

# ORS

## Opportunity Research Scholars' Program Spring 2019 Newsletter

Volume 12, Issue 2

### Spring Events Timeline



#### 1-22-19 Anaren Tech Talk

Bill Copich, Engineering Manager, describes the business focus of Anaren to ORS scholars.



#### 1-24-19 Sandia National Labs Tech Talk

Dr. Cindy Veitch, Research and Development Manager for SNL Strategic Workforce Initiatives and the Center for Cyber Defenders speaks to ORS scholars about opportunities at SNL.



#### 1-31-19 Van Leer Interdisciplinary Design Commons Tour

ORS scholars learn about the hands-on learning environment where they can work together to solve technology design challenges in this state-of-the-art makerspace.



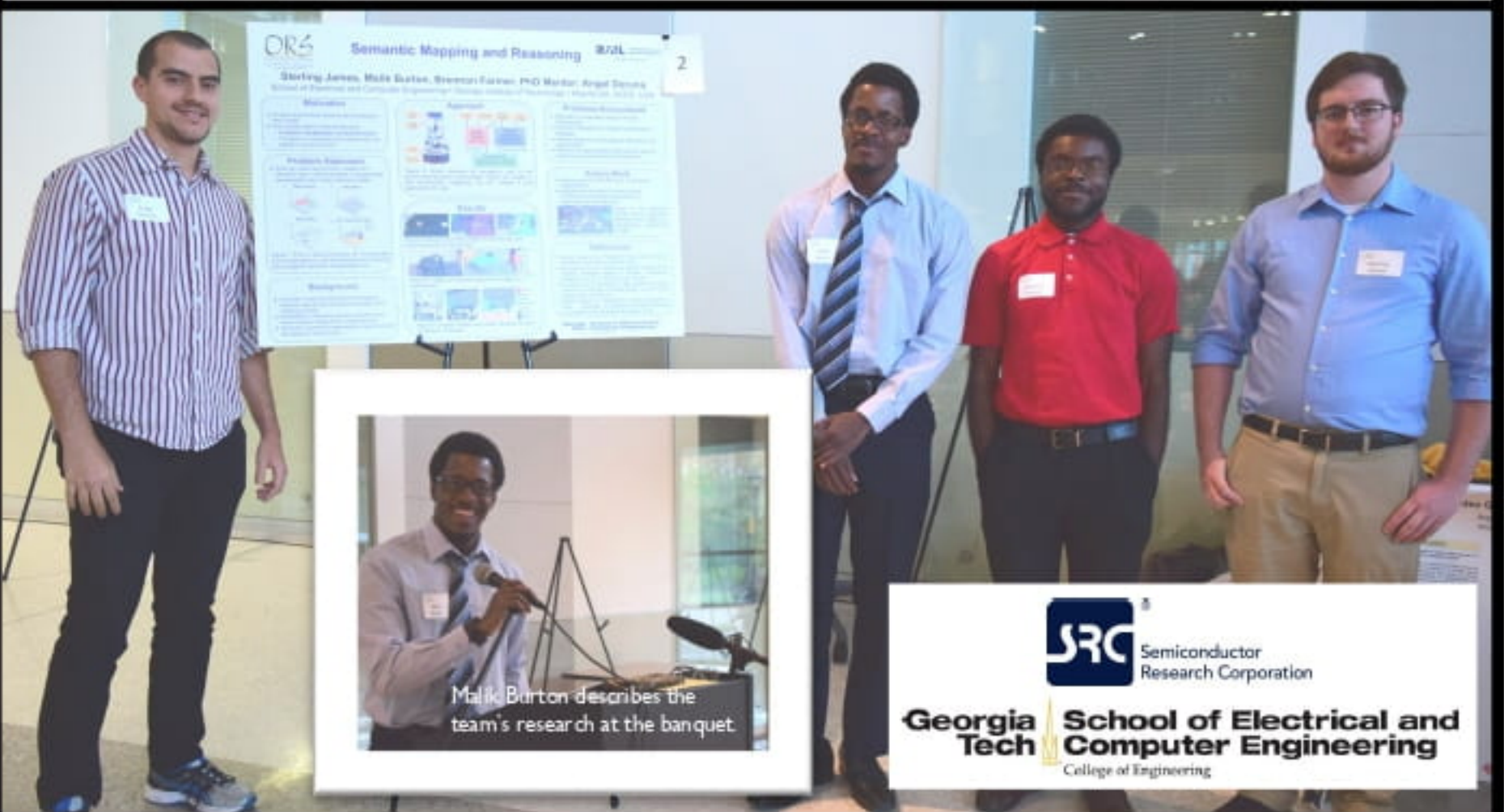
#### 1-31-19 REU and Internship Discussions

Scholars led group discussions about their internships or research done at other universities.

