The 35th Annual CCSC Eastern Conference

In Cooperation with ACM-SIGCSE

Robert Morris University

Moon, PA

Friday and Saturday, October 25-26, 2019

Welcome to the 35ᵗʰ Annual (2019) CCSC Eastern Conference

On behalf of the 2019 CCSC Eastern Conference Committee, welcome to the 2019 CCSC Eastern Conference being hosted at Robert Morris University located in Pittsburgh, Pennsylvania. While you get an opportunity to participate in this year's conference, we hope you'll also take time to travel our wonderful city and explore the 261 years of history behind it. We look forward to seeing each of you at the conference and excited about the sessions available to faculty and students.   Whether this is your first year attending or you are returning from a prior year, we think you will find the conference will provide content that is new and exciting to your field of interest.

This year, we welcome 4 different tracks presenting Faculty / Student Papers, Tutorials, Workshops, Panels, and Poster Presentations plus much more.   This is our second year incorporating student presentations into our conference.   We hope students will find this opportunity rewarding to present their work and get appropriate feedback.   We look forward to future years of the conference where our student track continues to grow. Alongside the student presentations, we welcome the continuation of the programming competition this year which will feature college and high school student teams from around the eastern region. We will also have an enlightening workshop presented by NSF.

This year we received numerous submissions for both faculty and student papers.   While it was highly competitive, we were able to accept 15 Faculty papers and 6 student papers. Topics this year covered computer science, education, and cybersecurity.   The selected papers will be included in the Journal of Computing Sciences in Colleges.   Additionally, we will have panel and tutorial sessions covering Mentoring, Cybersecurity, Databases for Market Basket Analysis, and Hand-Coding for Basic Graphical Transformations.

This conference could not have been done without the help of our volunteers and the committee.   We are grateful for their help and experience with the conference along with reviewing the faculty and student submissions.   A special thank you to John Wright and Mike Flynn who helped keep us on track for delivering and executing a wonderful conference experience this year.   Of course, a final thanks to Robert Morris University for hosting our conference this year along with our wonderful sponsors.

We hope you will enjoy your time in Pittsburgh. Please let us know about your conference experience so we can continue improving it each year. If you are interested in helping for future conferences by hosting, participating, volunteering on the committee, or serving as a paper reviewer, please contact any committee member. We hope to see each of you at the conference. Enjoy!!

Karen Paullet and Adnan Chawdhry
Conference Chairs

The 32ND Annual CCSC Eastern Conference Program

Schedule at a Glance

Friday, October 25, 2019

Time	Event	Location
10:00 AM – 1:00 PM	**Registration**	**Wheatley Center**
1:00 PM – 2:15 PM	**Welcome and Opening Keynote – Jayne Bower – Thermo Fisher Scientific**	**Wheatley Center**
2:30 PM – 3:45 PM	**Session 1: Papers, Panel, Workshop, Student Papers**	**Franklin Center & Hale**
4:15 PM – 5:30 PM	**Session 2: Papers, Tutorials, Workshop, Student Papers**	**Franklin Center & Hale**
5:45 PM – 6:30 PM	**Poster Session / Reception**	**Wheatley Center**
6:30 PM – 9:00 PM	**Banquet and Banquet Speaker – Rick Farina – Discussing Spooky Wireless**	**Yorktown Hall – Westinghouse Ballroom**

Saturday, October 26, 2019

Time	Event	Location
8:00 AM – 9:00 AM	**Breakfast / Programming Contest**	**Wheatley Center**
8:30 AM – 9:45 AM	**Session 3: Papers, Tutorials, Workshop, NSF Grant**	**Wheatley Center**
10:00 AM – 11:15 AM	**Session 4: Papers, Workshop**	**Wheatley Center**
11:30 AM – 12:45 PM	**Session 5: Papers, Workshop, Nifty Ideas / Lightning Talks / Hot Topics**	**Wheatley Center**
1:00 PM – 2:00 PM	**Luncheon / Awards**	**Yorktown Hall – Westinghouse Ballroom**

Time	Planning Meeting	Location
2:30 PM – 3:30 PM	**Planning Meeting – CCSC EA 2020, Hood College, Frederick MD**	**Yorktown Hall – Westinghouse Ballroom**

