

## Fall 2009 ASEE Student Newsletter

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## Message from the SCC Chair



Reginald E. Rogers, Jr. ([rerjr@umich.edu](mailto:rerjr@umich.edu))  
Doctoral Candidate, Chemical Engineering  
University of Michigan

Dear Student Constituent Committee Members:

Welcome to another year in ASEE. We are pleased that you have chosen to be a part of a rapidly up and coming group within ASEE. The SCC was formed at the Annual Conference & Exposition in Honolulu, HI in 2007 to serve the needs of the student population of ASEE. This past year, the SCC was officially launched, and we have seen a dramatic increase in interests from students, faculty, and corporate members.

At the 2009 Annual Conference & Exposition in Austin, TX, the SCC held its first formal program which included a couple of business meetings, dinner and social event, and a roundtable discussion on topics of interests to students. The entire program was a tremendous success and we received positive feedback on all levels. Our dinner was the highlight of our program, showcasing the best flavors of Austin. We thank all of our sponsors who very generous in their monetary donations for this event.

During the 2009–2010 year, the SCC is continuing what was started during the 2008–2009 year as well as starting up new initiatives. We are working hard to formally become a full division within the ranks of ASEE. We are well on our way to achieving this goal and hope to make full division status before the 2010 Annual Conference & Exposition in Louisville, KY. The newsletter is another new addition to our palette. We want to hear from our members, and we're giving you a variety of ways to be heard. We're also working with new chapters to help them get their footing and fully involved with ASEE. Finally, we're giving you more options to present your research at the Annual Conference. New this year, student authors have the options of presenting a poster and having the publication fee waived. It's one more way the SCC is striving to help students be active within ASEE.

We hope you find that membership in the Student Constituent Committee is a very rewarding experience. We always want to hear from our members. If there is anything you would like to share with the executive board, please do not

hesitate to contact us.

On behalf of the entire SCC Executive Board, I look forward to seeing many of you in Louisville in 2010 for the Annual Conference & Exposition.

Warm Regards,  
Reginald E. Rogers, Jr.  
Chair – 2010 Student Constituent Committee

## Student News



Aly M. Tawfik ([tawfik@vt.edu](mailto:tawfik@vt.edu))  
PhD Candidate, Department of Civil and Environmental Engineering  
Virginia Tech

Aly Tawfik is a PhD candidate in the Transportation Engineering group of Virginia Tech's Department of Civil and Environmental Engineering and has been a member of ASEE's SCC since its initial creation in 2007. This year, Aly was elected as President of Virginia Tech's Academic Excellence and Leadership Honor Society. He also received the prestigious VT College of Engineering Dean's Graduate Teaching Fellowship and the prominent National Dwight D. Eisenhower Transportation Graduate Fellowship.

## Chapter News

**Michigan Technological University Chapter**  
Anna Pereira ([alpereir@mtu.edu](mailto:alpereir@mtu.edu))  
Masters Student, Mechanical Engineering–Engineering Mechanics  
Michigan Technological University

Michigan Technological University began its ASEE student chapter in September of this year. Dr. Sheryl Sorby from the mechanical engineering department is the group's advisor. Already the group has participated in MTU campus activities including a booth at an all school picnic and entering a float in a local parade. The activities have been used to draw public attention to ASEE, inform people about ASEE, and recruit members. So far the group has had success in finding members from various departments across campus in both graduate school and undergrad. Currently the chapter is in the stages of planning an elementary school visit which goal is to interest students in STEM.





*ASEE's float entrance for the Parade of Nations. Houghton, Michigan. September 11th, 2009*

### **University of Texas at Austin Chapter**

Krista Fridley (krista.fridley@mail.utexas.edu)  
 Graduate Research Assistant, Biomedical Engineering Department  
 The University of Texas at Austin

Students at the University of Texas at Austin geared up for the new school year with some informative tips on “How to Give an Effective Technical Presentation.” Dr. Dean Neikirk, professor in the Department of Electrical and Computer Engineering, spoke about improving communication skills to over 90 engineering students. Professor Neikirk gave an example presentation for a conference proceeding followed by a discussion of the general rules to follow when giving a presentation, as well as an examination of whether or not he abided by these rules in the preceding example presentation. In addition to the more apparent rules such as “don’t read your slides” and “start preparing your presentation beforehand”, students were encouraged to focus on slide navigation and informed how to use back-up slides to handle questions. Following Dr. Neikirk’s advice will help students keep audiences engaged in presentations in the classroom, at conferences, and in future employment.



