

Keynote Session, Celebration Day
Senior Project Presentations

Jack Ohrman '17
Environmental Studies and Studio Art

R2 Tree2: Speculative Design in Environmental Sampling

Abstract: This project is exploring speculative design concepts in the field of robotics as they relate to environmental science and field sampling, specifically soil sampling. Many factors cause soils to become degraded and damaged resulting in widespread negative impacts. A great deal of information that can be learned about an ecosystem through the soils. Nearly all of the factors that can be measured in soils can be related back to pH including nutrients, salinity, nitrogen, organic carbon, aluminum, and micronutrients making it one of the most important factors to test. Through this project a platform has been designed which will collect soil samples and navigate the landscape autonomously using a GPS-based guidance system. Using an Arduino mega 2560 controller, GPS, compass and front mounted sonar the robot will navigate to a predetermined GPS coordinate and avoid obstacles in its path. The wheels are independently powered by four Actobotics gear motors. The soil collection is conducted by a 180lb thrust Robot Zone actuator with a soil corer. In the speculative design realm, this project sparks conversation as to the use of robotics in environmental sampling and the larger consequences and/or benefits to pursuing this technology. This project shows the potential for robotics in environmental science and asks questions about the practicality, feasibility and potential for advancing this field.

Jocelyne Serafin '17
Political Science and Communication Arts

The Latino Voter Identity: How their identity was constructed during the 2016 elections and how the presidential candidates courted the Latino Voter.

Abstract: Latinos have been an under-research group and have not obtain the credibility they deserve as they are becoming Americas next majority group. Latinos have had and continue to have the power to influence elections but have often been overlooked as a voter group. Therefore, my research focused on the Latino voter and their identity. I examined how the Latino voter identity was constructed during the 2016 election by sources like Univision and public opinion polls. The image that these sources portrayed did not only re-shape their identity but perpetuated past generalizations of the Latino Voter. Additionally, Hillary Clinton's and Donald Trump's campaigns helped further the Latino identity by portraying how they imagine the latino voter. As a result, these constructions created a limited identity and were used to court the latino voter a certain way.

Lora Waybright '17
Neuroscience and International Studies

From Gut Microbiota to Macro-level Influences: Depression from Two Perspectives

Abstract: Current pharmaceutical methods, grounded in a biomedical, monoamine-based hypothesis of depression, fail to account for the host of multifactorial influences which affect the prevalence of major depressive disorder (MDD), including stigma, access to mental health care, and other cultural influences, or incorporate models such as the hygiene hypothesis and the

inflammatory model of depression into treatment approaches. However, recent research on the influence of gut microbiota on the enteric nervous system has found that specific strains of bacteria may have beneficial effects on the “gut-brain connection” in psychiatric disorders such as major depressive disorder (MDD). This study examined the effects of a multi-species, multi-strain probiotic in a randomized controlled trial of 100 participants on symptoms of depression as measured by the Center for Epidemiologic Studies Depression Scale (CES-D) while accounting for a number of other variables, such as mode of birth, exposure to animals, and rural or urban upbringing. Additionally, a cultural perspective was utilized to examine the discrepancy in the national lifetime prevalence of depression in Mexico and the United States.