

# pre-conference student workshop

## 2012 NSF ENGINEERING RESEARCH AND INNOVATION CONFERENCE

NORTHEASTERN UNIVERSITY  
 BUILDING WEST VILLAGE G, JULY 8, 2012  
 HYNES CONVENTION CENTER ROOM 302, JULY 9, 2012

### Introduction

The vision for the graduate student program is to give students both tools and opportunities to build their future career network. Graduate students selected for this year's conference fellowships were chosen from an extremely accomplished pool of over 700 applicants and represent an excellent cross-section of STEM innovators. The graduate students will participate in the overall conference as well as their own program, which is divided into three key pieces: a bootcamp focused on technical communication or K-12 outreach, a panel series looking at careers in academia and industry, and a student-oriented poster cluster in which students present a poster on the research topic of their choice.

### Agenda

#### July 8, 2012 - What We Talk About When We Talk About Work: A Bootcamp for Tomorrow's Professional; K-12 Outreach

TIME	ACTIVITY	LOCATION, ADDITIONAL INFORMATION			
9-9:30	Sign-in and welcome	West Village G, Lobby			
		Technical Communication/Professional Development Participants			K-12 Outreach Participants
		First name A-E Room 102 West Village G	First name F-Q Room 104 West Village G	First name R-Z Room 106 West Village G	Cabot PhysEd Center
9:30-11:30	Session 1	Intellectual Property: Legal Overview and Best Practices	Tell Your Story: Talking to the Media and the Public	Striving for Excellence in Research Presentations	STEM Sunday
11:30-1:30	Session 2	Striving for Excellence in Research Presentations	Intellectual Property: Legal Overview and Best Practices	Tell Your Story: Talking to the Media and the Public	
1:30-2:30	Peer-Networking Lunch	Bag lunch provided			
2:30-4:30	Session 3	Tell Your Story: Talking to the Media and the Public	Striving for Excellence in Research Presentations	Intellectual Property: Legal Overview and Best Practices	Break
4:30-5:15	Break				
5:15	Depart for Tour	Buses will pick up outside lobby of International Village			



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6:00-7:30	Boston Harbor Tour	
8:00	Return to Campus	Buses will drop off at International Village

### July 9, 2012 - Academic Career Paths and Entrepreneurial Career Paths

TIME	ACTIVITY	LOCATION
8-8:30	Poster Hanging	Exhibit Hall AB, Hynes Convention Center
8:30-9:45	Academic Career Paths Panel	Room 302, Hynes Convention Center
9:45-10:00	Break	
10:00-11:15	Entrepreneurial Career Paths Panel	Room 302, Hynes Convention Center
11:15-12:00	Networking lunch	Room 304, Hynes Convention Center
12:00	Join Main Conference	Ballroom, Hynes Convention Center

### July 10, 2012 - Graduate Student Poster Cluster

TIME	ACTIVITY	LOCATION
3:15-5:45	Poster Presentation	Exhibit Hall AB, Hynes Convention Center

## Program Description

### July 8, 2012 - What We Talk About When We Talk About Work: A Bootcamp for Tomorrow's Professional

Do I even have any intellectual property? If so, what should I present to my colleagues and when? When I present it to them, what's the best way to tell the story so my audience isn't bored? And what do I say to the friend of a friend who asks me what I do? What about the campus newspaper reporter?

This professional development "boot camp" offers attendees an opportunity to delve into several areas of scientific communication that aren't part of the core STEM graduate program, yet are critical for success in any field. Each topic will be taught by an expert in the area, in a two-hour brief that allows participants to get a solid understanding of best practices to incorporate professionally. At the end of the workshop, attendees will be better prepared to present their work to others (both within and outside their discipline) in a more disciplined, informative, and ultimately more effective manner.

#### Intellectual Property: Legal Overview and Best Practices

**Michael Bunis, Partner, Choate Hall and Stewart LLP**

This presentation will offer an overview of intellectual property rights. While the presentation will describe patents, trademarks, trade secrets and copyrights, it will focus specifically on patent rights. The presentation will include a case study of a specific patent - and address the patent prosecution and enforcement process.

*Michael Bunis* is a litigator practicing before the state and federal courts throughout the country. He counsels operating companies and private equity firms on all aspects of intellectual property—from litigation of disputes and the



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negotiation of complex licensing agreements to the acquisition of intangible assets. He served as an adjunct faculty member of Boston University School of Law and is a frequent lecturer at Northeastern University. Mr. Bunis is also a member of the Federal Circuit Bar Association and the Boston Patent Law Association.

