

Air Force Institute of Technology (AFIT)
SPIE Student Chapter Annual Report for 2016

AFIT SPIE Student Chapter
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Introduction

In this annual chapter report, we highlight the accomplishments that our chapter has made over the past year. This year, our chapter held four quarterly meetings as well as five community outreach events. Meeting topics varied from SPIE recruitment, to outreach, to distinguished lecturers. Our outreach coordinator was successful in expanding our current program by leveraging the Wright-Patterson Air Force Base (WPAFB) Community Outreach Office, in particular the Wizards of Wright program (WoW). We also utilized the visiting lecturer funding and were honored to host Dr. Jean-Luc Doumont as he presented “Making the most of your presentation.” Overall, the chapter continues to do well, and looks forward to continued success 2017.



Figure 1: Dr. Doumont presented “Making the most of your presentation” to over 100 AFIT students and faculty members

Members

Leadership

Our chapter officials for 2016 were elected on 18 Feb 2016 and are listed below:

- Marvin-Ray Arida, marvin-ray.arida@afit.edu, President
- Nathan Haluska, nathan.haluska@afit.edu, Vice President/Outreach Coordinator
- Madilynn Viens, madilynn.viens@afit.edu, Treasurer
- Rachel Oliver, rachel.oliver@afit.edu, Secretary

Current members

As of Dec 2016, our chapter has 22 Student Members and 16 Alumni Members. Current members and their membership expiration/graduation dates are listed in the Table 1. Alumni members are listed in Table 2. The AFIT SPIE Student Chapter maintains two chapter advisers, one military faculty member for continuity, and one civilian faculty member for longevity. Our military advisor is Lieutenant Colonel Milo Hyde, PhD, and our civilian advisor is Professor Michael Marciniak, PhD. Both advisors are regular members of SPIE and have written consent from their respective department heads (as required by the chapter constitution). The AFIT SPIE student chapter also elicits the participation of AFIT faculty members who are current members of SPIE or show desire in becoming members of SPIE. Their continued involvement increases chapter support and longevity.

Table 1: Current members of the AFIT SPIE Student Chapter

Student Members:	Membership Expiration Date
Marvin-Ray Arida	17 February 2017
William Bauer	5 May 2017
James Bowers	18 April 2017
Kenneth Burgi	2 March 2017
Richard Cook	23 March 2017
Ben Eshel	7 May 2017
Ashley Gonzales	13 April 2017
Brady Gough	17 April 2017
Colleen Gross	9 November 2017
Francis Hallada	18 February 2017
Nathan Haluska	17 February 2017
Yongsoon Hwang	10 December 2016
Ann Lanari	27 April 2017
Michael Lichter	20 September 2017
Gordon Lott	17 August 2016
Rachel Oliver	15 February 2017
Oliver Petree	18 April 2017
Noah Van Zandt	20 February 2017
Madilynn Viens	9 March 2017
AJ Wallerstein	17 April 2017
Pamela Wheeler	23 August 2017

Table 2: Alumni members of the AFIT SPIE Student Chapter

Alumni Members:	Graduation Date
Christopher Lenyk	May 2009
Michael Marciniak	September 1995
Salvatore Cusumano	(not available)
Steven Harbour	December 2014
Edward Hurd	March 2011
James Harris	(not available)
Brian Neff	Sep 2013
Glenn Perram	Aug 1966
Ronald Coutu	(not available)
Victor Gamiz	May 1995
Derrick Langley	Jun 2012
Michael Seal	Sep 2013
Mark Spencer	Mar 2014
Seth Swift	September 2015
Matthew Gridley	Mar 2015
Michael Steinbock	Sep 2015

Chapter Activities

Community Outreach

This year, our outreach coordinator, Captain Nathan Haluska, has done an excellent job expanding our outreach program. In addition to participating in two outreach events reaching hundreds of students, we also provided judges for several science fairs, and used our demos at additional events. Our chapter was also able to renovate both of our existing demos: the *Laser Effects Demonstration (LED)*, and the *Laser Propagation Demonstration (LPD)*—resolving issues with the motors and laser interlocks. Finally, we laid the ground work for a more robust continuity hand-off to next year's leadership.

