

UNIVERSITY OF PITTSBURGH
SWANSON SCHOOL OF ENGINEERING
DEPARTMENT OF BIOENGINEERING

CARNEGIE MELLON UNIVERSITY
MECHANICAL ENGINEERING

BRIDGE Program: Boosting Research-Experiences for Increasing Doctorate Graduates in Engineering



**Would you like to pursue a PhD,
but unsure if you have adequate
research experience?**

**Do you love science, math, and
engineering?**

**Are you interested in developing
technology for the future, but do
not know where to start?**

**If you answered yes to any
of these questions, then this
program is for you.**

"The innovation, prosperity, and security of the U.S. depends on the contributions of highly qualified personnel with advanced degrees in science and engineering."

What is the Bridge Program?

The BRIDGE program is a multi-institutional research training program designed to increase the participation in higher education of individuals historically underrepresented in science and engineering. Barriers often limiting the access of underrepresented students to graduate programs are the lack of hands-on research experience and the lack of information about the professional value of advanced degrees. BRIDGE will dismantle these barriers by providing in-depth research training in topics of relevance to the Department of Defense (DoD): robotics, artificial intelligence, and neural engineering. As a result, the student will not only gain extensive research experience and appreciate the impact of science on real-world applications, but the participant will fulfill enough research hours and courses to earn a Master's (with a Research Thesis).

BRIDGE training will facilitate the transition between undergraduate and graduate education, which will serve as a critical first step towards pursuing a PhD. Students participating in the BRIDGE program will gain the experience, knowledge, and self-confidence to excel at any research university despite previous academic opportunities. Our BRIDGE program will also provide professional development training, including technical writing, oral communication, and ethic, as well as internship experiences with future employers.

Research training for all BRIDGE students will be in one of the following three DoD modernization priority areas:

1. Machine Learning/Artificial Intelligence (AI),
2. Robotics/Automation
3. Neural Engineering

Program Overview

This is a two-year program that consists of four (4) phases.

- 1. Pre-grad Summer:** Two (2) laboratory rotations (6-weeks each) with pre-selected BRIDGE mentors in either the Bioengineering Dept. at Pitt or the Mechanical Engineering Dept. at CMU.
- 2. 1st BRIDGE year:** Bachelor's-to-Master's transition. 2 courses per semester, part-time research effort in fall and spring semesters, and full-time research effort during the summer.
- 3. 2nd BRIDGE year:** Master's-to-PhD transition. 2 courses per semester, part-time research effort in fall and spring semesters.
- 4. DoD Internship:** 9-week to 12-week full-time research experience during the summer of the 2nd year of the BRIDGE program.



Robotic/Automation

Artificial Intelligence/ Machine Learning

Neural Engineering

US Untapped Resources

Graduates from Minority
Serving Institutions

+ University Professors

+ DoD Laboratories



US Innovation
in DoD Areas of
Interest

- US Army Research Institute of Environmental Medicine
- Air Force Research Laboratory, 711th Human Performance Wing
- Walter Reed Army Institute for Research (Silver Spring, MD)

- Army Artificial Intelligence Innovation Institutes (A2L2)
- Air Force Research Laboratory (Rome, NY)
- Naval Information Warfare Center (San Diego, CA)

- US Army Medical Research and Development Command
- Uniformed Services University for Health Sciences
- Naval Medical Research Unit (San Antonio, TX)

Individuals from racial, ethnic and disadvantaged backgrounds are strongly encouraged to apply (www.diversity.nih.gov/about-us/population-underrepresented).

Financial Support

Full financial support is provided for qualified applicants including full tuition, monthly stipend, health benefits, travel and supplies.

Requirements to Complete BRIDGE Program

- Presentation at a national or international conference
- Conference or journal paper submission
- National Science Foundation Graduate Research Fellowship or other funding application submission

Admissions Requirements

- A Bachelor of Science degree in a STEM discipline
- Must be U.S. Citizen or permanent resident
- Minimum three letters of recommendation
- Undergraduate transcript

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For more information: engineering.pitt.edu/bridge-program

To apply: **Pitt:** tinyurl.com/3z9thsam

CMU: tinyurl.com/ved55yxt