Session Details

Time	Track 1 Franklin Room 1	Track 2 Franklin Room 2	Track 3 Hale 306	Track 4 Franklin Room 3
Friday, October 25, 2019				
2:30 PM – 3:45 PM	Papers: *A Case Study in Software Testing: Verification of a Face Identification Algorithm for Planar Graphs* Drew Whitmire, Bradley University, Chris Alvin, Furman University *Learning from Peers: Code Review in CS1* John P. Dougherty, Haverford College *SQL: An Introduction to SQL Lesson and Hands-on Lab* Gayle Jesse, West Liberty University	Panel: *The Role of Mentoring: How to Recruit and Retain Females and Minorities in STEM Degrees?* Karen Paullet, Diane Igoche, Natalya Bromall, Robert Morris University, Debra Nakama, University of Hawaii, Maui	Workshop: Google for Education, National Partner *Cloud Computing and Running Code on Google Cloud* Wesley Chun, Google	Student Papers: *An Exploratory Deep Learning Approach to Mobile Malware Detection* Jocelyn Diaz-Gonzalez, Alex V Mbaziira, Michelle Liu, Marymount University *Why Elliptic Curve Diffie-Hellman (ECDH) Is Replacing Diffie-Hellman (DH)* Edmond Mbadu, Chestnut Hill College
Snack / Coffee Break				
4:15 PM – 5:30 PM	Papers: *GenCyberCoin: An Engaging, Customizable, and Gamified Web Platform for Cybersecurity Summer Camps and Classrooms* Vitaly Ford, Arcadia University, Ambareen Siraj, Tennessee Tech University *Increasing Minority Youths' Participation in Computing through Near-Peer Mentorship* Michael J. Lee, New Jersey Institute of Technology	Tutorial: *Introduction to Cyber Security* Veena Ravishankar, University of Mary Washington	Workshop (Cont): Google for Education, National Partner *Cloud Computing and Running Code on Google Cloud* Wesley Chun, Google	Student Papers: *Always Fresh: Tracking Food Expiry with Mobile App* Kazi Zunnurhain, Karan Nayee, Rahul Patel, Parth Patel, Kean University *Detecting Personally Identifiable Information Attempt Violations in an Email Provider Using Probability Density Function* Ana H. Valentin, Marymount University

	A Flipped Classroom Approach for Engaged Learning using Arduino and LabVIEW Benjamin R. Campbell, Robert Morris University			*Hardware-tampering Security Risks in the Supply Chain* Zelalem Mengistu, Pipop Nuangpookka, Phuong Nguyen, Gregory Liu, Marymount University
5:45 PM – 6:30 PM	Poster Session / Reception			
6:30 PM – 9:00 PM	Banquet and Banquet Speaker			

Saturday, October 26, 2019

	Wheatley 110	Wheatley 111	Wheatley 112	Wheatley 113
8:30 AM – 9:45 AM	Papers: *Using The VAST Challenge in Undergraduate CS Research* Christopher P. Andrews, Middlebury College, R. Jordan Crouser, Smith College *A Basic RISC-V Verilog Datapath Project Experience for Software Engineers* Dee A. B. Weikle, James Madison University *Integrating Git into CS1/2* David C. Conner, Lynn Lambert, Christopher Newport University, Matthew McCarthy, University of Virginia	Tutorial *A Hand-Coding Lecture for Basic Graphical Transformations* Penn Wu, DeVry University	Workshop: *Introduction to Jetstream – A Research and Education Cloud* Sanjana Sudarshan, Jeremy Fischer, Indiana University	Mike Erlinger, National Science Foundation NSF: How to Get Support
	Snack / Coffee Break			
10:00 AM – 11:15 AM	Papers: *Evaluating Potential Solutions for Facility Location Problems in Parallel on GPUs* Erik Wynters, Bloomsburg University of Pennsylvania *Recursion Refined: Results from an ABET Continuous Improvement Cycle* Jonathan M. Cazalas, Florida Southern College *Protecting Personal Information and Data*	Workshop: *Database for Conducting Market Basket Analysis* Stephen Larson, Slippery Rock University	Workshop (Cont): *Introduction to Jetstream – A Research and Education Cloud* Sanjana Sudarshan, Jeremy Fischer, Indiana University	

