

The
Biomedical Engineering Society

University of Rochester Student Chapter

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Letter From The BMES President

BMES members, friends, and family,

Another year is upon us, and I can't tell you how excited I am to serve as president of our student chapter. Already our chapter is off to a great start, with several exciting events under way. At the beginning of September, we organized our annual BME "welcome back" picnic, and despite the torrential rain, enjoyed our largest attendance ever! We also sent several of our student members to volunteer and observe the annual MedTech conference happening right in downtown Rochester this year.

This year also marks the 15th year of BMES at University of Rochester – predating the BME program itself! To commemorate this milestone, our chapter organized an alumni career panel over Meliora Weekend. Four of our distinguished alumni returned to discuss their diverse experiences since graduating, and gave undergraduates and parents a new perspective on the plethora of career and graduate school possibilities with a BME degree from UR.

Many more exciting events are in the works now. Twelve of our undergraduate members are attending the National BMES Meeting in Atlanta, Georgia, and six of those twelve are presenting their research at the conference. We are immensely proud of this accomplishment, and are thrilled that these students will be representing the University of Rochester on a national scale. Additionally, we are bringing back the award-winning "Be a MEntor" program to offer upperclassmen mentors to underclassmen BME students. With over 34 students signed up for a mentor, we're

sure this will be a successful program. Also, we are organizing a program with investigators from the medical center to assist with making connections to undergraduates looking for research jobs. Finally, we are in the process of organizing an industry tour with Johnson & Johnson Orthoclinical Diagnostics, a biomedical research company with facilities in Rochester. We hope that tours like this will offer a perspective to students on what it's like to work in the biotech industry.

With the motivated student members we have this year, I'm confident our executive board can continue and improve upon this student chapter's tradition of excellence.

Meliora!

John Nicosia,
Student Chapter President



MEDTECH Conference

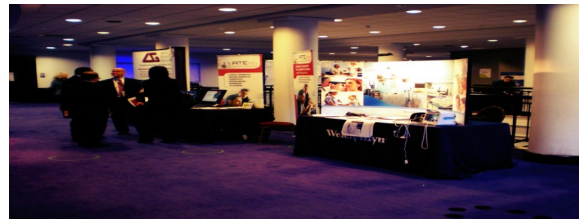
On October 25th, a few BME students and I volunteered to help out at the MEDTECH 2012 annual conference in Rochester, NY. It was an early fall morning for us all as we had to be downtown at the Hyatt, where the conference was taking place, at 7 am in order to help with registration for few hours before heading back to campus for class. Needless to say we did not get much shut eye the night before. But looking back now, going there was still completely worth it.

What we encountered at the conference were attendees representing more than 115 different organizations from New York and surrounding states. Highly distinguished organizations such as Bausch + Lomb, Welch Allyn, RIT and Cornell university. On top of the meet and greet for attendees to socialize with one another, there was also a tech-showcase for groups to display their cutting-edge research and state-of-the-art products. At 9 am, Dr. Daniel Schultz, Senior Vice President at Greenleaf Health LLC, had his welcoming address on the topic of “Medical Device Regulation” and how delicate of a balance it is

of requiring a mandate to protect public health versus keeping patient autonomy as well as the difficulty between maintain product safety and effectiveness while making that same product available to the masses.

Overall, although we were only there for two hours. What we saw was truly exciting to behold as it is one thing to read about ground breaking research but it is another thing altogether to meet the people responsible for these initiatives that may very well effect us in years to come. I can only hope that next year I will be lucky enough to attend the conference again, and this time have the opportunity to stay for the whole day.

-Cyrus Lambotte (2014)



BME Picnic on September 15th, 2012.

This year, the tradition of picnic for BME students continues. It has been a successful event over the past few years partly to the propaganda due to food and festivities. For my friends and I, the unabated storm threatened to turn our spirit sour as we were lead to Genesee River Valley Park, however when we got there, the smell of Dinosaur BBQ and the unexpected high turnout revived weary, and famished, spirits. Soon, hungry students and faculties lined up under the protection of the awning; ready to get their fill of briskets, pork, potatoes and cornbread. What was more spectacular were the conversations I had while I enjoyed our meal. My friends and I talked about black holes, alien viruses and some other peculiar stuff inspired by camaraderie as BME students while filling our stomach to our heart's content. The only ominous sign amid our merriment was a loud thunderclap near the city that momentarily disrupted our peaceful minds.

And alas, we didn't get to play softball with the faculties due to the downpour. However, the event was a great success considering that people were walking away full and happy, despite the weather. Let's wish for the very best for our BME department and BMES for their efforts in the making the program grow here in Rochester. Because isn't feeding hungry teenagers the core of what BME is all about?

Unfortunately no... but in my mind it should be so take note, parents!

-Wayne Wu (2016)



New Faculty Interview

Douglas Schwarz is a new BME faculty member here at the University of Rochester. He is now teaching the introductory MATLAB course, BME 201P, which was previously taught by Professor Laurel Carney. This course is typically taken by BME students during the Fall of their sophomore year, but is also an excellent introductory MATLAB course for students of all majors and interests. The following interview was conducted to acquaint the reader with Professor Schwarz, and his plans for the future of BME 201P. **(Interview by Erin Keegan)**

Q: What is your academic background?

DS: I received my Bachelor's degree in Electrical Engineering from University of Rochester in 1978, and my Master's from the U of R in 1981, also in Electrical Engineering.

Q: How did you become interested in programming?

