

Call for Proposals:  
2011-12 Ethel Louis Armstrong Foundation Endowment  
Assistive Technology Faculty-Student Collaborative Projects  
California State University, Northridge

The Ethel Louis Armstrong Foundation Endowment, established in 2010, provides funding to support the development of assistive technology solutions. The projects are intended to lead to the development of low-cost, user friendly assistive technology that can be used by students of all ages. Projects may focus on the development of new assistive technology solutions or improvements in existing assistive technology solutions.

A team composed of a faculty lead, a student researcher with a disability engaged in design and usability testing, and a student researcher with or without a disability working under the direction of the faculty lead, will be awarded up to \$20,000 for academic year 2011-12. Funding can be used for faculty release time and equipment and materials with the stipulation that two student scholarships of \$4,500 each must be included in the proposed budget.

Faculty from a variety of academic disciplines are encouraged to apply. The U. S. Technology Act defines assistive technology as any "product, device, or equipment, whether acquired commercially, modified or customized, that is used to maintain, increase, or improve the functional capabilities of individuals with disabilities." The deadline for applications is **May 31, 2011**. Applications will be reviewed by a campus committee with a funding decision announced by June 17, 2011 and funding to commence on July 1, 2011.

Application forms can be found on the Student Affairs website at [www.csun.edu/studentaffairs](http://www.csun.edu/studentaffairs) along with a description of the project funded in 2010-11.

Ethel Louise Armstrong Foundation Endowment  
Assistive Technology Faculty-Student Collaborative Project Proposal  
For 2011-2012

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Please prepare a proposal using the following format. Proposals should not exceed three pages in length and should be submitted by **May 31, 2011** to:

Dr. Mary Ann Cummins Prager  
Office of the Vice President for Student Affairs  
mail code 8239  
or email [mary.ann.cummins.prager@csun.edu](mailto:mary.ann.cummins.prager@csun.edu)

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Submitted by:

Contact Information

Email:

Campus Phone:

Project Title:

Project Description:

Plan for utilization of student researchers:

Proposed budget:

Assessment Plan:

Description of Project Funded in 2010-11 from Ethel Louis Armstrong  
Foundation Endowment

**Project Title:**

A Non-Invasive Brain-Computer Interface for Autonomous Wheelchair Mobility in a Dynamically Changing Environment

**Description:**

An emerging area of research which holds some promise for practical applications that can benefit persons with disabilities is brain-computer interface (BCI). Basically researchers are trying to harness the power of brainwaves to allow persons with disabilities to perform a variety of functions, simply by thinking about the desired result. In this project, a student with a disability who is a wheelchair user will be working with another student and a faculty member to develop a brain-computer interface that will allow a wheelchair user to control the movement of a wheelchair by thinking about the direction in which it should move. These researchers from California State University, Northridge will work in collaboration with researchers from the UCLA Neurology Department at Olive View Medical Center.

There are three phases envisioned in this project. First, a headset to be used by a wheelchair user will be developed. The two student researchers will be extremely active in this phase as they will be testing and gathering waveforms generated by users of the headset in order to create a database of brain waveforms. This library of unique signatures should provide the basis for creating a library of commands needed to power the wheelchair.

The second face of the project will be centered on retrofitting a wheelchair in order to have the capabilities to gather the necessary data. The first and second phase of the project will be coordinated closely. Again, the student researchers will be extensively involved in the basic research for this phase.

The third phase of the project will integrate the BCI system with the sensor-driven software algorithm in order to develop an intelligent wheelchair which will be assessed by a wheelchair assessor from the California Department of Rehabilitation. The intent in this phase is to develop a prototype which can be assessed for merits and significance in the field of assistive technology.