



IEEE SoutheastCon 2023

Orlando, Florida
14-16 April 2023



Proudly hosted by IEEE Region 3 and the
IEEE Orlando Section





IEEE Region 3

It is my great pleasure to welcome you to SoutheastCon 2023!

Thanks to Joe Juisai and the rest of the SoutheastCon 2023 team for their hard work putting together this event.

I hope you take advantage of this opportunity to reconnect with old friends, make new connections, and learn ways to help our members.

As always, thanks for all you do for IEEE! Volunteers like you make Region 3 a great place to live, work and volunteer.

Theresa Brunasso
Director
IEEE Region 3



Organizing Committee

On behalf of the IEEE SoutheastCon 2023 Local Organizing Committee, I welcome our distinguished guest, the Region 3 committee, paper, poster, and tutorial presenters, student competitors, and attendees to Orlando, Florida. I hope that your experiences and stay in our area are unbelievably real.

This conference marks the fourth time that Orlando has hosted IEEE SoutheastCon. This year also marks the 60th annual meeting of what is now the Region 3 Technical and Student Conference, the predecessor of what we today call IEEE SoutheastCon. I look forward to additional IEEE SoutheastCon milestones in the future

I would also like to thank the entire local organizing committee for the countless hours and tireless efforts in making this conference a success.

Joe Juisai
General Conference Chair

Valencia College Proud Sponsor of IEEE SoutheastCon 2023



IEEE SoutheastCon 2023 is proudly sponsored by University of Central Florida



UNIVERSITY OF
CENTRAL FLORIDA

Engineering the Future in Atlanta



21-24 March 2024
Westin Peachtree Plaza

IEEE Region 3 Leadership



THERESA BRUNASSO, Founder of D&S Microwave, is a 30-year veteran in the field of Electrical Engineering. Prior to starting D&S Microwave, she spent more than 20 years at EMS Technologies. At EMS, Theresa served as Microwave Engineering Manager, Director of Technology Development, and provided innovative design and development expertise for numerous programs, including JSTARS, XM Radio, DirectTV, DarkStar, NSTAR, Milstar, Advanced EHF, IntelSat and the Mars Science Lab. Theresa holds an Engineer's Degree and M.E. in Electrical Engineering from the University of Utah, and a B.S. in Physics from the University of West Florida. She has served as the IEEE Atlanta Section Secretary, Vice Chair and Chair, and currently serves as the Director for the IEEE Region 3 which represents the southeastern United States.



JILL I. GOSTIN is IEEE Vice President, Member and Geographic Activities (MGA) and is Past Director, IEEE Region 3. She has served in multiple roles across IEEE, including on the Board of Governors of both the Computer Society and the Aerospace and Electronic Systems Society, and as Vice President of the Sensors Council. She is a Principal Research Scientist in the Software Engineering and Architecture Division of Georgia Tech Research Institute's (GTRI) Sensors and Electromagnetic Applications Lab. She has worked at GTRI since 1985, focused on systems engineering, algorithm assessment, and software testing and evaluation for sensor systems. In 2016 she was named the Women in Technology Woman of the Year, which recognizes women technology executives for their accomplishments as leaders in business, as visionaries of technology, and who make a difference in their community. She received her BA in Mathematics from Greenville College and her MS in Applied Mathematics from the Georgia Institute of Technology.



JOE PENNISI is a 30-year veteran of the Personal Computer industry with IBM, Lenovo and NVIDIA. With IBM and Lenovo, Joe led system development of numerous IBM PS/2, IBM PC300 and IBM NetVista PCs. He later led that software architecture and development organization that developed numerous ThinkVantage Technology products. He built Lenovo's Personal Computer Product Security organization. He is currently a Principal Security Architect with NVIDIA focused on GPU platform and software security architecture. Joe holds a B.S. and an M.E. in Electrical Engineering from Rensselaer Polytechnic Institute. He had served as a Board member, officer & Treasurer for the Trusted Computing Group for more than a decade, and helped found The FIDO Alliance, serving as a founding Board member, officer and Treasurer. As a member of the IEEE for more than 30 years, he has served as the IEEE Eastern NC Section Treasurer, and currently servers as the Region 3 Treasurer



J. PATRICK DONOHOE received the B.S. and M.S. degrees in Electrical Engineering from Mississippi State University (MSU) and the Ph.D. degree in Electrical Engineering from the University of Mississippi. Dr. Donohoe is Professor Emeritus of Electrical and Computer Engineering at MSU where he retired with the title of Professor and Paul B. Jacob Chair. His primary research interests include computational electromagnetics and radar. Dr. Donohoe served as principal or co-principal investigator on 67 sponsored research projects with a total funding of \$36.9M and has authored over 100 publications in refereed journals and conference proceedings. He is a registered professional engineer in the state of Mississippi and a member of Eta Kappa Nu. Dr. Donohoe has served as an ABET evaluator and is currently active with the National Council of Examiners for Engineering and Surveying, serving as chair of the Electrical and Computer Engineering Exam Committee.



