

University of Rochester  
Discover Grant Proposal Submission  
Summer 2016

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Overview - Project Bridge: [http://www.ece.rochester.edu/projects/wcng/project\\_bridge.html](http://www.ece.rochester.edu/projects/wcng/project_bridge.html)

Emotion is the complex psychophysiological experience of an individual's state of mind as interacting with biochemical and environmental influences. Most existing emotion classification methodologies are based on subjective self-reported data. It has been found that prosodic variations in speech are closely related to people's emotion, thus automatic passive emotion classification becomes possible. In collaboration with researchers in the [Clinical and Social Sciences in Psychology Department](#) at the University of Rochester, the Bridge Project explores ways of detecting emotions from speech, without interpreting speech content, or using facial expressions or body gestures. This sort of emotion classification is likely to have a broader appeal, as it is less intrusive than interpreting speech content or capturing images. Health care providers and researchers can put emotion detectors and other behavior sensing technologies on mobile devices for patient monitoring or behavior studies. Also, emotion recognition technology will be an entry point for elaborate context-aware systems for future consumer electronic devices or services.

Estimated Costs	Dates	Weeks	Cost/Week	Total
Living	May 16 - August 26	11	\$100	1100
Food	May 16 - August 26	11	\$75	700
Classes	May 16 - June 24	6	-	3344
<b>All</b>	<b>May 16 - August 26</b>	<b>11</b>	-	5144

The goal is to stay for the 11 weeks of the Summer break and work as a Research Assistant III for \$12/hour. For a 40 hour week, this sums to \$5280 over the course of the Summer, which should pay for all costs involved. The class included is CSC 296 Mobile Application Development, which will kickstart my ability to develop on that aspect of the research.

**How does this proposal increase and enhance undergraduate research opportunities for undergraduates at the University of Rochester?**

This grant will allow me to engage in a project that is currently unfunded. Funding would allow me to be paid by the hour as a research assistant.

This grant would increase and enhance my undergraduate research opportunities by allowing me to be a part of a cutting-edge project. This project is in its early development stages, providing me with the opportunity to take part in solving problems that are unique to newer research. Specifically, there are multiple aspects of this project that touch upon many of my interests and allow me to apply the knowledge I've learned across the variety of disciplines I've studied at the university.

The primary goal of the research is to be able to analyze emotion from voice separate from the speech content. As someone who has studied audio and music engineering here, I'd be very excited to have the opportunity to work with this kind of vocal analysis.

The implementation of this research involves designing a system where a wireless microphone can transmit speech to a mobile device when it is in range. I would be tasked with figuring out how to connect and reconnect a mobile device to the microphone automatically. This would allow me to apply my knowledge as an electrical engineer.

The software that runs this process must also be created. This would involve designing and coding the application on a mobile platform. I am particularly interested in working on this portion of the research because it will allow me to solve many of the computer science problems that arise from coding a mobile application from scratch.

**To what extent will this work go forth without this funding?**

I will not be able to work on this project this summer without this grant support.

**To what extent is this work financially supported by others (department/program, PI support, outside grant funding, student contribution)?**

As noted before, this research is not currently funded by an extramural grant, so no financial support will be coming from the PI. Additionally, the ECE department does not have any summer research funds for undergraduate students. .

**Describe potential safety issues that might arise with this work and the extent to which training and preventative measures will be taken to prevent accidents and/or injury.**

There are no safety issues that might arise with this work.

**How will the undergraduates working on this project be supervised/mentored?**

Students working on this research project will be part of a team that includes 2 faculty members, 2 PhD students, and a number of undergraduate students. Weekly meetings will be held to discuss the research, and weekly write-ups and emails will be exchanged between the students and the faculty.