In February 2016, we presented our two demos to Trebein Elementary school, Beavercreek Township, Ohio, where approximately 180 students were in attendance. We utilized our demo again in March 2016 at the Dayton STEM Regional School. These lessons would start with a question-based teaching exercise on the similarities and differences between a light source such as a flashlight and a laser pointer. This would then transition into our *LED* with further discussion on how the atmospheric turbulence distorts beams and makes stars twinkle. We then culminated these talks--leveraging our military presenters--with our *Laser Burn Demo* and a few examples of how the U.S.A. uses or plans to use lasers as defensive capabilities.

To create more robust continuity, we aligned the chapter with the WPAFB Community Outreach Office, specifically the Wizards of Wright program. This pairs the ephemeral nature of our SPIE/military leadership officers with static external resources. This also has the advantage of providing us many more demos to show to students, many of which are even more hands on.

In addition to our local outreach events, the demonstrations were featured at the 2016 SPIE Optics + Photonics conference in San Diego, California, as well as Phys Con an American Institute of Physics (AIP) conference.

Lastly, we hosted a collaborative event with the AFIT American Nuclear Society (ANS) student chapter. The event provided barbeque food and games to both AFIT SPIE and ANS students and their families in attendance as a "welcome" to the new academic year.

Travel Grants

In August 2016, Second Lieutenant (2d Lt) Rachel Oliver, our chapter secretary, applied for and received the SPIE Student Chapter Travel Grant to attend the 2016 Student Chapter Leadership Workshop at Optics + Photonics in San Diego, California. Rachel was incredibly grateful for the opportunity to attend and greatly enjoyed the Student Leadership Workshop. Although the travel grant was immensely valuable due to the limited conference travel funds approval for government employees, we also noted that it may be possible to send two representatives to the conference in 2017 with said travel grant. Either way, we greatly appreciate SPIE's support through travel grants, which provides these unique opportunities to our members.



Figure 2: Rachel Oliver (center-front) attending the 2016 Optics + Photonics in San Diego, California

Best Light-based Master's Thesis

Our fifth-annual *Best Light-based Master's Thesis* award was presented to 2d Lt Jeff Bintz for 2016. The award is presented to the Masters student with the strongest thesis based on the ranking of our PhD student members. 2d Lt Bintz was chosen from a pool of 12 applicants to receive the commemorative plaque and \$50 award. The number of applicants tripled from the four received in 2014, and we hope to expand the program further in the coming year.



Figure 3: SPIE Fellow, Dr. James Grote presented the AFIT 2016 Best Light-based Master's Thesis award to 2d Lt Bintz at the AFIT Graduation Awards Ceremony

Future Activities

Looking ahead to 2017, our chapter has several ideas to increase involvement, relevance, and outreach. We highlight these ideas as followed below.

- Outreach – update the demonstration to include a lightsaber spin on the current demo
- Continue utilizing the Visiting Lecturer Grant for use at AFIT and invite the outside community
- Lab tours – expand quarterly meetings to include laboratory tours/talks from local labs

Financial Information

Our financial records, for March through December 2016, are shown below in Table 3 and indicate we precisely managed our planned budget, thanks to our chapter treasurer, First Lieutenant Madilynn Viens.

Table 3: Financial records for the AFIT SPIE Student Chapter

2016 Financial Records (Through 1 Dec 2016)	
Balance as of 2 March 2016	\$837.20
Outreach Events & Equipment	\$0.00
Visiting Lecturer	(\$500.00)
Food & Supplies (4 Quarterly Mtgs & Picnic)	(\$556.77)
2016 SPIE Activity Grant	\$1,100.00
Balance as of 1 Dec 2016	\$880.43

In conclusion, we feel like this has been a successful year, particularly with the renovation of our outreach demonstration and a guest visit from Dr. Doumont. We greatly appreciate your continued support and look forward to continued success in 2017. Thank you!

MARVIN-RAY ARIDA, Captain, USAF
President
SPIE Student Chapter
Air Force Institute of Technology (AFIT)
15 December 2016