### Robotics Team Receives Top Research Award

Scholars **Malik Burton**, **Brennon Farmer**, and **Sterling James**, Ph. D. Mentor **Angel Daruna** and Faculty Advisor **Dr. Sonia Chernova** of the Robot Autonomy and Interactive Learning (RAIL) Lab were the recipients of the First Place Research Award at the ORS 17th Annual Research Awards Banquet April 15, 2019. Twenty teams were judged by ECE faculty on the basis of their research knowledge and quality as well as their oral presentation, visual display of their work on a research poster, and the ability of the team to explain their contribution to the effort.

The RAIL team's work focused on the problem of "semantically representing a robot's world in a robust fashion that can be learned incrementally to perform tasks." The team received high marks from the judges for their depth of knowledge, scientific honesty in speaking about the problems they encountered, and their strong approach to handling those problems. We look forward to seeing the team's results next year as they expect to continue with their research in 2019-2020. Congratulations on your excellent work!



### Kennedy Selected for Outstanding Service Award

Having a service-minded attitude has always been a common thread in ORS students, and this year **Alison Kennedy** was selected as the student who most exemplifies this quality. Allison has made it a priority to positively impact others through volunteering to help with events and by sharing her insight and knowledge with other students. Allison is a 2nd year scholar from Savannah, GA doing research in cyber security in Dr. Alenka Zajic's lab. She has twice interned at Phillips 66. Congratulations, Alison!



## Spring Events Timeline



### 2-11-19 Tour of NEETRAC and Plasma & Dielectrics Lab

Above, Rick Hartlein, Principle Engineer with the National Electric Energy Testing, Research and Applications Center, leads a tour of the center's facilities describing to scholars the scope of work conducted there and its impact.

Below, scholars look on as Ph.D. student Jia Wei conducts a dielectrics experiment in Dr. Lukas Graber's Plasma and Dielectrics Lab.



### 02-21-19 ECE Graduate Admission Talk

Dr. Daniela Staiculescu gave an overview of the graduate admissions process.



### 02-27-19 ORS Research Competition Workshop

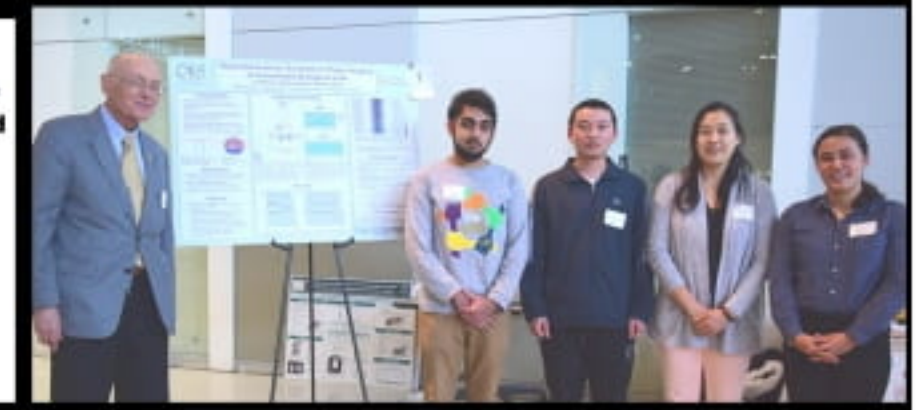
Erik Centeno and Evan Shi gave a shortened presentation of their research as an example of the expectations for the ORS research competition.