*Dr. Dean Neikirk giving his example presentation entitled “Unpowered Resonant Wireless Sensor Nets For Structural Health Monitoring.”*



*University of Texas at Austin students filled the classroom to learn more about “How to Give an Effective Technical Presentation.”*

*Presentation."*

## FYI



### **Guiding the Formation of New ASEE Student Chapters**

Adam Carberry ([adam.carberry@tufts.edu](mailto:adam.carberry@tufts.edu))

SCC Zone Liaison

Doctoral Candidate, Education Department

Tufts University

In the Spring of 2009, I had the pleasure of spearheading the establishment of a new ASEE Student Chapter at Tufts University. While I would not describe the process as extremely difficult, at times I wasn't exactly sure why I would want to do this or what was actually required. At the National ASEE Conference & Exposition, I attended the Student Constituent Committee (SCC) business meeting to learn a little bit more about student involvement in ASEE. Subsequently, I was elected to the position of SCC Zone Liaison. As the zone liaison, I am in charge of coordinating all activities between the SCC and the local existing ASEE student chapters. I am also in charge of working to help develop new local chapters. To help new chapters startup, I spent the summer constructing a guidebook for groups of students interested in starting a new chapter. The guidebook includes fundamental goals of chapters, considerations to make before starting a chapter, requirements to start a chapter, recommendations on how to maintain a successful chapter, and a plethora of literature references written on ASEE student chapters. My hope is that this new guidebook based on my experiences will not only make the process easier, but will also encourage more universities to start up new chapters as the field of engineering education grows.

The guidebook can currently be viewed in two forms: 1) Downloadable [PDF \(version 1\)](#) and 2) [Wiki](#). Anyone who is interested in adding anything to the first version of the guidebook can obtain access directly on the wiki site.



### **Thank You for Participating in the Student Surveys!**

Dan Bumblauskas ([bbqx21@gmail.com](mailto:bbqx21@gmail.com))

SCC Program Chair/Vice Chair

Doctoral Student, Department of Industrial and Manufacturing Systems Engineering

Iowa State University

Thanks to those of you who participated in either or both of the two student surveys for ASEE last year. The results of one of these surveys were compiled and will be shared at next year's ASEE annual conference in Louisville, KY this coming June (pending abstract and paper approval). As reported by Stacie Harrison, ASEE Washington DC, the findings and responses from the second of the two surveys were also incorporated into the latest edition of Engineering, Go For It (eGFI) magazine (pages 58–59 in the online version of the magazine (<http://www.egfi-k12.org/read-the-magazine/>), and as part of their new web site. Here's the new web site: [www.egfi-k12.org](http://www.egfi-k12.org), and here's the section with your advice: <http://egfi-k12.org/engineer-your-path/good-advice/>.

If you didn't get a chance to offer advice, it's not too late. You can share even more interesting suggestions for middle-school and high-school students at: <http://egfi-k12.org/engineer-your-path/good-advice/#good-advice>.

They have also started a student blog, <http://students.egfi-k12.org/>, and encourage you to submit a photo and your story of why you chose engineering and your goals for the future. The idea is to give middle school and high school students an idea of the kinds of work they could do as an engineer, and to show them that people of all different backgrounds become engineers. You can do this by sending an email to Stacie at [s.harrison@asee.org](mailto:s.harrison@asee.org).

Please take a look at the web site, and then spread the word! Become a fan of eGFI's Facebook page, <http://www.facebook.com/pages/eGFI/83814280068>, or follow them on Twitter!

