

Jack Casey

**Graduation Year:** Senior

**College:** Engineering

**Major(s):** Chemical Engineering

**Minors(s):** None

**Scholar Group Membership:** No

**Did you received other funding for this project?:** No

**Could you have completed this project without CUSE funding?** No

**More details on CUSE funding assistance?**

**Project Title:** 3D Hydrogel-Based Microwell Arrays As A Tumor Microenvironment Model To Study Breast Cancer Growth

**Project Location:** Biomedical Engineering Society Annual Meeting, Minneapolis, MN

**ND Faculty Mentor:** Dr. Pinar Zorlutuna

**Project Type:** Conference - Presentation

**Why did you undertake this project/experience?** Deepen your knowledge of a topic or issue, Prepare for graduate school (MA or PhD), Career discernment and/or preparation

**Did your funded experience help you:**

**[Deepen your understanding of your coursework or field of study]:** A Little

**[Discern your interests and post-bac goals]:** Very Much

**[Become confident in your ability to set and achieve your goals]:** Yes

**[Gain a more nuanced view of local, national, or global communities]:** Yes

**[Improve your written and verbal communications skills]:**Very Much

**Tell us about your experience.**

I spent 3 days at the BMES Annual Meeting in Minneapolis, a gathering of several thousand biomedical engineers and scientists. I presented my research throughout the day on Thursday and had the opportunity to share my work with other undergrads, grads, post-docs, and other advisers and researchers. During each day of the conference there were so many research presentations to attend, all organized around similar topics. I spent a lot time listening to presentations in the "Cancer Technologies" and "Biomaterials" tracks. This was also my first time at a research conference and I was blown away by the amount of people there. A post-doc in my lab mentioned that this was one of the smaller conferences he had been to but it was still around 4 or 5 thousand people.

I also attended the session "Engineering Low-Cost Solutions to Address Health Care Disparities." A panel discussed their work in The Rio Grande Valley area near the Texas-Mexico border. Here, women are more than twice as likely to develop cervical cancer as the national average. A team of researchers at Rice University and University of Texas have assembled a mobile health clinic van that travels to the Rio Grande Valley to provide free cancer screenings and preventative education. Graduate students created simple visual tools to compare normal,

healthy tissue to cancer tissue for local nurses to use. The team is currently monitoring the effectiveness of the tools to see if there is a noticeable change in the detection and treatment rates among women in the Rio Grande Valley.

**Describe the impact this project had, both on you as a student-scholar and on the people you worked with.**

My research project will be sent to a journal for publication in the next few weeks. This conference helped me finalize and tidy up my last manuscript revisions. I shared my work with several people who offered their own expertise in the forms of additional questions or tips to bolster the discussion segment of my paper. In a similar vein, I visited a few other poster presentations focusing on 3D models for breast cancer and shared my own knowledge as well as gathered some new ideas for future project directions. I also learned how the research world functions in a larger context. As an undergrad I am primarily focused on my own research and do not have much familiarity with the interactions between different research groups and universities. This was my first glimpse at the larger, collaborative research environment. Biomedical science enthusiasts, new and experienced, are all gathered together to foster knowledge for the advancement of the field and greater good of the world.

**Describe how this experience is connected to your plans as a student or future professional.**

I am grateful for the effect this conference presentation had on my future career plans. At first I was absolutely sold on the idea of graduate school and continuing biomedical research but now I am not so sure. There are so many amazing research projects that I got to witness, but while I thought they were interesting, I was not sure if I could see myself working on them. I am not sure if a future career in research is right for me. I spent time talking to some of the grad schools that had conference booths and I did not develop a strong feeling towards one or the other. I will continue to finish my current research project but I need to spend time deciding whether a future in biomedical engineering is right for me.

**What advice would you give other students who are planning to pursue similar projects?**

If anyone else was looking to attend a research conference like BMES, I would tell them to do plenty of research and preparation beforehand. This was my first conference and I went into it not knowing what to expect. I had a busy week at school leading up to the conference and I felt I did not have any time to prepare until after I boarded my flight. These conferences can be overwhelming and tiring so coming up with a clear plan, perhaps even a daily schedule of the events you want to attend, will help keep things manageable. Also, go into the conference ready to learn. There are so many different presentations, both in poster and oral format, that it is hard not to find something that interests you. And be sure to introduce yourself to the poster presenters next to you! I met a grad student from University of Wisconsin and ended up spending most of the day walking around to different presentations and exhibits with him.

I acknowledge that this form has been filled out truthfully and to the best of my ability. I understand that this information will be shared with many different CUSE constituencies. As such, I have provided as much useful information as I was able. I understand that CUSE will not complete my award disbursement until this form is successfully completed. If I have any questions or concerns, I will contact CUSE before submitting this form. To illustrate that you understand all of these points, please enter your Notre Dame email in the box below.

jc Casey2@nd.edu

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