Southeastern Electrical and Computer Engineering Department Heads Association (SECEDHA)

Annual Meeting
October 31 – November 1, 2019
The Inn at Virginia Tech and Skelton Conference Center (a.k.a. the "VT Inn")
Blacksburg, Virginia

Thursday, October 31st
(Registration: 1-2 PM, location TBD on 2nd floor of VT Inn)

OPTIONAL PRE-MEETING TOUR

Time	Activity	Location/ Lead
2:00-2:30 PM	Meet and Greet	**Solitude Room, 2nd floor of VT Inn**
2:30-4:30 PM	Bus tour of the VT campus led by the VT ECE Student Ambassadors including Alumni Mall Drive, the Addison Caldwell Statue, Torgersen Arch, The Pylons/War Memorial, Burruss Hall, Lane Stadium, HokieBird, visit to the Center for Power Electronics Systems, the Atrium and TREC Robotics Lab in Goodwin Hall	**Luke Lester**
4:30-5:30 PM	Free time	

MAIN MEETING

Time	Activity	Location
5:30 - 6:00 PM	Reception	**Solitude Room**
6:00 – 6:40 PM	Dinner	Smithfield Room (2nd floor)

Southeastern Electrical and Computer Engineering Department Heads Association (SECEDHA)

6:40 – 7:30 PM	<u>Featured Speakers</u>: Scott Midkiff, VPIT & CIO, and David Raymond, Deputy Director IT Security Lab "The Virginia Cyber Range – A Model for Experiential Learning in the Cloud"	Smithfield Room (2nd floor)
7:30 – 8:00 PM	SCEEE Annual Meeting	Smithfield Room
8:00 – 8:30 PM	SCEEE Board of Directors Meeting	Smithfield Room

Southeastern Electrical and Computer Engineering Department Heads Association (SECEDHA)

Friday, November 1st

(Meeting location: Solitude Room, second floor of VT Inn)

Time	Activity	Lead
7:30-8:00 AM	Continental Breakfast	
8:00-9:00 AM	Session I: **Leadership Development**	**Dan Noneaker**

1) Recruiting new administrators for your department and the college
2) Faculty annual reviews

Panelists:
Shekhar Bhansali, Florida International Univ.
Michael Johnson, Univ. of Kentucky
Jerry Trahan, Louisiana State Univ.

Time	Activity	Lead
9:00-10:00 AM	Session II: **Managing the AI/ML boom**	**Hulya Kirkici**

How does your institution define AI vs. ML? How do we educate students differently than CS? How do we retain/recruit faculty? How do we entice faculty to teach the ML courses?

Panelists:
Erdem Topsakal, Virginia Commonwealth Univ
Zhihua Qu, Univ. of Central Florida
Roger Dougal, University of South Carolina

Time	Activity	Lead
10:00-10:15 AM	**Break**	

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10:15-11:00 AM	Session III: **Certificates/Minors/Majors: Micro-credentials vs. Degrees** *Luke Lester, Virginia Tech* *Greg Peterson, Univ. of Tennesse, Knoxville*	**Luke Lester**
11:00 AM -12 noon	Roundtable topics **-Accommodating sabbatical leaves** **-ECEDHA dues discussion, are the institutions getting value for the money paid?** **-Growth of Computer vs. Electrical Engineering**	**The Group**
12:00-12:45 PM	Lunch, *Smithfield Room*	
12:45-1:30 PM	ABET Feedback from Visited Programs	**Luke Lester**
1:30-2:30 PM	SECEDHA Business Meeting/Survey	**Hulya Kirkici**
2:30 PM	Adjourn	

Southeastern Electrical and Computer Engineering Department Heads Association (SECEDHA)

Thursday night dinner talk: Drs. Scott Midkiff and David Raymond

Title: "The Virginia Cyber Range – A Model for Experiential Learning in the Cloud"

Abstract:
The Virginia Cyber Range is a state-funded initiative that provides isolated network infrastructure and courseware for cybersecurity education to students and faculty in Virginia high schools, colleges, and universities. This effort has been embraced by educators in the state and our cloud-hosted infrastructure has allowed us to quickly scale to over 7,000 student and faculty users in over 200 high schools and colleges. This summer we launched the U.S. Cyber Range of Virginia Tech, providing cyber range as a service to customers across the country. We will discuss our goals, approach, and experience with the Virginia Cyber Range and our motivation for expanding access nationwide, then tie this all back to broader implications of this cloud-based experiential learning initiative.