## 2019 RESEARCH AWARDS ANNOUNCED

### SECOND PLACE RESEARCH AWARD

THREE-DIMENSIONAL QUANTITATIVE PHASE IMAGING OF IMMOBILIZED BIOLOGICAL CELLS

Dr. Tom Gaylord (Faculty Advisor), Ibrahim Islam, Yijun Bao (Ph.D. Mentor), Ji Ye Chun, and Ashton Hattori



### BEST PRESENTATION AWARD

MODELING THE DEVELOPMENT OF A CURRENT IMPULSE GENERATOR TO CHARACTERIZE THE FAULT BEHAVIOR OF ELECTRICAL CONTACTS

Dr. Lukas Graber (Faculty Advisor), Tushar Damle (Ph. D. Mentor), Nia Rich, Brian Sang, and Taylor Johnson



### PEER REVIEW AWARD

24 GHZ SEMI-PASSIVE RFID TAGS

Bill Copich (Anaren), Dr. Greg Durgin (Faculty Advisor), Mohammad Alhassoun (Ph. D. Mentor), Siddharth Kotapati, Baris Volkan Gurses, Jesse Jiang, and Kibeom Kim



## MENTOR ACHIEVEMENTS

### YIJUN BAO

**Applied Optics**, Vol. 58, pp. 137-146, 1/1/19, "Weighted-least-squares Multi-filter Phase Imaging with Partially Coherent Light: Characteristics of Annular Illumination"  
**Optics Engineering 2019**, "Beam Path Intersections Between Two Coplanar Lidar Scanners"

### ALEX CHANG

**International Conference on Robotics and Automation**, 5/19, "Every Hop is an Opportunity: Quickly Classifying and Adapting to Terrain During Targeted Hopping"

### FU-JEN CHU

**IEEE Robotics and Automation Letters**, 2019, "Learning Affordance Segmentation for Real-World Robotic Manipulation via Synthetic Images"

### ALINE EID

**Flex Conference 2019**, 2/19, Monterey, CA, "How the Future of 5G Will Be Printed"  
**International Microwave Symposium**, 6/19, Boston, MA, "A Scalable High Gain and Large Beam width mm-wave Harvesting Approach of 5G-powered IoT"

**APS/URSI 2019**, 7/19, Atlanta, "Flexible W-Band Rectifiers for 5G-powered IoT"

**IMS 2019**, Finalist, Student Paper Comp.

### FELIPE LARRAIN

**STAMI Fellow**, 1/19  
**235th ECS Meeting**, 5/19  
**SPIE Optics & Photonics Conference**, 8/19

### CHENG QI:

**IEEE RFID Conference 2019**, 4/19, Phoenix, AZ, Best Paper Award, "Breaking the Range Limit of RFID Localization: Phase-based Positioning with Tunneling Tags"

### AISHWARYA NATARAJAN

**2019 IEEE International Symposium on Circuits and Systems**, Sapporo, Japan, 5/19, "Implementation of Synapses with Hodgkin Huxley Neurons on the FPAA"

### NORDINE SEBKHI

**2019 Workshop on Speech & Language Processing for Assistive Technologies**  
"Permanent Magnetic Articulograph vs. Electromagnetic Articulograph in Articulation-to-Speech Synthesis for Silent Speech Interface"

### SRIDHAR SIVAPURAPU

**Flex Conference 2019**, 2/19, Monterey CA, Tech Talk, "Process Design Kit for Flexible Hybrid Electronics"

(Note: et al. applies to selected work)

*A community of dedicated students....*

## SCHOLAR ACHIEVEMENTS

**Erik Centeno, Rafael Figueroa, Evan Shi and Ph. D. Mentor Cheng Qi** were accepted to present their research at the IEEE WPW2019, London, UK, June 17 and their paper titled "Manufacturing a Rectifying Antenna Using Copper Foil on Glass to Reduce Cost of Space Solar Power" was published in IEEE Wireless Power Week

**Baris Volkan Gurses, Kibeom Kim, Siddharth Kotapati, Jesse Jiang, and Ph. D. Mentor Mohammad Alhassoun** presented their research at the IEEE RFID Conference in Phoenix, AZ, 4/19



**Baris Volkan Gurses** presented his research at the IEEE SoutheastCON Conference in Huntsville, AL, 4/19



**Arpan Bhavsar and Anina Mu** received the ECE Senior Scholar Award spring 2019 which is given to the ECE seniors with the highest academic average