### **Striving for Excellence in Research Presentations**

**Michael Alley, Associate Professor of Engineering Communication, Penn State University**

In excellent research talks, the content is strong, the speaker shows passion for that content, and the speaker has a keen sense of the audience: who they are, what they know, and what interests they have. However, most research presentations do not achieve this excellence because the audience is not oriented at the beginning, becomes lost in the middle, and does not appreciate the results at the end. This workshop focuses on how to avoid these errors. In the workshop, most discussion centers on presentation slides because slides deeply affect the preparation, delivery, and audience comprehension of a research talk. In most research presentations, the presentation slides follow the topic-subtopic structure of PowerPoint—in other words, a topic phrase headline supported by a bullet list or by a bullet list and a graphic. This talk presents a completely different structure, the assertion-evidence structure, which our research has found is much more effective at helping the audience to understand and remember technical content. In the assertion-evidence structure, the slide begins with a succinct sentence headline that states the main message of the slide. That sentence headline is supported not by a bulleted list, but by visual evidence: photographs, drawings, diagrams, graphs, films, or short tables.

Holding a master of science in electrical engineering and a master of fine arts in writing, Michael Alley is an associate professor of engineering communication at Penn State. He is the author three textbooks, including *The Craft of Scientific Presentations* (Springer, 2003), which has been translated to Japanese. Over the past twenty years, he has taught technical presentations to scientists and engineers across the United States and in Europe, Asia, and South America. Sites include Penn State, MIT, Harvard Medical School, the University of Illinois, Sandia National Laboratories, Los Alamos National Laboratory, United Technologies, the Army Corps of Engineers, Simula Research Laboratory (Norway), the Institute for Energy Technology (Norway), Shanghai Jiao Tong University, Seoul National University, the University of Barcelona, the University of Oslo, and the University of Seville. Alley's web-site on slide design is the first Google listing for the topic of *presentation slides*.

### **Tell Your Story: Talking to the Media and the Public**

**Carol Morton, Freelance Health/Science Journalist**

**Karen Weintraub, Freelance Health/Science Journalist**

This interactive session will provide a lively and practical overview on how scientists and engineers can speak to the public, handle the media, and describe their work to a lay audience. It will cover the benefits and risks of working with the news media, including strategies for the differing approaches of print and broadcast journalists. Participants will learn why scientists need to explain their work, why the cultures of science and journalism sometimes clash, and what to do when a reporter calls. With hands-on exercises, participants will practice how to transform complex research findings into a clear and compelling message, how to field controversial topics, and how to use the skills of a journalist for your blog or web site.



*Karen Weintraub* is a freelance health/science journalist who writes regularly for The Boston Globe, USA Today, the BBC and Technology Review, among other publications. Her first book, *The Autism Revolution*, with Dr. Martha Herbert, was published in March 2012 by Random House, and her second, *Fast Minds*, about adult ADHD, is due out in Feb. 2013. Weintraub also teaches journalism at Boston University and the Harvard Extension School. Before becoming a freelancer, she spent 20 years in newspaper newsrooms, most recently as Deputy Health/Science editor at The Boston Globe.

*Carol Cruzan Morton* is a freelance health/science journalist who has published hundreds of stories in regional newspapers (Boston Globe, San Francisco Chronicle, Oregonian), national magazines (Women's Health, Science, Runner's World) and university publications (Harvard Medical School Focus, MIT Technology Review, Howard Hughes Medical Institute Bulletin). She has consulted for online startups. She has served on the governing boards of the National Association of Science Writers and New England Science Writers.

### **July 8, 2012 – K-12 Outreach**

Led by Northeastern's Center for STEM education, the vision for the K-12 Outreach Program is to provide appropriate means for engagement for a variety of child and family constituencies along the K-12 spectrum. Graduate students interested in K-12 outreach will support various activities tied to the research areas of the conference, such as biomechanics, alternative/green energy and more.

### **July 9, 2012 – Panel Sessions: Academic Career Paths and Entrepreneurial Career Paths**

This session, offered before the formal start of the conference, will allow graduate students to engage with representatives from academia and entrepreneurship. Students will hear about the reality of both of these paths, and have the opportunity to ask questions in an informal setting. Academics will be principally assistant professors from local universities, who can speak to some of the opportunities and challenges they have experienced. Entrepreneurs will be alumni of MassChallenge, a program which provides seed funding and support for novice start-ups, and individuals affiliated with Northeastern's in-house entrepreneurship programs.

### **July 10, 2012 – Graduate Student Poster Cluster (during Poster Session 4)**

All students should plan to present their posters at this time. We have encouraged all conference attendees to visit the graduate student poster cluster; this will give greater exposure to students and provide them with enhanced opportunities to discuss their research interests and career goals with established engineering professionals.