Dr. David Raymond is Director of the Virginia Cyber Range and Deputy Director of Virginia Tech's IT Security Lab. He is also adjunct faculty in the Bradley Department of Electrical and Computer Engineering where he teaches networking and cybersecurity courses. David is a retired Army officer and former faculty member in West Point's Department of Electrical Engineering and Computer Science. He has a BS in Computer Science from West Point, an MS in Computer Science from Duke University, and a PhD in Computer Engineering from Virginia Tech. David is a Senior Member of the IEEE and is co-author of *On Cyber, Towards an Operational Art for Cyber Conflict*.

Dr. Scott Midkiff is a Professor of Electrical and Computer Engineering at Virginia Tech and serves as the university's Vice President for Information Technology and Chief Information Officer. As VPIT&CIO, Midkiff has responsibility for Virginia Tech's overall strategy and vision for information technology to support and advance the university's three-part mission of teaching and learning, research and discovery, and outreach and engagement. Previously, he served as ECE department head at Virginia Tech and a program officer at the National Science Foundation.

SECEDHA 2019 Annual Fall Meeting Minutes
November 1, 2019
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Blacksburg, VA

1. The meeting was called to order by SECEDHA President Luke Lester (Virginia Tech) at 8:00 am. (The list of attendees and their affiliations is attached as an appendix.)

2. Session I: Leadership Development was chaired by Dan Noneaker (Clemson U.). The session consisted of a panel discussion with panelists Shekhar Bhansali (Florida International U.), Michael Johnson (Univ. of Kentucky), and Jerry Trahan (Louisiana State U.). Input from the audience was also provided. The discussion addressed existing programs at member institutions and best practices for the development of leadership abilities among ECE faculty to prepare them for the role of ECE department head or higher-level administration. Much of the discussion focused on existing training (or lack thereof) for an incoming department head.

   Session I led into a discussion of a proposal for a 2020 ECEDHA Leadership Symposium (which arose from the ECEDHA Regional Presidents). The concept was presented by Zhihua Qu. (See attachment.) Points of discussion and suggestions included the following.

   a. Proposed outline for Fall 2020 Symposium
   b. Possible addition of conflict management as a topic
   c. Focus on best-practice case studies
   d. Make online resources available to department heads
   e. Symposium should be organized as a workshop
   f. Professional Education International (PEI) will coordinate with Fall 2020 ECEDHA regional meeting dates
   g. Materials on leadership development should be made available to all ECEDHA members

3. Session II: Managing the AI/ML Boom was chaired by Hulya Kirkici (Univ. of South Alabama). The session consisted of a panel discussion with panelists Erdem Topsakal (Virginia Commonwealth U.), Zhihua Qu (Univ. of Central Florida), and Roger Dougal (Univ. of South Carolina). Input from the audience was also provided. The discussion addressed the distinction among related topics (Artificial Intelligence, Machine Learning, Deep Learning) from the perspective of the panelists, how they are incorporated into the curriculum, and how an "ECE unique" emphasis can be defined for the area. The discussion also addressed the challenges and approaches to recruiting new faculty with ML-related expertise and the retooling of existing faculty to enhance strengths in the area. The level of success thus far in developing the area and related hiring varies widely among the member institutions as reported by the participants.

Roger Dougal described a new University-level AI Institute housed within the Computer Science & Engineering Dept. at U. South Carolina. Students within the EE Dept. use ML tools in applications such as power system management. The fact that the relevant courses are taught in CS&E (with CS&E course pre-requisites) presents a challenge for EE students. USC is hiring for one position in conjunction with the AI Institute.

