering students

USC MEDesign Medical Device Design Team Executive Board — **May 2019 - May 2022**

Funding Chair (‘19-‘20), Corporate Chair (‘20-‘21), Vice President (‘21-‘22)

- Directed discussions during 14-member executive board meetings to coordinate and manage club operations
- Coordinated logistics for interviews of 100+ member candidates
- Planned and facilitated general meetings and workshops for 30+ general members on eight design teams