	Privacy – What Students Need to Know Susan S. Conrad, Marymount University			
Snack / Coffee Break				
11:30 AM – 12:45 PM	Papers: *Comparison of Classical and CNN-based Detection Techniques for State Estimation in 2D* Christopher Adleson, David C. Conner, Christopher Newport University *Telepresence: Evaluation of Robot Stand-Ins for Remote Student Learning* George Dimitoglou, Hood College *Using Three-Dimensional Terrain Models to Measure Terrain Change* John McManus, Randolph-Macon College	Workshop (Cont): *Database for Conducting Market Basket Analysis* Stephen Larson, Slippery Rock University	Nifty Ideas/ Lightning Talks/ Hot Topics *Projects Using METAL Highway Graphs with Traveler Data* James D. Teresco, Siena College *Using Simulation Games to Teach About ERP* Jennifer Paige Nightingale, Slippery Rock University *Using Git in an Android Mobile Application Development Course* Amanda Porter, Edinboro University of Pennsylvania	Frank Vahid, Ph.D. UC Riverside CSE, Co-founder and Chief Learning Officer at zyBooks, A Wiley Brand Improving Lower-Division CS/CE Courses: Experiences and Results
1:00 PM – 2:00 PM	**Luncheon / Awards**			
2:30 PM – 3:30 PM	**Planning Meeting – CCSC EA 2020, Hood College, Frederick MD**			

Keynote Speaker

Jayne Bower, Director, Project Management Office (PMO) and Analytics, Customer Channels Group at Thermo Fisher Scientific

Jayne is responsible for governance and delivery of digital initiatives across the Customer Channels Group (CCG) at Thermo Fisher Scientific, providing innovative technology capabilities for the business. Jayne manages the global PMO, architectural standards, business intelligence and analytics strategy, and Shared Services engagement. She is responsible for bringing together Group IT, Shared Services IT, and business colleagues, from senior leadership to individual teams in a highly collaborative environment.

She has 21 years in manufacturing and supply chain experience in chemicals, medical device and electronics industries and 8 years IT ERP implementation experience across these industries. She has earned a B.S. in Chemical Engineer, Masters Cert - Lean Six Sigma BB

Outside of work, she enjoys exercising outside, is an avid runner completing 29 marathons, and enjoys cycling.

Banquet Speaker

Rick Farina is a well-known wireless expert who is a frequent speaker at a variety of security conferences including DEF CON. With multiple colleagues he runs RF Hackers Sanctuary, a not for profit dedicated to education. RFHS runs the Wireless Capture the Flag at numerous conventions. Farina enjoys talking to people about wireless hacking and teaching anyone with an interest about wireless security.

Presentation Topic: Spooky Wireless: Hand-on Ghostbusting Labs

CCSC Eastern Conference Committee

Co-Chairs
Karen Paullet, Robert Morris University
Adnan Chawdhry, California University of Pennsylvania

Papers
Karen Paullet, Robert Morris University
Donna Schaeffer, Marymount University
John Wright, Juniata College

Panels, Workshops, and Tutorials
John Wright, Juniata College

Student & Faculty Posters
Adnan Chawdhry, California University of Pennsylvania

Student Papers
Adnan Chawdhry, California University of Pennsylvania

Programming Contest
Steven Kennedy, Frostburg State University

Registration, Local Arrangements
Karen Paullet, Robert Morris University

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Regional Treasurer
Nathan Green, Marymount University

2020 Host
Jiang Li, Hood College

Web Site
John Wright, Juniata College

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Reviewers of the CCSC Eastern 2016 Conference