ERIC GRIGORIAN is Chief Engineer and Chief of GTRI Applied System Laboratory's Aviation System Division. He has over 37 years of experience in the federal and commercial markets, directing hi-tech full life-cycle product development. Prior to GTRI, he was the Director of Engineering and Manufacturing for Yulista Aviation, responsible for full life-cycle support of product development and production of systems for the US Army Prototype Integration Facility. He was VP of Engineering and Manufacturing at AAR Integrated Technologies, developing product for DoD in support of Command and Control Systems. He holds 2 US Utility patents, is a Senior Member of the IEEE and was recipient of 2020 University of Alabama in Huntsville's Alumni of Achievement Award, 2019 James Beall SoutheastCon Recognition Award and 2006 IEEE Region 3 Outstanding Engineer of the Year Award. He has received numerous additional awards from current and previous employers and technical societies

Agenda

Tutorials

Friday, 14 April	Lake George B
8:30 a.m. to 10 a.m.	Essential Public Permissionless Blockchain and Cryptocurrency Mechanics for Engineers Michael Ramalho, Ph.D. (AcousticComms Consulting)
10 a.m. to 10:15 a.m.	Break
10:30 a.m. to Noon	Application of Deep Learning Technologies in Brain Signal Analysis Ellakat Gireesh, M.D. (AdventHealth Orlando)
Noon to 1 p.m.	Lunch (Orange A/B)
1 p.m. to 2:30 p.m.	Advanced Data Structures and Algorithms for Sequence Analysis Sahar Hooshmand, Ph.D. (California State University Dominguez Hills)
2:30 p.m. to 3 p.m.	Break
3 p.m. to 4:30 p.m.	5G Networks, Applications, and Security Ashutosh Dutta, Ph.D. (Johns Hopkins University)

Technical Program: Paper Sessions

Friday, 14 April	Lake Highland	Lake George B	Lake Down A	Lake Down B	Lake Nona A	Lake Nona B
6:30 a.m. to 8 a.m.		Breakfast (Orange A/B)	Breakfast (Orange A/B)	Breakfast (Orange A/B)	Breakfast (Orange A/B)	Breakfast (Orange A/B)
8:30 a.m. to 10 a.m.		Tutorial 1	F1A: Power 1	F2A: Computing Systems 1	F3A: Microelectronics, Devices and Sensors 1	F4A: Miscellaneous 1
10 a.m. to 10:15 a.m.		Break	Break	Break	Break	Break
10:15 a.m. to 11:45 a.m.		Tutorial 2	F1B: Power 2	F2B: Computing Systems 2	F3B: Artificial Intelligence and Predictive Modeling 1	F4B: Miscellaneous 2
Noon to 1 p.m.		Lunch (Orange A/B)	Lunch (Orange A/B)	Lunch (Orange A/B)	Lunch (Orange A/B)	Lunch (Orange A/B)
1:15 to 2:45 p.m.		Tutorial 3	F1C: Communications and Electromagnetics 1	F2C: Computing Systems 3	F3C: Artificial Intelligence and Predictive Modeling 2	F4C: Miscellaneous 3
2:45 p.m. to 3 p.m.		Break	Break	Break	Break	Break
3 p.m. to 4:45 p.m.		Tutorial 4	F1D: Communications and Electromagnetics 2	F2D: Eta Kappa Nu Student Papers	F3D: Artificial Intelligence and Predictive Modeling 3	F4D: Miscellaneous 4

Saturday, 15 April	Lake Highland	Lake George B	Lake Down A	Lake Down B	Lake Nona A	Lake Nona B
6:30 a.m. to 8 a.m.	Breakfast (Orange A/B)	Breakfast (Orange A/B)	Breakfast (Orange A/B)		Breakfast (Orange A/B)	Breakfast (Orange A/B)
8:30 a.m. to 10 a.m.	Posters	Student Presentations 1	S1A: Signal Processing 1		S3A: Microelectronics, Devices and Sensors 2	
10 a.m. to 10:15 a.m.	Break	Break	Break		Break	Break
10:15 a.m. to 11:45 a.m.	Posters	Student Presentations 2	S1B: Signal Processing 2		S3B: Artificial Intelligence and Predictive Modeling 4	S4B: Miscellaneous 5
Noon to 1 p.m.	Lunch (Orange A/B)	Lunch (Orange A/B)	Lunch (Orange A/B)		Lunch (Orange A/B)	Lunch (Orange A/B)
1:15 to 2:45 p.m.	Posters		S1C: Signal Processing 3		S3C: Artificial Intelligence and Predictive Modeling 5	S4C: Miscellaneous 6
2:45 p.m. to 3 p.m.	Break		Break		Break	Break
3 p.m. to 4:45 p.m.	Posters		S1D: Makeup Session		S3D: Artificial Intelligence and Predictive Modeling 6	S4D: Miscellaneous 7