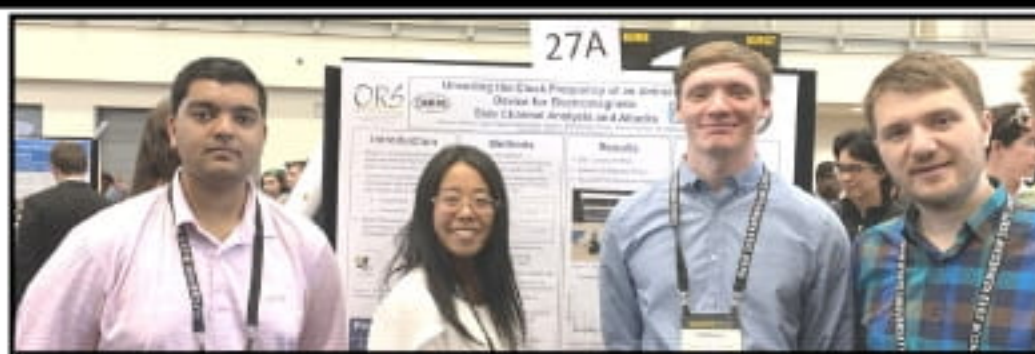
**Justin Kelley** received the President's Undergraduate Research Award for spring 2019



**Gabby Duva** presented her research at the UROP Research Symposium 4/19



**Six ORS Teams** were accepted to present at the National Conference for Undergraduate Research in Atlanta, 4/9



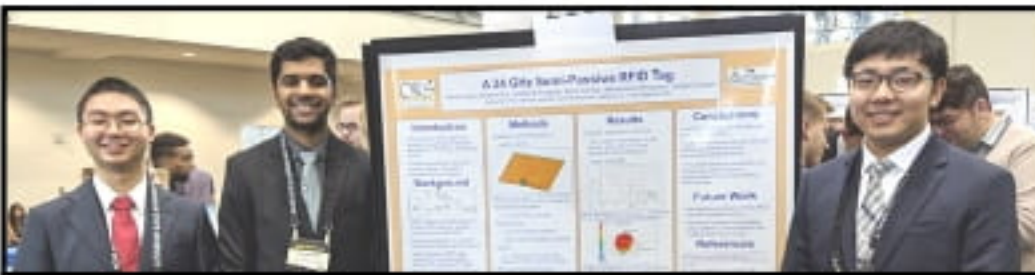
**Vijay Prasad, Maria Saito, Nathan Jenkins & Ph.D. Mentor Baki Yilmaz, Dr. A. Zajic (Faculty Advisor)**



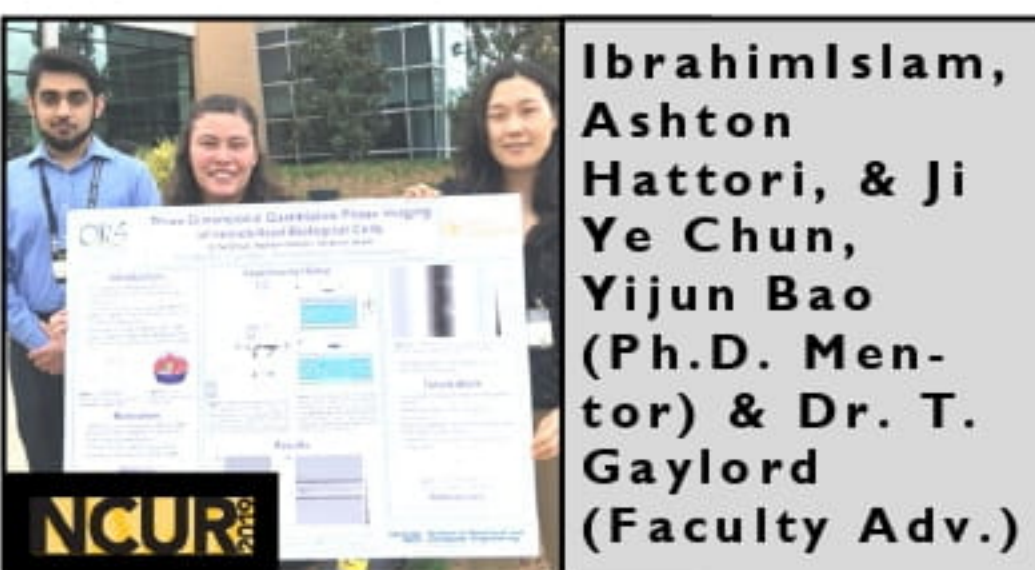
**Alex Fache & Gabby Duva, Ali Allaire, Liz Prucka, Nelson Rafael, Joao Nascimento-Francolin, Alex Chang (Ph.D. Mentor), Dr. P. Vela (Faculty Advisor)**



