

Air Force Institute of Technology (AFIT)  
SPIE Student Chapter Annual Report for 2017

AFIT SPIE Student Chapter  
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## **Introduction**

In this annual chapter report, we highlight the accomplishments that our chapter made over the past year. This year our chapter held three quarterly meetings as well as multiple community outreach events.

## **Membership**

### *Leadership*

On 2 Feb 2017, the chapter elected the following officers listed below:

- Douglas Thornton, douglas.thornton@afit.edu, President
- Robert Lloyd, robert.lloyd@afit.edu, Vice President
- AJ Wallerstein, austin.wallerstein@afit.edu, Secretary
- James Bowers, james.bowers@afit.edu, Treasurer

### *Current members*

As of Dec 2017, our chapter has 14 Student Members and 12 Alumni Members. Current members and their membership expiration 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 Major Samuel Butler, Ph.D., and our civilian advisor is Dr. Michael Marciniak. Both advisers 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**

<b>Student Member</b>	<b>Membership Exp. Date</b>
Bryan Adomanis	15-Oct-18
William Bauer	5-May-18
James Bowers	18-Apr-18
Colleen Gross	9-Nov-17
Francis Hallada	18-Feb-18
Daniel Koch	11-Apr-18
Ann Lanari	27-Apr-18
Robert Lloyd	2-Feb-18
Gordon Lott	17-Aug-18
Elizabeth Scherrer	2-Feb-18
Mark Spencer	5-May-63
Douglas Thornton	2-Feb-18
Noah Van Zandt	20-Feb-18
AJ Wallerstein	17-Apr-18

**Table 2: Alumni members of the AFIT SPIE Student Chapter**

<b>Alumni Members:</b>	<b>Graduation Date</b>
Kenneth Burgi	Dec-16
Samuel Butler	Sep-15
Ronald Coutu	(not available)
Ben Eshel	Jun-17
Victor Gamiz	May-95
James Harris	(not available)
Edward Hurd	Mar-11
Milo Hyde	Sep-10
Christopher Lenyk	May-09
Glen Perram	Aug-86
Michael Steinbock	Sep-15
Madilynn Viens	Mar-17

## Chapter Activities

### *Chapter Meetings*

This year we hosted 3 quarterly chapter meetings at AFIT while providing lunch. During our winter meeting, fellow chapter member's Frank Hallada and Rachel Oliver presented their Masters research. This gave them an opportunity to share their work in an open environment and allowed others to see what their fellow students are doing. For our spring meeting, John Cao and Mark Ingram from AFRL were invited to talk about their work with the Flight Planning/Experimentation Campaign and USAF T&E (Test & Evaluation) for the AF SHIELD (Self protect High Energy Laser Demonstration) program. The presentations provided the chapter an opportunity to gain some insight into the activities in some of Air Force's laser programs. Lastly, Bryan Adomanis, Austin Wallerstein, and Robert Lloyd presented their current PhD research and conducted a Q&A session to the chapter and prospective members. The meeting provided an invaluable mentoring session to incoming students and recruiting of new members. Each meeting had better than expected attendance and were very successful.

### *Community Outreach*

This year, our Outreach Chair Bryan Adomanis did an excellent job engaging with the local community. He developed several presentations on the properties of lasers and optics, an introduction to electromagnetics, and thermal energy. Several of the chapter members, along with Bryan, visited local schools and STEM summer camps to present the lessons to over 100 students. Along with the lessons, demonstrations were conducted to engage students such as a laser pointer burning a hole through a paper and using a FLIR camera to see the heat given off by people and various objects. Countless hours were spent on developing, providing instruction, and conducting the demonstrations for our outreach program. Many thanks goes out to Bryan and the chapter members who participated in promoting the chapter, STEM, and optics to young aspiring scientists and engineers in the local area.



**Figure 1: (Left) Douglas Thornton and Bryan Adomanis demonstrate the operation and utility of a FLIR IR camera. (Right) James Bowers and Bryan Adomanis teach young students about the electromagnetic spectrum.**

### *Best Light-Based Master's Thesis*

SPIE Fellow and AFLR/RV Chief Scientist Dr. Steven Rogers awarded the seventh annual *Best Light Based Master's Thesis* award. This year, we had five submissions from Master's thesis advisors at AFIT. PhD student members ranked these submissions based on application. The 2017 winner was Frank Hallada, as shown in Figure 2. The award was given to him during the March AFIT graduation awards ceremony. He received a commemorative plaque and a \$50 check to sponsor a year of continued SPIE membership as an Early Career Member.



**Figure 2: Dr. Steven Rogers, AFRL/RV Chief Scientist and SPIE Fellow, presenting the award to Frank Hallada for his thesis on "The Fresnel Zone Light Field Spectral Imager" during AFIT graduation.**

### *Travel Grant*

This past August, Robert Lloyd, our chapter vice-president, received the SPIE Student Chapter Travel Grant to attend the 2017 Student Chapter Leadership Workshop and Conference at Optics + Photonics in San Diego, California. Robert was incredibly grateful for the opportunity to attend and greatly enjoyed the Student Leadership Workshop and conference. We greatly appreciate SPIE's support through travel grants, which provide these unique opportunities to our members.



**Figure 3: Robert Lloyd (left) and Douglas Thornton (right) at the 2016 Student Leadership Workshop for the Optics + Photonics Conference in San Diego, California.**

### *Future Activities*

Moving on to the next year, our chapter has a couple of ideas to increase membership, involvement, relevance, and outreach as described below.

- Outreach: We will continue to build on our presentations and reinvigorate our laser demonstrator.
- Invited speaker: We are tentatively scheduled for Dr. Jean-luc Doumont to present next October 2018. We plan on applying for the visiting lecturer grant come the new year.

### **Financial Information**

Our financial records for January through December 2017 are shown below in Table 3.

**Table 3: Financial records for the AFIT SPIE Student Chapter**

<b>2017 Financial Records (Through 1 Dec 2017)</b>	
<b>Balance as of 1 Jan 2017</b>	\$770.43
<b>Thesis Award</b>	\$85.00
<b>Food &amp; Supplies</b>	\$355.56
- <b>Food/ drinks/supplies for 1<sup>st</sup> Quarter Meetings</b>	\$110.68
- <b>Food/ drinks/supplies for 2<sup>nd</sup> Quarter Meetings</b>	\$113.35
- <b>Food/ drinks/supplies for 4<sup>th</sup> Quarter Meetings</b>	\$131.53
<b>2016 SPIE Activity Grant</b>	\$900
<b>Balance as of 1 Dec 2017</b>	\$1,204.74

### **Summary**

In closing, this has been a successful year, particularly with the expansion of our outreach presentations. We greatly appreciate your continued support and look forward to continued success in 2018. Thank you!

Douglas E. Thornton  
President  
SPIE Student Chapter  
Air Force Institute of Technology (AFIT)  
1 December 2017

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Student Chapter  
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