**Call for Papers: Frontiers in Education (FIE) Conference 2010**

October 27–30, 2010

Marriott Crystal Gateway, Arlington, Virginia

Abstract deadline: January 13, 2010

URL: <http://fie-conference.org/fie2010/Pages/call.htm>Overview:

The 40th Annual Frontiers in Education (FIE) Conference is the major international conference about educational innovations and research in engineering and computing. FIE 2010 continues a long tradition of disseminating results in these areas. It is an ideal forum for sharing ideas; learning about developments in computer science, engineering, and technology education; and interacting with colleagues in these fields.

Venues:

Proposals for participation in the 2010 FIE Conference can be submitted in the following formats:

- Papers: full paper
- Papers: work-in-progress (WIP)
- Special sessions
- Panels
- Workshops

In addition, FIE 2010 offers travel grants to support participation of new faculty who are presenting full papers at the conference. More information is provided in the section on New Faculty Fellows.

More details at: <http://fie-conference.org/fie2010/Pages/call.htm>

**IBM Ph.D. Fellowship Program**

Deadline: September 22 to October 29, 2009

URL: <http://www.ibm.com/university/phdfellowship>

IBM is pleased to announce the IBM Ph.D. Fellowship program for the 2010–2011 academic year. We have received many outstanding and exceptional candidates from universities all over the world in the past and encourage your participation. IBM Ph.D. Fellowship nominations may be made by faculty members from September 22 to October 29, 2009. Please note there are changes to the program scope, for details go to <http://www.ibm.com/university/phdfellowship>.

The IBM Ph.D. Fellowship Program is an intensely competitive worldwide program, which honors exceptional Ph.D. students who have an interest in solving problems of interest to IBM and which are fundamental to innovation in many academic disciplines and areas of study. These include: computer science and engineering, electrical and mechanical engineering, physical sciences (including chemistry, material sciences, and physics), mathematical sciences (including optimization), business sciences (including financial services, communication, and learning/knowledge), and service sciences, management, and engineering (SSME).

Preference will be given to students who have had an IBM internship, or have closely collaborated with technical or services people from IBM, or have co-authored papers, or have faculty research advisors who are close IBM collaborators.

The IBM Ph.D. Fellowship program also supports our long-standing commitment to workforce diversity. IBM values diversity in the workplace and encourages nominations of women, minorities and all who contribute to that diversity.

Please feel free to post the attached announcement poster in your department area. Additional details for the Ph.D. Fellowship program and the nomination form will be posted on the Internet at <http://www.ibm.com/university/phdfellowship>. Award recipients will be finalized mid February, 2010 followed by emails to all participants. All supporting documents for the fellowship, such as student's resume, and endorsement by the department head as well as the nominator's recommendation must be included in the nomination form. We ask that each department submit no more than two new nominations (in addition to any existing fellowship nominations to compete for a renewal). In cases of more than one nomination for a fellowship (including competing renewal

nominations), the department head's endorsement must include an indication of the relative merits of all the candidates and the department's prioritization of these candidates. Students must be enrolled full-time in a college or university Ph.D. program, and they must have completed at least one year of study in their doctoral program at the time of their nomination. Students in Europe and Russia may be nominated in their first year of study in their doctoral program.

IBM Ph.D. Fellowships are awarded worldwide. IBM Ph.D. Fellows are awarded a stipend for the academic year 2010–2011. Stipends vary by country/geography and the student will be informed at the time of the award what the value is for their country/geography. All IBM Ph.D. Fellows are matched with an IBM Mentor according to their technical interests, and they are strongly encouraged to participate in an internship at least once while completing their studies. While students may accept other supplemental fellowships, to be eligible for the IBM Ph.D. Fellowship they may not accept a major fellowship in addition to the IBM Ph.D. Fellowship. Students in Europe and Russia may accept government scholarships and remain eligible for the IBM Ph.D. Fellowship.