Agenda

Student Programs

Thursday, 13 April	Student Activities
Noon	Hardware Competition Room Opens - (Orange Ballroom D)
Noon to 11 p.m.	Hardware Competition Practice - (Orange Ballroom D)
Noon to 11:59 p.m.	Student Lounge - (Lake George A)

Friday, 14 April	Student Competitions
8 a.m. to 11:59 p.m.	Networking - All networking materials must be submitted by 12 p.m. on Saturday. (Conference Area)
11 a.m. to 2 p.m.	Ethics - Sign up for a 30-minute timeslot for presenting. (Lake Concord B)
2 p.m. to 5 p.m.	Circuit Design - (Lake Hart)
	Student Activities
Midnight to 11:59 p.m.	Student Lounge - (Lake George A)
8 a.m. to 5:45 p.m.	Hardware Competition Practice - The hardware practice area will close at 5:45 p.m. to prepare for the Welcome Reception. (Orange Ballroom D)
5:30 p.m. to 6 p.m.	Student Photo - Meet outside the hardware room at 5:30 p.m. for the IEEE SoutheastCon student photo. (Orange Ballroom D)
6 p.m. to 7:30 p.m.	Welcome Reception sponsored by IEEE Eta Kappa Nu - Dress code is casual. (Orange Ballroom A-C and Foyer)
7:30 p.m. to 8:30 p.m.	Student Branch Leadership Training - Branch chairs and branch counselors must attend 1 of 2 sessions to receive the travel rebate. (Lake Hart)
8:30 p.m. to 9 p.m.	Hardware Competition Captains Meeting - All hardware team captains must attend this mandatory meeting. (Lake Hart)
7:45 p.m. to 11:59 p.m.	Hardware Competition Practice - The hardware room reopens at 7:45 p.m. for student use. The room will be available overnight through 7 a.m. on Saturday, 15 April. (Orange Ballroom D)

Saturday, 15 April	Student Competitions
7 a.m. to 3 p.m.	Hardware Competition - (Orange Ballroom D)
8 a.m. to Noon	Software Competition - (Lake Hart)
8 a.m. to Noon	Networking - All networking materials must be submitted by 12 PM on Saturday. (Conference Area)
6 p.m. to 8 p.m.	Hardware Competition Finals at the Awards Banquet - (Orange Ballroom A-D)
	Student Activities
Midnight to 11:59 p.m.	Student Lounge - (Lake George A)
1:25 p.m. to 1:55 p.m.	NextGen 101 - (Lake Eola)
3 p.m. to 4 p.m.	Student Branch Leadership Training - Branch chairs and branch counselors must attend 1 of 2 sessions to receive the travel rebate. (Lake Hart)
3:10 p.m. to 3:25 p.m.	NextGen 101 - (Lake Mizell)
6 p.m. to 8 p.m.	Awards Banquet - Hardware competition finals will be run, and student competition winners will be announced at the banquet. Dress code is business formal. (Orange Ballroom A-D)

Sunday, 16 April	Student Competitions
9 a.m. to Noon	IEEE SoutheastCon 2024 Student Program Preview - The IEEE Region 3 Student Activities Committee and the IEEE SoutheastCon 2024 team will preview competition rules for IEEE SoutheastCon 2024. (Lake Concord B)
	Student Activities
Midnight to Noon	Student Lounge - (Lake George A)
11 a.m. to Noon	Travel Check Handout - (Lake Concord B)

