Message from the President

by Benjamin Cohen

Dear Cornell BME,

It is with great pleasure that we welcome the return of the BMES newsletter! We hope to use this newsletter as an opportunity to share some of the wonderful activities that BMES has sponsored, the work of both our students and faculty, and the accolades and accomplishments of our department.

I would like to use this opportunity to express my gratitude to the efforts of our BMES Executive Board. Harvey, Alex, Jacob, Victor, Derek, Liz, Kristen, and Ryan have already made amazing efforts in the short time we have been working together, helping to organize Girl Scout Engineering Day, Snow Tubing at Greek Peak, and a professional speaker Skype call with MEng alumnus Melissa Satria. Their energy and creativity has made it a pleasure to work with them, and I am excited for all we will accomplish in the coming year. I would also like to thank Ashely Torres and our previous E-Board for all their efforts last year, as well as Jan and Belinda for the time they gave to make the Cornell BMES chapter the best it can be.

It is an exciting time to be in Cornell BME. In the past year we have had the excitement of Professor Marjolein van der Meulen become the new chair of the BME department, and we know she will approach this position with the same passion and success that she has always displayed in her research. We would also like to congratulate Professor Michael Shuler, who has been the chair of BME since its founding in 2004, for all the leadership he has given this department on its way to becoming one of the leading biomedical engineering programs in the country. Additionally, Cornell is committed to the process of initiating an undergraduate degree, a thrilling step towards further expanding and advancing our program.

I am very proud to be a part of such an amazing department. BMES has been dedicated to promoting outreach, community, and fun for everyone in Cornell biomedical engineering, and as President I am committed to continuing this record of excellence. We have already committed to attending the first ever BMES Northeast Chapter Meeting hosted by SUNY Stony Brook, an event where several chapters will gather to network and share their best practices. We are also preparing multiple STEM outreach events and an end-of-semester BBQ, not to mention work on the upcoming BMES Retreat this summer. We hope that everyone is as excited as we are for the upcoming year, and I look forward to great things from Cornell BME!

Sincerely,

Ben Cohen
President of BMES
Steven Adie joined the Biomedical Engineering faculty in 2013, bringing with him a wealth of knowledge and experience. Dr. Adie generously agreed to discuss his training and research goals with the BMES board. Dr. Adie received his undergraduate training in Chemical Physics at the University of Western Australia. As part of his program, he completed an honors project in the physics department focused on building a confocal microscope for imaging laser ablation profiles in ex vivo cow corneas. This work was done within a group dedicated to developing new laser solutions for LASIK eye surgery. From this group came a company, and Dr. Adie was offered the opportunity to help commercialize a new laser wavelength for LASIK. He worked in the R&D department for 2-3 years, contributing to a variety of projects including the building of a coherence profilometer to characterize the ablation profile (geometric tomography) of a sample.

As the focus of Dr. Adie’s position began transitioning towards manufacturing, he was offered the opportunity to re-enter an academic environment through an opening for a doctoral student in a collaborator’s lab. Dr. Adie took the position and began his PhD in Electrical and Electronic Engineering at the University of Western Australia, developing optical coherence tomography for a variety of biomedical applications. During the course of his doctoral training, Dr. Adie collaborated with an Illinois group that would later invite him to apply for a post-doc position. Having enjoyed the work that came out of the Illinois group, he took the opportunity and began a postdoc at the Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign. Prior to his postdoc, Dr. Adie had not seen snow. Despite the sharp climate change, he enjoyed the work and the environment for 5 years.

Towards the end of Dr. Adie’s post-doctoral work, he began thinking about faculty positions. The process of writing a NIH K99 career grant precipitated in his mind the path he could take to establish a research program to make unique and useful contributions to the field. Incidentally, Dr. Adie had a Cornell alumni working in his lab. As they discussed Cornell, Dr. Adie was surprised at the perfect matching of Cornell’s biomedical engineering program with his research interests. One of Dr. Adie’s major research goals was the translational imaging of cancer mechanics. He found that many researchers at Cornell are dedicated to understanding cancer mechanobiology and that Cornell’s Center on the Microenvironment and Metastasis would be an excellent environment to begin his research program. Dr. Adie joined the Biomedical Engineering department in 2013, and his group has expanded rapidly as he develops OCT-based imaging for basic science and translational applications.

Faculty Spotlight: Steven Adie
by Jacob VanderBurgh

Girl Scout Engineering Day
by Julie Kohn

BMES hosted another successful Girl Scout Engineering Day this February to inspire young women to pursue STEM disciplines. Girl Scouts from all over New York and Pennsylvania gathered in Weill Hall to learn about the different types of engineering and participate in hands-on activities. The girls worked in teams to design and create devices such as marble roller coasters, circuits made from Playdoh and gumdrop towers. Over one hundred Girl Scouts from grades 2-10 participated in the event this year. The event sold out in the first few weeks, demonstrating the reputation that this event has made over the past three years.
Cornell’s MEng program brings together a wide array of students with diverse backgrounds and goals. At the beginning of our program, this year’s MEng class participated in a poll to indicate their interests after leaving the program. There was a strong majority of students with interest in industry related career, and many students have had success working towards that goal. A unique feature of the Cornell MEng program is the amount of project work both inside and outside of the classroom. Several MEng project teams have been working on projects under simulated industry conditions, many with industry sponsors, and at least two of these teams are pursuing patents on the products they have developed. One team has even had the opportunity to pitch their product to venture capitalists, received funding, and is currently exploring health care related incubators to further their project into a startup company. In addition to industry related work, there have also been a large portion of people working on exciting research projects. Melissa Mansfield, as part of the Bonassar Lab, has been developing new ways of anchoring knee menisci to bone for use in patients during surgery. Xin Li has been working in the Schafer-Nishimura lab focusing on in vivo two photon imaging of mice motor neurons. Part of his work is developing a novel computer program to analyze mouse behavior based on movements while its neurons are monitored. Kristen Colberg has also been performing valuable work developing a computer program to track cancer cell movements. There seems to be agreement amongst the MEng students that the heavy emphasis on group projects, and the connectivity to research and industry, are what makes this program amazing.

One thing you’ll notice about Ithaca is that it’s very different (in a good way), or at least it was that way for me. I’m originally from SoCal, near Los Angeles, which is pretty far removed from the Collegetown environment and Ithaca’s gorges. I understand the whirlwind of things that are on your mind, factoring in all these different variables, along with personal research interests, in deciding where to pursue this next phase of your education/professional development. For myself, what wound up swaying my decision is the people who make up the BME department that Cornell just seems to draw. There’s a sense of cohesiveness here and genuine interest in “finding your right fit” that really sets it apart, and it creates an environment that I personally find conducive to pursuing a PhD. I hope you’ll have the chance to experience for yourself Cornell’s distinct character, and congrats on your acceptance into the program.