Zhiqua Qu explained the approach to AI/ML at U. Central Florida. UCF CS is focused on the new related degree programs, whereas UCF ECE is focused on domain-specific applications. Within ECE, it is incorporated into courses in signal processing and pattern recognition. There is also an AI/ML component in courses on random processes and robotics and automation, and there is an honors special-topic course on AI. ECE is hiring for two positions in the area. He also described a new Data Analytics program within Computer Science and Statistics at UCF.

Erdem Topsakal described the overlap of AI/ML with the focus of the Commonwealth Cyber Initiative (CCI) Network, which consists of 21 academic institutions in Virginia. Computer Engineering students at VCU gain exposure to AI/ML by taking courses offered in Computer Science. The CCI Net will hire across the member universities, with VCU ECE hiring in AI/ML focused on domain-specific applications.

Discussion among audience members included how AI/ML courses are distributed between ECE and CS. There was a broad agreement that ECE courses should focus on domain applications. Nikolaos Sidiropoulos (Univ. of Virginia) noted that the stronger math skills of ECE students compared with CS students can be leveraged in differentiating the ECE emphasis from the CS emphasis in AI/ML. He further noted that the unique value of an ECE background for AI/ML is illustrated by the number of ECE PhDs hired into CS faculty positions in the area. Tim Talty (Virginia Tech) suggested that AI/ML topics should be incorporated into courses in random processes and signal processing.

4. Session III: Certificates/Minors/Majors: Micro-Credentials versus Degrees was chaired by Luke Lester. The presenters were Luke Lester and Greg Peterson (Univ. of Tennessee, Knoxville). Luke Lester presented the concepts of a "studio in honors" as part of the VT undergraduate honors program which utilizes in-residence industry mentors for the honors project teams. He also discussed VT's revision of its curriculum into several "majors" that reflect specialization options, which is occurring as part of its NSF-funded Revolutionizing Engineering Departments (RED) project. Greg Peterson covered the BS options in Computer Engineering, Computer Science, and Electrical Engineering at UTK (all of which reside within his department). All three degree programs support the option to complete a minor in cybersecurity (though no EE students have yet done so). He discussed the concepts of micro-degrees, badges, and certificates (not all of which appear to be used in academia at present). Greg also noted that the combined BS-MS degree track available to BS students in his department has been a contributing factor to the large increase in US MS enrollment the department has experienced recently.

Follow-on audience discussion initially addressed the value of micro-credentials. Additionally, Luke was asked whether the new VT curriculum approach tracks each student towards a subset of prospective employers, and he indicated that they have not observed this occurring in a way that is detrimental to the employability of the students. Roger Dougal mentioned that the Univ. South Carolina EE Web site list 18 "career paths" for EE majors. Following discussion concerned the relative merits of professional advising versus faculty advising of undergraduates in ECE.

5. Roundtable: Scheduled topics included sabbatical leaves, the value institutions derive from ECEDHA dues, and the relative growth of computer engineering versus electrical engineering. The majority of the discussion was focused on the second topic (ECEDHA dues and services). Points of discussion included the following.

   a. It was suggested that the proposed 1-day ECEDHA Leadership Symposium (see item 2 above) would be more effective if conducted at the institutional level.
   b. The question was raised as to whether or not there ECEDHA has a clearly defined direction for its future. What is its mission? Is there an ECEDHA Mission Statement?
   c. Revenues and expenses of ECEDHA are circa $1 million per year. (Reference the ECEDHA 2018 Annual Financial Report on the ECEDHA Web site.)
   d. ECEDHA's contract with PEI is up for renewal in 2021. Should ECEDHA be open to other possibilities at that time?
   e. The question was raised about how the financial status of the ECEDHA Foundation is reported to the ECEDHA membership.
   f. The idea of leveraging NSF funding for ECEDHA workshops was discussed. It was noted that feedback from the NSF Engineering Directorate regarding this is that they want ECEDA to fund its own educational workshops. The contrast with the NSF CISE/CRA relationship was noted, and the point was made that the NSF Engineering Directorate has to represent and support several engineering disciplines equitably.

