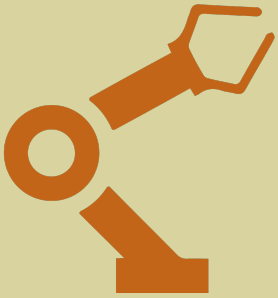
Robotics Research Experiences for Middle School Teachers

a 6+ week summer research experience at the GRASP Lab, University of Pennsylvania

- 10 middle school math/science teachers per year
- 2 teachers per school
- Teachers may apply to repeat program
- $8,000 stipend per teacher for year of effort
- 66 Act 48 hours

- Conduct robotics research in collaboration with graduate students, industry mentors and faculty
- Research in computer vision, human-robot interaction, bio-inspired robotics, multi-robot systems, and robot locomotion



- Develop modules/lessons tied to curriculum
- Complete engineering research coursework
- Penn students and industry visit classroom
- Receive $2000 material support for classroom

Penn Engineering | GRASP Laboratory
General Robotics, Automation, Sensing & Perception Lab

More information: https://www.grasp.upenn.edu/programs/research-experience-teachers-ret
Contact: Daniel Ueda <danueda@seas.upenn.edu>for more information

RET Schedule*

The summer program will run June 25 through August 3, 2018.

Overall Schedule		**Pre-Summer and Summer Program**	
2018		**June**	
Jan 11	Teacher application opens	5	Lecture 1: What to Read Exercise 1: Source Acquisition and Literature Review
March 15	Teacher application closes	12	Lecture 2: How to Read & Formulate Exercise 2a: Introductory Problem Formulation
April 1	Announce teacher selection	**July**	
May 1	Complete Teacher Pre-Survey	**Week 1:** Graduate students introduce research teachers; teachers study background math and science, applications, and simplified examples; teachers focus on particular aspect of research that will tie to curriculum	
May 10	Teachers matched with students	Introduction Engineering Classes	
May 15	Teacher Orientation	Meeting with industry	
May 22	Group Orientation	**Week 2:** Teachers develop research topic, begin research and begin identifying curricular connections	
May 27	Confirm matches with teachers	Lecture 3: How to Pitch Exercise 3a: Review of Problem Formulation	
June 4	Begin Pre-Summer Classes		Exercise 3b: Development of Pitch Presentation
June 25	**RET begins**		Focus group check-in
August 3	Summer Research Symposium		Exercise 3c: Pitch Presentation
August 3	**RET ends**	**Week 3**: Teachers continue research and develop methods paper; formalize curricular connections with industry and graduate students	
Sept. - May	Assessment in classrooms		Lecture 4: How to Plan
	4 classroom visits by graduate students		Exercise 4: Methods Paper
	2 classroom visits by industry	**Week 4**: Teachers continue research following methods paper; identify applications of research; begin developing lessons that connects with research	
		Week 5: Teachers continue research and develop posters; develop curriculum units that incorporate research, classroom content, and technology	
			Lecture 5: How to Present – Posters and Oral
			Exercise 5: Design and Construction of Poster
		August	
		Week 6: Teachers prepare for research symposium presentation; finish curriculum units	
			Exercise 6a: Development of Symposium Presentation
		3	Exercise 6b: Research Symposium Presentation

*The program will also involve voluntary completion of evaluation materials intended to gather information on the effectiveness of the program. We will be studying the effects of the experience on your pedagogical practices and perceptions of engineering. Participation in this study has no effect on your participation in the RET experience, the stipend, or future work.