For further information contact [phdfellow@us.ibm.com](mailto:phdfellow@us.ibm.com)

## Work in Progress

### Remote Experimentation Labs for Learning Disabled Students

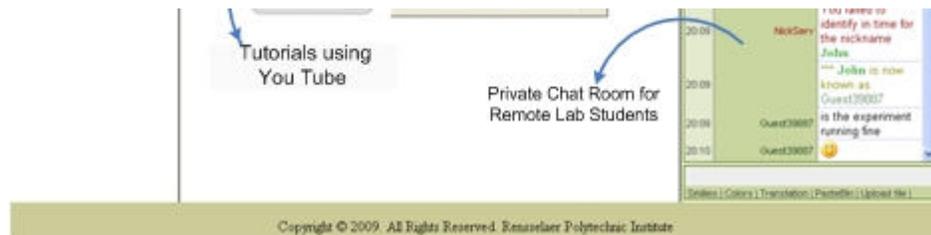
Venkata Chivukula ([chivuv@rpi.edu](mailto:chivuv@rpi.edu)), Doctoral Student

Michael S. Shur, Professor

Department of Electrical, Computer, and Systems Engineering  
Rensselaer Polytechnic Institute

The educational world is in the midst of paradigm shift brought about by new technologies based on remote experimentation, distance and integrated studio based learning. Despite these advances, a recent survey indicates an explosive growth in students with learning disabilities, for instance the percentage of full-time college freshman who self-reported a disability increased from 2.3 percent in 1978 to 9 percent in 1998 in United States (National Center for Educational Statistics). The learning disability may manifest itself as an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations caused by conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. In addition, the investigation of social contexts on students with learning disability indicate negative effects on their achievement caused by reduced teacher expectation, insufficient support, or poor social relations with teachers [1]. Web-based technologies can be used to compensate for some of these negative factors. Our work on remote lab systems for semiconductor device characterization resulted in development of Automated Internet Modelling (AIM) lab at RPI [2]. Using AIM-Lab environment, students will learn to perform characterization of electronic devices, including diodes, bipolar junction transistors, LEDs and a CMOS test circuit. By adding new features, we are adapting the AIM-Lab to address the needs of learning disabled students. These features include improved optional audio-visual instructions in You Tube compatible format, online live video feeds, and additional capability to chat with fellow students using web-messenger [3]. The new collaborative remote experimentation lab will make learning process more effective.

The screenshot displays the AIM-Lab web interface. On the left, there is a navigation menu with two sections: 'Experiment Set 1' containing buttons for NPN-BJT, NMOS, PMOS, and CMOS; and 'Experiment Set 2' containing buttons for LED-IV, PN-JUNCTION-IV, SCHOTTKY-IV, JFET, and IGBT. The main content area is split into two parts. The top part shows a video player with a play button and a progress bar at 0:00/0:00. The bottom part shows a chat window titled 'Chat by Mibbit.com' with a list of users and a message history. The chat history shows a user named 'bartol freenode.net' sending a message 'set the channel to mode ws' and another user saying 'hello'.



*AIM-Lab Graphical User Interface (GUI) on the client browser*

### References

1. Meltzer, L., Katzir-Cohen, T., Miller, L., & Roditi, B. "The impact of effort and strategy use on academic performance: Student and teacher perceptions", *Learning Disability Quarterly*, 24, 85–98, (2001).
2. Fjeldly, T. A., Shur, Michael, S., "Lab on the web", John Wiley and Sons, New Jersey, (2003).
3. Chivukula, V. S., Veksler, D., and Shur, M. S., "Work in Progress – Remote experimentation lab for students with learning disabilities," 38th ASEE/IEEE Frontiers in Education Conference, Oct 22–25, Saratoga Springs, NY, (2008).

## Book Review

**Tonso, Karen L.(2007).** *On the outskirts of engineering: Learning identity, gender, and power via engineering practice.* Rotterdam, The Netherlands: Sense Publishers.

Reviewed by Jing Chen (Chen208@purdue.edu)  
Graduate Student, School of Engineering Education  
Purdue University

This book offers detailed and first hand surveys and data of engineering education focusing on three themes: gender, power and identity. The analysis and conclusions are based on the observation of several mixed-gender study teams assigned with engineering projects and interviews of public engineering school students from first-year to fourth-year.

