The University of Rochester SPIE student chapter deepened its involvement with local industries and various outreach efforts. We continued the popular Summer Student Colloquium Series and invited multiple visiting lecturers. We are also beginning efforts to connect with other nearby student chapters.

Our chapter currently has 56 members and 19 alumni.

Elected Officers for 2013-2014
   President:       Dustin Shipp
   Vice-President:  Daniel Savage
   Secretary:       Chenggong Wang
   Treasurer:       James Corsetti
   Web-administrator:  Aaron Bauer

Faculty Advisor: Prof. Jannick P. Rolland
1 Activities

1.1 General Meetings

Recruitment meeting, September 27, 2013.
“Members Only” meeting, December 6, 2013.

Elected Officers for 2014-2015 (with membership numbers)

President: Katelynn Sharma (03443226)
Vice-President: Aaron Bauer (03381693)
Secretary: James Corsetti (03475168)
Treasurer: Daniel Brooks (03479895)
Web-administrator: Ashley Cannaday (03479924)

1.2 Student Summer Colloquium Series 2013

The annual Student Summer Colloquium series was resumed for the summer of 2013. This served as an excellent opportunity for students to practice scientific presentations, and for fostering discussion and collaboration between student researchers in various departments of the university. The talks were held in a relaxed environment in the form of a brown-bag lunch seminar with the SPIE student chapter providing desserts and refreshments. Presentations were promoted by putting up posters on campus and sending email reminds to students and faculties in various departments.

Eight graduate students from four departments (BME, ECE, ME and Optics), one optics undergraduate, and a visiting scientist from INRIA Bordeaux Sud-Ouest all give presentations. Each talk was 30 - 60 minutes in length. The format of each colloquium session was either a single speaker for the full 60 minutes or two speakers for 30 minutes each. A total of eight colloquiums were held with an average of 20 attendees. Thanks to everyone who participated in the colloquium series, and a special thanks to all the speakers who gave excellent presentations throughout the summer:

- **Joseph Choi** The Institute of Optics, University of Rochester. “Freeform reflector design techniques for illumination.”

- **Ivo Ihrke** INRAI Bordeaux Sud-Ouest. “Computational optical measurement and display.”
• **Himanshu Shekhar** Department of Electrical Engineering, University of Rochester. “The temporal evolution of nonlinear emissions from ultrasound contrast agents: implications for imaging and therapy.”

• **Etana Elegbe** Department of Biomedical Engineering, University of Rochester. “Development of single tracking acoustic radiation force imaging (STL-ARFI) for the assessment of liver fibrosis progression.”

• **Dustin Shipp** The Institute of Optics, University of Rochester. “Overcoming speckle in angular scattering measurements of single cells.”

• **Dan Christensen** The Institute of Optics, University of Rochester. “Application of random access multiphoton (RAMP) microscopy to capillary-level cerebral blood flow imaging in mice *in vivo*.”

• **Anthony Visconti** The Institute of Optics, University of Rochester. “Design and fabrication of large diameter radial gradient-index lenses for dual-band visible to short-wave infrared imaging applications.”

• **Janghwan Bae and Pedro Vallejo Ramirez** The Institute of Optics, University of Rochester. “Vacuols: Visual performance in intraocular lenses.”

• **Dennis Briggs** Department of Mechanical Engineering, University of Rochester. “Accurately measuring the dynamic coefficient of friction in UltraForm finishing.”
1.3 Outreach

The UR SPIE student chapter outreach committee participated in several events over the past year, including the following:

1.3.1 Spooky Science Night

Spooky Science Night is an event hosted by the University of Rochester Society of Physics Students around Halloween that invites the Rochester community and their children to observe and participate in various fun science demonstrations. The UR SPIE chapter had its own booth at this event filled with several fun optics demonstrations for kids of all ages, including beads that become invisible when submerged in water, diffraction gratings, and an MP3 player which modulated a laser hitting a detector in order to play music.

1.3.2 Optics Family Night

The Institute of Optics/Rochester OSA hosts a Family Night in December, showing various optical demonstrations for area optics professionals and their families. This year several members of the UR SPIE outreach group participated in the event, in which we had to adapt our presentations for all age levels, from small children to curious adults. Several of the optics suitcase demonstrations were used to demonstrate diffraction, polarization, and birefringence.

1.3.3 Outreach at local grade schools

UR SPIE participated in several outreach events at local high schools and middle schools this year. The goal was to educate younger students about what exactly optics is, and to get them excited and interested in optics by showing them several fun optics demonstrations. In April we again partnered with the University of Rochester SPS chapter to participate in a 6-day physics-based program for the 4th graders at a local middle school.
1.4 Company Tours

The SPIE student chapter visited Optimax Systems, Inc., and General Electric in the 2013-2014 academic year. Visiting companies is an important opportunity for students to network, and experience life outside of academia. The tours were organized by the SPIE officers, and then opened up on a first-come-first serve basis to SPIE members.