6. ABET Feedback from Visited Programs: Five programs reported on recent ABET PEV visits.

   a. Embry Riddle (Tim Wilson): CPE, CS, EE, and SE programs evaluated. Challenges regarding the presentation of display material related to courses shared among multiple programs (EE/CPE – standards in senior design, CS/SE – assessment of proficiency in security topics); concurrent visits for several programs spreads the department chair too thin; Pay attention to differences related to change from criteria (a)-(k) to criteria (1)-(7); Make sure each lab has a working, currently inspected fire extinguisher; New online process results in faster turnaround from ABET
   b. NC A&T University (Abdullah Eroglu): CpE and EE programs evaluated. There was one concern – educational objectives versus outcomes
   c. Univ. South Florida (Chris Ferekides): EE program evaluated. There was one concern – institutional support. The self-evaluation report includes tables mapped to both criteria (1)-(7) and criteria (a)-(k), which the PEV liked. "Risk" was added as a topic to the senior design course.

d. Virginia Military Institute (Shawn Addington): ECE program evaluated. The PEV provided 55 questions prior to the visit.
e. Virginia Tech (Luke Lester): CPE and EE programs evaluated. The EE PEV provided more than 30 questions prior to the visit. A number of the questions regarded evidence re global issues and change management from senior design; The review included the updated curriculum. (See item 4 above.)

This was followed by discussion among the audience regarding the five visits and curriculum topics.

7. Dan Noneaker encouraged nominations for the 2020 ECEDHA Awards.

8. Hulya Kirkici conducted questioning on the participants for the SECEDHA annual statistical survey.

9. Meeting Adjourned at 2:30 pm.

See minutes of previous meetings at: http://secedha.org/meetings/

Minutes respectfully submitted by Dan Noneaker, SECEDHA Secretary.

Southeastern Electrical & Computer Engineering Department Heads Association
Annual Meeting Roster
October 31 – November 1, 2019
Virginia Tech

First Name	Last Name	Institution	Email
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Saleh	Zein-Sabatto	Tennessee State University	mzein@tnstate.edu

ECEDHA Leadership Symposium
Fall 2020 – Topic Outline

Leadership Management Skills
- Strategic Planning
- Effective Leadership Tools
- Enabling Transformational Change
- Building and Establishing Quality Processes
- Achieving Cultural Change
- Promoting Entrepreneurship
- Creating an Environment for Collaboration & Open Conversation
- Effective Communications Skills
- Compliance and IP
- Crisis Management

Faculty Relations
- Promoting & Enabling Diversity (Faculty & Students)
- Road Map for Faculty Development
- Establishing Feedback Loops
- Faculty Empowerment
- Faculty Motivation - Junior Faculty, Mid-Career, Senior Faculty
- Faculty Assessment and Evaluations Techniques
- Compensation Programs
- Diversity and Inclusion Programs
- Mentorship Programs

Commented [zq1]: Little freedom for state schools with unions

Curriculum Innovations
- New Program Development
- New Degree Development
- Curriculum Evaluations & Assessment Methodologies
- Graduate Program Development
- New Educational Tools and Teaching Methodologies
- Collaborative Learning
- Technology Integration
- Student Engagement Programs
- New Areas (AI, ML, DS, Quantum, …)

Industry Relations
- Best Practices for Advisory Board
- Alumni Relations

- Effective Fund Raising
- Corporate Contributions
- Fundraising Mechanisms: scholarship, senior design projects, endowment, etc

Academic Administration
- Effective Faculty Recruitment - Undergrad & Graduate Students
- Faculty Hiring Techniques
- Marketing & Communications
- Funding Models
- Faculty Motivational Techniques
- Diversity and Inclusion

Student Relations
- Student Recruitment
- Retention Methodologies & Programs
- Mentorship Models
- Student Motivation and Empowerment

Marketing and Communications
- Departmental Branding
- Social Media Strategies
- Effective Public Relations
- Website Models
- Departmental Communications Strategies

Personal Development
- Personal Branding
- Pathways for Academic Career Advancement