DS: My first introduction to programming was reading about being able to program calculators when I was in high school. My high school actually had some Teletype Machines that connected to the local university and could run BASIC programs. A Teletype machine is just a terminal with no computing mechanism in it at all; it was just connected through the phone lines to the actual computer at the university. It had a roll of paper, no screen of any kind, and a mechanical keyboard, but I could write simple programs. I didn't take a class in it, but it was kind of a facility that my school had if you had some free time to play around with it.

Q: What brought you to the University of Rochester?

DS: I had an excellent 6th grade science teacher. I knew since then that I was destined for Electrical Engineering. I applied to a few schools with excellent Engineering departments, and I knew that the Physics Department was good here too (I was considering that major also). I suppose I liked the idea that U of R is an excellent engineering school, but not everyone is an engineer.

Q: What inspired you to teach MATLAB 201P?

Professor Carney has taught it in the past. This year she wanted to teach Neuroengineering (BME 218), but didn't want to teach both that and MATLAB. She had a discussion with faculty about who could teach the class and she offered up the idea that she knew someone who might be interested, and I was interested! I have always enjoyed teaching. I taught short tutorials on programming when I worked at Kodak and enjoyed it, so I jumped at the task to teach college level course.

Q: Have you made any changes to the course? Why or Why Not?

DS: Dr. Carney provided me with all her PowerPoint slides, notes, and quizzes. She gave me a folder filled with helpful information. I'm following the same trend of topics but feel obliged to write every lecture in my voice. MATLAB has also changed over the years. Minor changes in terminology are frequent. If I teach this class again I might make more changes as time goes by, but now I'm making only minor changes. Future decisions will be made about what things worked and what things didn't, but having the prior information was a huge help.

Q: What academic goals do you have for the students in your class?

DS: Above all, they must learn how to program in MATLAB. The main goal is to teach them to program MATLAB well enough to use in other classes. Most of the students have never programmed so for some it's kind of a new way of thinking about things. Along the way, there are some other things that they need to be introduced to. We will be doing a project and since it is relatively early in their college careers, I gather that this might be one of their first exposures to research based projects. I will teach them the proper way to write an academic paper, such as proper citing and so forth.

Q: What are some personal goals you have as a new instructor?

DS: Well, I want to be an effective teacher. I like working with students, and enjoy working with people individually. The course has been the first opportunity for me to give a lecture in front of a big group of people on a regular basis. I find that I am also comfortable doing that. What I don't know and need feedback about is what do they think of the lectures? After course evaluations I will be looking for some constructive feedback on what will make the lectures more interesting. It's really hard to know if you're engaging all of them. I like to keep a dialogue going, and want students to interrupt and ask questions. I guess the goal is to find out how I'm doing and try to do as well as I can going forward.



Interview With Professor Carney

Q: What inspired you to teach this class?

LC: The class has been around for many years, but the professor who used to teach it recently left. Clearly it was of interest to many people and I was the logical person to teach it.

How did you first become interested in neuroengineering?

LC: As an undergrad, I did research in lab that studied auditory science. I worked with people focused on acoustics. I was able to attend seminars which led to my interest in neural engineering. I then applied to graduate programs for neurophysiology in an engineering setting.

Q: What are your goals for this class?

LC: I definitely want students to understand the non-linear behavior of neurons and why that's a good thing. Non-linear properties are important to physiological phenomenon. They are hard to handle, though, and you need to master new strategies for describing quantitatively. In the

labs, I want students to see what is involved in collecting data from neurons. Since there seems to be a lot of interest in brain computer interfaces (BCIs), the EEG lab should be valuable.

Q: Is the material covered related to what you do in your lab? If so how?

LC: Certainly simulations are related. In my lab we are interested in how special types of neurons play a role in auditory processing. We study small circuits of neurons and aim to determine their function.

Q: Do you prefer teaching this class or 201P?

LC: The courses are very different but I like them both. It is fun getting everyone introduced to programming in 201P, but it is a required class whereas neuro-engineering is a small group of students who are interested in the topic.

Interview by Jessica Indyk

What I Did Over The Summer...

I had an internship at Zimmer where I focused on impaction testing of surgical instruments and developing an understanding of impact mechanics. I also worked with hip and knee development teams.

-Jessica Indyk (2013)

I worked as an EMT for Rural/Metro ambulance in the 911 system for the city of Rochester.

-JP Suits (2014)

This summer I was worked on multiple projects in the laboratory of Dr. Ania Majewska as part of a UR Center for Visual Science Undergraduate Research Fellowship. These projects were focused on determining the affect microglia has on visual perception and plasticity via synaptic pruning. Snaptic changes in the visual cortex were quantified through a novel reflection imaging platform. In support of our suspicions of microglia, I also worked on fluorescent tracing of the optic nerves back to the Lateral Geniculate Nucleus.

-Spencer Klubben (2013)

This summer, I did a therapeutic drug delivery and biochemical engineering research internship abroad in Germany through the Research in Science and Engineering (DAAD RISE) program. Near the end of my internship, I was chosen to present my work at the DAAD Scholars conference at TU Dresden. Additionally, I will be delivering a platform presentation at the annual BMES conference in Atlanta.

-Amanda Chen (2014)

Over the summer I worked on vaccine research at Merck, the pharmaceutical company. I was part of a research team that was combating the Human Papillomavirus by trying to put a 2nd generation Gardasil vaccine on the market. This vaccine differs from its previous iteration by being able to cover 95% of all types of HPVs.

-Cyrus Lambotte (2014)