The first theme is gender. Tonso noticed that gender discrimination existed and students learned about gender in the school context. The second is the role of power within teams. Tonso observed the way control, exploitation and domination played out. The third is how engineer identities embodied engineer practice. Tonso's analysis reveals that "engineering education was organized by two ideologies: academic-science prestige and gender status." (p.239)

One deficiency is that most of the data are older than 10 years and may not be consistent with current situation. From my experience, women's studying environment is better than what Tonso described. 20.19% of doctoral degrees in S&E were awarded to women in 2006 compared to 12.32% in 1996 [1]. Nevertheless, the book sparks interesting questions about the silent experiences of women pursuing engineering from the perspective of a social scientist and former engineer. Furthermore, I had a feeling of familiarity when reading the content of teamwork stories and engineering design courses.

All in all, this book not only serves as a primer for researchers wishing to identify significant research questions related to how people learn engineering, but also provides useful data for instructors who use team-based and project-based learning strategies in classroom practices.

### Reference

1. National Science Foundation Division of Science Resource Statistics, S&E Degrees: 1966–2006, NSF 08–321, Project Officer, Mark K. Fiegener.

## Position Announcements

**Postdoctoral Fellow Supporting Virtual Reality Project**  
**Optical Engineering Program**  
**Norfolk State University**

**POSITION TITLE and LOCATION:**

Research Assistant Professor  
Optical Engineering Program  
Norfolk State University  
Norfolk, VA

**JOB DESCRIPTION and RESPONSIBILITIES:**

The Department of Engineering is seeking a research assistant professor for a National Science Foundation project on 3D software design and development to support and augment learning. The main objective of this project is to develop an interactive virtual reality simulation for science education (optics and fiber optics) using authoring software packages such as Vizard 3.0 (Virtual Reality toolkit). The successful candidate will work in a team environment and will have opportunities to acquire increasing levels of responsibility. The successful candidate will be responsible for the following activities:

- \* Create high quality 3D-Objects and programs for use in game-like simulations (virtual reality environments) in physics and engineering.
- \* Work together with physicists, psychologists and educators to create, refine and optimize existing simulations making it a challenging and intense experience to learn with 3D computer simulations.

The candidate will also be expected to assist in proposal development, write manuscripts for publication in peer-reviewed journals, make presentations of his /her research at national and international conferences. In addition, the candidate will be expected to work with graduate and undergraduate students and assist in the supervision of the laboratory.

**EDUCATIONAL and BACKGROUND REQUIREMENTS and PREFERENCES:**

The successful candidate should hold a M.S. degree (Ph.D. degree is preferable) in computer science, physics or a related engineering discipline.

Other desirable background and credentials include:

- \* Experience in user interface design or game like computer simulations.
- \* Experience in object-oriented programming e.g. Java, Visual Basic, C++ or Python.
- \* Experience in 3D Modeling of objects and characters e.g. Blender, 3ds Max, Maya or similar program.
- \* Knowledge of virtual reality related peripherals magnetic/ultrasonic/optical tracking systems, HMDs and haptic devices.
- \* Ability to understand the basic functionality of 3D Hardware, OpenGL and DirectX.
- \* Knowledge of optics and its applications, particularly in the use of fiber optics devices and systems.
- \* Self-motivated and able to communicate ideas well.

**SALARY:**

Salary and benefits for this position are competitive and will be commensurate with the experience of the candidate. The position is funded for one year and is expected to be extended, depending on performance and available funding. The research assistant professor will be working under the direct supervision of Dr. Michael Kozhevnikov at: [mkozhevnikov@nsu.edu](mailto:mkozhevnikov@nsu.edu)

**APPLICATION PROCEDURE:**

Application may be initiated online: [http://www.nsu.edu/jobs/faculty\\_jobs.php](http://www.nsu.edu/jobs/faculty_jobs.php), position GP011 (STM). Candidates must also submit a cover letter and a full CV/resume, together with names and contact information for up to three references to Dr. Michael Kozhevnikov at: [mkozhevnikov@nsu.edu](mailto:mkozhevnikov@nsu.edu).