**Nick Flint, Satwik Nandala, Josh Shafran, Anina Mu, & Gianni Adkisson, Fu-Jen Chu (Ph.D. Mentor), Dr. P. Vela (Faculty Adv.)**



**Jesse Jiang, Siddharth Kotapati, & Kibeom Kim, Baris Volkan Gurses, Mohammad Alhassoun (Ph.D. Mentor), Dr. G. Durgin (Faculty Advisor)**



**Ibrahim Islam, Ashton Hattori, & Ji Ye Chun, Yijun Bao (Ph.D. Mentor) & Dr. T. Gaylord (Faculty Adv.)**



**Rafael Figueroa, Erik Centeno, and Evan Shi, Cheng Qi (Ph.D. Mentor), Dr. G. Durgin (Faculty Adv.)**



## Spring Events Timeline



### 3-7-19 Research Poster Design Workshop

Christina Bourgeois led an interactive workshop that focused on using design principles for creating clear, concise, and effective research posters.



### 3-14-19 Technical Research Poster Workshop

Dr. Greg Durgin discussed effectively communicating technical details on a research poster.



### 3-26-19 Sandia National Labs Student Meeting

Rebecca Horton, Senior Manager, Research Strategy and Partnerships Center and Calvin Chan, Principle Research Scientist with ORS



### 4-04-19 JUMP/ASCENT Research Presentation

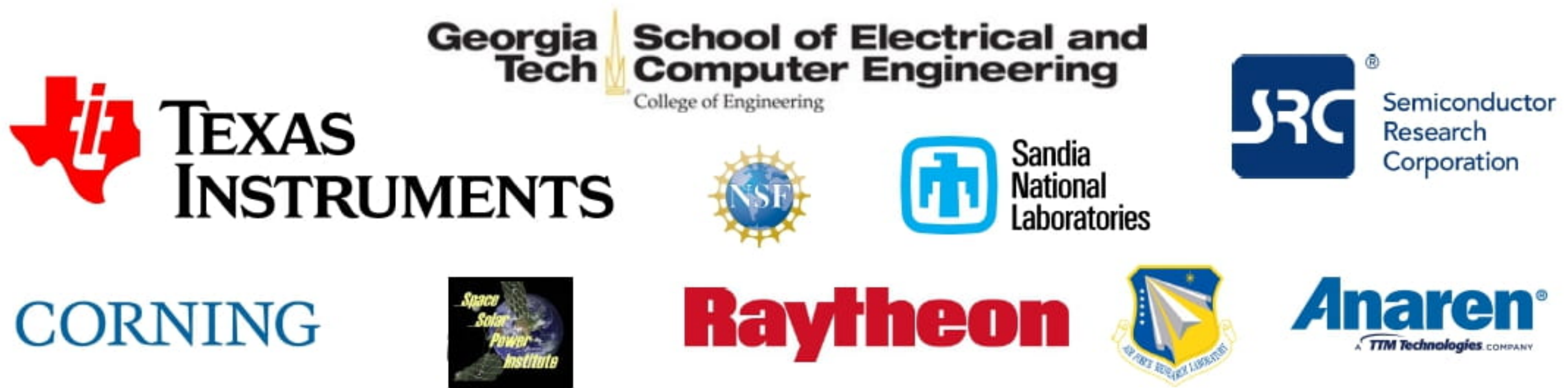
Dr. Madhavan Swaminathan spoke to scholars about the breadth of work being done in the microelectronics arena through these two programs.