Agenda

Region 3 Programs

Friday, April 14

Date and Time	Duration (min.)	Title	Presenter	Room
Friday 5:00 PM - 10:00 PM				
Fri, Apr 14, 2023, 5:00PM	60	Section Support Committee	Bing	Lake Hart
Fri, Apr 14, 2023, 6:00PM	90	Welcome Reception Sponsored by Eta Kappa Nu		Orange A-C
Fri, Apr 14, 2023, 7:30PM	60	Area 1 Meeting (NC & VA)	Imanian	Lake Louise A
Fri, Apr 14, 2023, 7:30PM	60	Area 2 Meeting (GA & SC)	Williams	Lake Louise B
Fri, Apr 14, 2023, 7:30PM	60	Areas 3 (FL)	Ortega	Lake Virginia A
Fri, Apr 14, 2023, 7:30PM	60	Area 4 Meeting (KY & TN)	Kuban	Lake Virginia B
Fri, Apr 14, 2023, 7:30PM	60	Area 5 Meeting (AL, MS, & Jamaica)	Kung	Lake Nona A
Fri, Apr 14, 2023, 8:30PM	30	Area Chairs meet with Director	Brunasso	Lake Eola
Friday 8:00 PM - 10:00 PM	120	WIE/YP Networking Event	Kurmar/Licona	Championsgate

Saturday, April 15

Date and Time	Duration (min.)	Title	Presenter	Room
Saturday 7:00 AM				
Sat, Apr 15, 2023, 7:00AM	60	FinCom Meeting	Pennisi	Lake Eola
Saturday 8:00 - Noon				
		Track 1: Section Foundations		Lake Eola
Sat, Apr 15, 2023, 8:00AM	15	Welcome and Introductions	Brunasso	Lake Eola
Sat, Apr 15, 2023, 8:15AM	5	Section Management Intro	Brunasso	Lake Eola
Sat, Apr 15, 2023, 8:20AM	30	IEEE 101	Green	Lake Eola
Sat, Apr 15, 2023, 8:50AM	30	Roles of Officers 101	Conrad	Lake Eola
Sat, Apr 15, 2023, 9:20AM	15	Membership Dues	Gostin	Lake Eola
Sat, Apr 15, 2023, 9:35AM	20	SAC and Your Section	Donohoe	Lake Eola
Sat, Apr 15, 2023, 9:55AM	15	Break		
Sat, Apr 15, 2023, 10:10AM	25	Section Support	Lord	Lake Eola
Sat, Apr 15, 2023, 10:35AM	30	Website Tools & Tricks	Richardson	Lake Eola
Sat, Apr 15, 2023, 11:05AM	15	Use of Member Information	Dillard	Lake Eola
Sat, Apr 15, 2023, 11:20AM	20	IEEE Future & Compliance Requirements	Muirhead	Lake Eola
Sat, Apr 15, 2023, 11:40AM	15	Center for Leadership Excellence (CLE)	Torres	Lake Eola
Sat, Apr 15, 2023, 11:55AM	60	LUNCH		Orange A-C
Saturday 1:00 - 5:10 PM				
		Track 1: Section Foundations		Lake Eola
Sat, Apr 15, 2023, 12:55PM	30	Intro to OU Analytics	Sharoff	Lake Eola
Sat, Apr 15, 2023, 1:25PM	30	NextGen 101	Pennisi	Lake Eola
Sat, Apr 15, 2023, 1:55PM	30	vTools: Engage	Brown	Lake Eola
Sat, Apr 15, 2023, 2:25PM	15	Break		
Sat, Apr 15, 2023, 2:40PM	25	Sections Congress Info Session	Licona/Brunasso/Gostin	Lake Eola
Sat, Apr 15, 2023, 3:05PM	20	Area Chairs Here to Lead and Assist	Imanian	Lake Eola
Sat, Apr 15, 2023, 3:25PM	25	Engagement: Future Directions	G Randall	Lake Eola
Sat, Apr 15, 2023, 3:50PM	20	VoLT Program	Syed	Lake Eola
Sat, Apr 15, 2023, 4:10PM	15	Micro-Volunteering	Kumar	Lake Eola
Sat, Apr 15, 2023, 4:25PM	30	Collaboratec and Data Migration	Manganaro	Lake Eola
Sat, Apr 15, 2023, 4:55PM	5	Section Foundations Wrap-Up	Brunasso	Lake Eola
Sat, Apr 15, 2023, 5:00PM		End of Session		
Saturday, 6:00-8:00 pm		Banquet		Orange A-D

Agenda

Region 3 Programs

Saturday, April 13 (Continued)