1.4.1 Optimax Systems, Inc.

The SPIE student chapter took 14 students to visit Optimax on November 11th, 2013. The students were treated to a presentation detailing best optic manufacturing processes, lens fabrication, and optical testing. After, the SPIE group was led on an extensive tour through the manufacturing and testing facility. The tour was concluded with a question and answer session held by Optimax representatives.

1.4.2 General Electric(GE)

The SPIE student chapter took a number of students to visit General Electric on March 27th, 2014. Of these, many gave poster presentations for the GE technical staff. A presentation that gave an overview of General Electric was given by a GE representative. The student group then toured a variety of research labs.

1.5 SPIE Conferences

1.5.1 Optics+Photonics and Student Chapter Leadership Meeting

In August 2013 two officers of the chapter, James Corsetti and Chenggong Wang, attended the SPIE student leadership workshop and the O+P conference in San Diego, taking advantage of the Officer Travel Grant.

1.5.2 SPIE Photonics West

Chapter President Dustin Shipp and Outreach Chair Ashley Cannaday attended Photonics West in February, 2013 and attended the student chapter meeting.
1.6 Social Events

This past year the chapter held a number of meetings for members in order to discuss recent events and future plans. These meetings ended up being a great way to bring students together with their peers in order to socialize and network about careers, research, etc.

In addition to socializing with their fellow students just at the University of Rochester, the chapter has been exploring ways to increase communication and collaboration between universities. For this purpose, a number of students from the University of Ottawa visited the University of Rochester this past year, taking tours of different laboratories and meeting with students and professors within the department. Their visit included a welcome dinner at Dinosaur Barbeque with students from both chapters.

Additionally, the U. Rochester chapter has been planning a large picnic with the Rochester Institute of Technology SPIE chapter. This was supposed to take place this past spring but unfortunately was rained out and has been moved for the coming fall when the semester begins again.

1.7 Visiting Lecturers

During the 2013-2014 academic year, we here at the University of Rochester had the pleasure of hosting 3 groups of public talks sponsored by the SPIE student chapter. The speakers enlightened us with their research and inspired us with their enthusiasm for science.

Ivo Ihrke is a researcher at Saarland University. He spoke to the chapter as part of the Summer Colloquium Series. His talk focused on novel imaging techniques that are specifically designed for digital measurements as opposed to visual interpretation.

Pernille Klarskov is a graduate student (and SPIE student chapter officer) at DTU Fotonik in Denmark. She spoke to us about opportunities for international study for undergraduate, masters, and PhD students in the field of photonics. She also described graduate student life at DTU Fotonik. It was a very interesting and unique perspective!

The chapter also hosted Michelle C.Edwards, who is an engineer at FARO Technologies, Inc. She demonstrated some of her company’s devices for high-precision 3D measurement and even took a 3D image of the audience.
2 Financial Information

Starting Balance $4,785

Income
The Institute of Optics - Donation $300.00
SPIE Activity Funds $2,300.00
Subtotal $2,600.00

Expenses
Food for Chapter Meetings $1,044.07
General Electric Trip $446.48
Summer Colloquium Refreshments $498.55
Awards for Summer Colloquium Speakers $183.48
Social Events $40.00
Invited Speakers $230.50
Subtotal $2,443.18

Ending Balance $4,942
3 Future Directions and Activities

This year, our chapter will be focusing on increased member participation. We hope to have more students involved in attending company tours and chapter events. We also hope that we can increase our membership to allow for a more diverse community. In order to achieve these goals, we have discussed planning of the following activities:

- We had attempted to plan a picnic at a local park with Student Chapters between University of Rochester and Rochester Institute of Technology this spring. Due to weather circumstances, this was postponed until September.

- We plan to continue the very successful Summer Student Colloquium Series. Last year there was great success in having students choose either a 45 minute talk or a 20 minute talk, therefore we will repeat this method. In addition, we will reach out to other engineering departments to provide a variety of topics covered through the summer.

- We plan to invite a few speakers over the course of the next year. We plan to come up with a few names that we think would be of interest and poll the members. We hope that brainstorming a few ideas at first will help the members participate in choosing the speaker, rather than relying on members to come up with an idea.

- This year, Aaron Bauer, James Corsetti, and Katelynn Sharma all plan to attend the leadership workshop at SPIE Optics and Photonics in August 2014.

- There have been lots of ideas to expand our outreach efforts. We have done some collaboration with the Society of Physics Students chapter, as well as the Optical Society of America. This year, we hope to have a large role in the annual Optics Family Night and expand or supplement our current Optics Suitcase with demonstrations that older students could benefit from. We also hope to be more involved with local school events. Our department coordinator visits high schools to promote our program to students looking to attend college; we hope to join him with optics demonstrations and our own experiences with the department.
• In order to expand our membership, we plan to hold recruiting events and announce SPIE membership information at chapter events, such as the colloquium series. We hope to expand our membership outside of the optics department. In order to achieve this, we hope to have non-optics members be more involved, either through executive board in future years, outreach or fundraising committees, or event planning.