### 4-19 2nd Annual Haiti Relay Team Dinner

*...who work together to broaden the academic experience*

This program would not be possible without our forward-thinking Sponsors:



## 2018-2019 Research Teams

<p><b>Dr. Adibi Ali</b> Ali Eshaghian Dorche (Ph.D. Mentor) Laura Heller Ethan Jones Edward Zhou</p>	<p><b>Dr. Sonia Chernova</b> Angel Daruna (Ph.D. Mentor) Malik Burton Brennon Farmer Sterling James</p>	<p><b>Dr. Mark Davenport</b> Nauman Ahad (Ph.D. Mentor) Jordan Ray Aditya Retnanto Yifan Shen</p>	<p><b>Dr. Deepak Divan</b> Nishant Bilakanti (Ph.D. Mentor) Adrija Bhattacharya Choukri Nyon Jason Palmer</p>	<p><b>Dr. Greg Durgin</b> Qi Cheng (Ph.D. Mentor) Erik Centeno Rafael Figueroa Evan Shi</p>
<p><b>Dr. Greg Durgin</b> Mohammad Alhassoun (Ph.D. Mentor) Jesse Jiang Kibeom Kim Siddharth Kotapati</p>	<p><b>Dr. Thomas Gaylord</b> Yijun Bao (Ph.D. Mentor) Ashton Hattori Ji Ye Chun Ibrahim Islam</p>	<p><b>Dr. Lukas Graber</b> Tushar Damle (Ph.D. Mentor) Taylor Johnson Nia Rich Brian Sang</p>	<p><b>Dr. Jennifer Hasler</b> Aishwarya Natarajan (Ph.D. Mentor) Luz Evelinth Cueto Justin Kelley Sai Kilaru</p>	<p><b>Dr. Omer Inan</b> Nordine Sebkh (Ph.D. Mentor) Arpan Bhavsar Shayan Siahpoushan Connor McMahon</p>
<p><b>Dr. Bernard Kippelen</b> Felipe Larrain (Ph.D. Mentor) Varun Madabushi Kimberly Lie Ruth Pavoor</p>	<p><b>Dr. Madhavan Swaminathan</b> Sridhar Sivapurapu (Ph.D. Mentor) Lionel Jones Alexander Joo Thomas Rodriguez</p>	<p><b>Frank Lambert</b> Jake Smith (Mentor) Adam Kinsel Kevin Liow Bria Matthews</p>	<p><b>Dr. Manos Tentzeris</b> Aline Eid (Ph.D. Mentor) Will Scott Denden Mussie Daniel Yang</p>	<p><b>Dr. Patricio Vela</b> Alex Chang (Ph.D. Mentor) Ali Allaire, Gabrielle Duva Alex Fache, Nelson Raphael Joao Nascimento Francolin Liz Prucka</p>
<p><b>Dr. Patricio Vela</b> Fu-Jen Chu (Ph.D. Mentor) Jianni Adkisson Nick Flint, Anina Mu Satwik Nandala Josh Shafran</p>	<p><b>Dr. Alenka Zajic</b> Nader Sehatbakhsh (Ph.D. Mentor) Jacob Bruhn Hope Hong Alison Kennedy Oguzhan Yilmaz</p>	<p><b>Dr. Alenka Zajic</b> Baki Yilmaz (Ph.D. Mentor) Nathan Jenkins Vijay Prasad Maria Saito</p>	<p><b>Dr. Ying Zhang</b> Zongyang Xia (Ph.D. Mentor) Jigna Bhatt Aksaya Manickandan Alex Xu</p>	<p><b>Dr. Ying Zhang</b> Yen-Pang Lai (Ph.D. Mentor) Thoi Pham Jonghoun Park</p>

*A community of dedicated students who work together to broaden the academic experience.*

**Opportunity Research Scholars' Program**  
School of Electrical and Computer Engineering  
777 Atlantic Drive, NW, E470 Van Leer Bldg.  
Georgia Institute of Technology  
Atlanta, GA 30332-0250  
Tel: 404.894.4707

[ors.ece.gatech.edu](http://ors.ece.gatech.edu)



Julie Ridings  
Assistant Director



Emily Pitts  
Graduate  
Assistant



Jill Auerbach  
Founder &  
Director



Dr. Greg Durgin  
Professor &  
Faculty Director