Date and Time	Duration (min.)	Title	Presenter	Room
Saturday 8:00 - Noon				
Sat, Apr 15, 2023, 8:30AM	15	Track 2: Section Growth Welcome and Introductions	Grigorian	Lake Mizell
Sat, Apr 15, 2023, 8:45AM	5	Section Growth Intro	Grigorian	Lake Mizell
Sat, Apr 15, 2023, 8:50AM	25	Section Support	Lord	Lake Mizell
Sat, Apr 15, 2023, 9:15AM	25	IEEE 201	Green	Lake Mizell
Sat, Apr 15, 2023, 9:40AM	15	Use of Member Information	Dillard	Lake Mizell
Sat, Apr 15, 2023, 9:55AM	15	Break		
Sat, Apr 15, 2023, 10:10AM	30	Advanced OU Analytics	Sharoff	Lake Mizell
Sat, Apr 15, 2023, 10:40AM	30	Beyond your Section	Jankowski	Lake Mizell
Sat, Apr 15, 2023, 11:10AM	25	Engagement: Future Directions	G Randall	Lake Mizell
Sat, Apr 15, 2023, 11:35AM	15	Membership Dues	Gostin	Lake Mizell
Sat, Apr 15, 2023, 11:50AM	60	Lunch		Orange A-C
Saturday 1:00 - 5:10 PM				
Sat, Apr 15, 2023, 12:50PM	25	Track 2: Section Growth Sections Congress Info Session	Licona/Brunasso/Gostin	Lake Mizell
Sat, Apr 15, 2023, 1:15PM	15	Engagement: Conferences	Ackerman	Lake Mizell
Sat, Apr 15, 2023, 1:30PM	20	Engagement: Professional Development Events	Fillion	Lake Mizell
Sat, Apr 15, 2023, 1:50PM	15	Micro-Volunteering	Kumar	Lake Mizell
Sat, Apr 15, 2023, 2:05PM	30	Collaboratec and Data Migration	Manganaro	Lake Mizell
Sat, Apr 15, 2023, 2:35PM	15	Break		
Sat, Apr 15, 2023, 2:50PM	20	Engagement: Fellow Program	Kirkici	Lake Mizell
Sat, Apr 15, 2023, 3:10PM	15	NextGen 201	Pennisi	Lake Mizell
Sat, Apr 15, 2023, 3:25PM	20	SAC and Your Section	Donohoe	Lake Mizell
Sat, Apr 15, 2023, 3:45PM	30	vTools: Engage	Brown	Lake Mizell
Sat, Apr 15, 2023, 4:15PM	20	Website Tools & Tricks	Richardson	Lake Mizell
Sat, Apr 15, 2023, 4:35PM	20	VoLT Program	Syed	Lake Mizell
Sat, Apr 15, 2023, 4:55PM	5	Section Growth Wrap-Up	Grigorian	Lake Mizell
Sat, Apr 15, 2023, 5:00PM		End of Session		Lake Mizell
Saturday, 6:00-8:00 pm		Banquet		Orange A-D

Sunday, April 14

Date and Time	Duration (min.)	Title	Presenter	Room
Sunday 8:00 - Noon				
Sun, Apr 16, 2023, 8:00AM	15	Region 3 Committee Meeting HKN Induction	Conrad	Lake Eola
Sun, Apr 16, 2023, 8:15AM	10	Call to Order, Approval of Agenda	Brunasso	Lake Eola
Sun, Apr 16, 2023, 8:25AM	20	Officer Reports	Officers	Lake Eola
Sun, Apr 16, 2023, 8:45AM	15	Committee Reports	Committee Chairs	Lake Eola
Sun, Apr 16, 2023, 9:00AM	15	Action Discussion Items, SoutheastCon 2026	Ackerman	Lake Eola
Sun, Apr 16, 2023, 9:15AM	30	Sections Congress Recommendations	Brunasso	Lake Eola
Sun, Apr 16, 2023, 9:45AM	15	IEEE-USA Presentation	Conrad	Lake Eola
Sun, Apr 16, 2023, 10:00AM	10	IEEE-Foundation Presentation	Deering	Lake Eola
Sun, Apr 16, 2023, 10:10AM	15	Break		
Sun, Apr 16, 2023, 10:25AM	15	Region 3 Director Elect Candidates	Brunasso	Lake Eola
Sun, Apr 16, 2023, 10:40AM	75	Section Chairs report*	Section Chairs	Lake Eola
Sun, Apr 16, 2023, 11:55AM	10	Discussion Items	Brunasso	Lake Eola
Sun, Apr 16, 2023, 12:05PM	0	End of Region Meeting and Events		
Sun, Apr 16, 2023, 12:05PM	5	Break		
Sun, Apr 16, 2023, 12:10PM	90	SoutheastCon 2023 Outbrief/Lessons Learned *Lightning Round Presentation	Juisai	Lake Nona B
Sun, Apr 16, 2023, 9:00AM	90	SoutheastCon 2024 Student Competition Briefing		Lake Concord B

Sponsors and Exhibitors

Silver Sponsors



Exhibitors



Conference Maps