**APPLICATION TIMELINE:**

The position is immediately available and will remain open until filled.

Individuals with disabilities and requiring accommodations in the application process should call the Office of Human Resources (757) 823-8160 (Voice) / (757) 823-2876 (TDD).

**Director of Science Education and Public Outreach**

**College and Graduate School of Arts and Sciences  
University of Virginia**

The University of Virginia's College and Graduate School of Arts and Sciences is seeking a Director of Science Education and Public Outreach with a proven track record in educational outreach in the sciences. University outreach in the areas of science, technology, engineering and math is increasingly critical to maintaining U.S. scientific and technological leadership. The College seeks to develop and deploy high performance, evidence-based programs to enable communities throughout Virginia to address their most challenging educational needs. The Director reports to the Associate Dean for Sciences and will also work closely with the Associate Dean of Development and faculty and outreach coordinators in academic departments.

The University of Virginia hosts a prolific community of scientists, engineers, technologists and mathematicians dedicated to conducting breakthrough scientific research. This community is loyal to its dual mission of innovation and education. The Director will seek to harness the strength of faculty and graduate student expertise to benefit the larger community.

Please apply on-line through the Jobs@UVa website (<https://jobs.virginia.edu>) and attach a cover letter, curriculum vitae, and the names and e-mail addresses of three references; search on posting number 0604163.

The University of Virginia is an Equal Opportunity/Affirmative Action Employer. Women and members of underrepresented groups are encouraged to apply.

The full text of the position description can be found at: <http://jobs.virginia.edu/applicants/Central?quickFind=58584>

**Assistant/Associate Professor (Two tenure-track positions)  
Department of Physics and Engineering  
Elizabethtown College**

The Department of Physics and Engineering at Elizabethtown College invites applications for two tenure-track Assistant/Associate Professor positions beginning Fall 2010. We seek candidates with an earned doctorate in Engineering and a passion for undergraduate education. The first position requires expertise in Fluid Mechanics and Thermodynamics, and the second in Signal Processing and Electronic Systems. The ideal candidates will also have significant professional experience in a non-academic setting; clear potential to develop a research program with strong undergraduate participation; and a commitment to the continued development of the department's academic programs.

The successful applicants will join a growing and vibrant department of eight fulltime faculty housed in a liberal arts college with a strong commitment to engineering and other professional programs. The department has undertaken a number of initiatives in the field of sustainable energy systems and is particularly interested in candidates who will make contributions to these efforts. The department offers two ABET accredited degrees: Engineering (with concentrations in Mechanical Engineering, Electrical Engineering and Applied Physics) and Computer Engineering (in cooperation with the Dept of Computer Science), as well as offering degrees in Industrial Engineering Management (in cooperation with the Dept of Business), Physics and Physics Education (in cooperation with the Dept of Education). Ninety percent of the 100+ students in the department are pursuing engineering degrees. The successful candidate will teach introductory and upper-level undergraduate courses as well as courses in the core curriculum for non-majors.

Elizabethtown College, rated as one of the best northern comprehensive colleges by U.S. News and World Report, offers its 1850 students 45 major programs in traditional liberal arts and professional fields. The Elizabethtown motto, "Educate for Service", expresses the College's mission of linking the world of work with the world of the spirit to advance the values of peace, justice, and human dignity. Located in Pennsylvania's historic Lancaster County, Elizabethtown enjoys outstanding quality of life and easy access to the major metropolitan areas of Philadelphia, Washington, and Baltimore. Review of applications will begin November 2 and will continue until the positions are filled.

For additional information, contact the department at 717-361-1392 or visit <http://www.etown.edu/engineering>. To

apply, forward a letter of application, curriculum vitae, statement of undergraduate teaching philosophy, statement of research interests, and contact information of three references to Human Resources (Re: Engineering), Elizabethtown College, One Alpha Drive, Elizabethtown, PA 17022. As an affirmative action/equal opportunity employer, Elizabethtown College is seeking candidates who will enhance the diversity of its faculty, staff and administration.

**More position announcements available at the Women in Engineering Division Page:** <http://wied.asee.org/jobs.html>.