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Faleh Alshameri . . . . Marymount University, Arlington, VA
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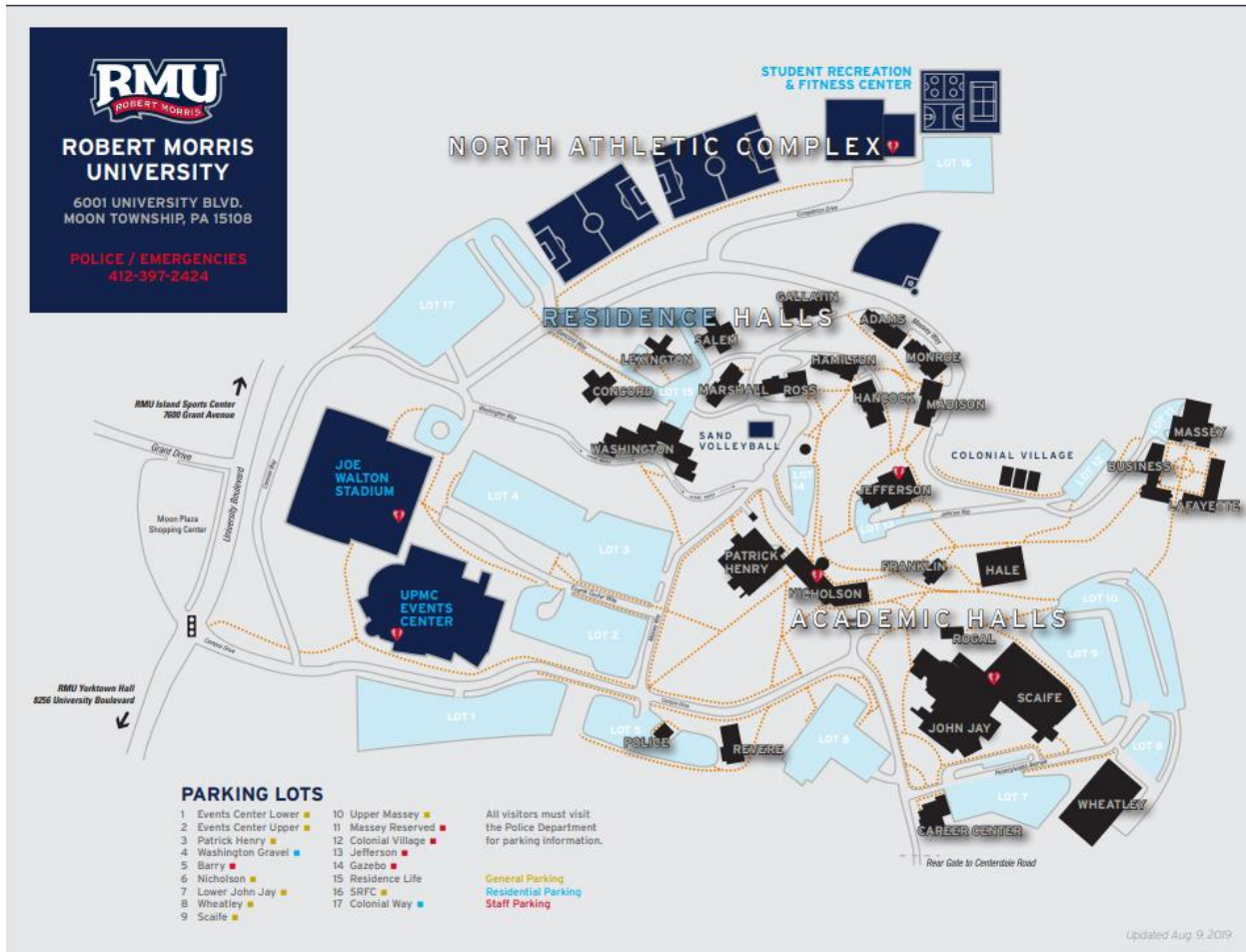
RMU Wifi - Guest

- Provides wireless internet access for all RMU guests and visitors.

- Guests and visitors will be prompted to register with their name and mobile number. They
  will receive a text (SMS) message with a username and password valid for 24 hours.

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CAMPUS MAP

ROBERT MORRIS UNIVERSITY
6001 University Blvd. Moon Twp, PA 15108

AND
Robert Morris University - Yorktown Hall
8256 University Blvd. Moon Twp, PA 15108

From the North

Take I-79 south to Exit 66 (Sewickley/Emsworth). Follow Route 65 toward Sewickley. At the third light, turn left and cross the Sewickley Bridge. At the end of the bridge, turn right on University Boulevard. Follow 1.5 miles to the second light. Turn left onto the RMU campus.

From the South

Take I-79 north to Exit 59B, I-376 West (Airport). Take Exit 57, Business I-376 (Moon). At the second light, turn right on University Boulevard. Follow 1.5 miles to the sixth light. Turn right onto the RMU campus.

From the East

Take the Pennsylvania Turnpike or I-80 to I-79 south. Follow directions from the north.

From the West

Take the Pennsylvania Turnpike to Exit 10 (New Castle). Follow I-376 east 24 miles to Exit 50, Business I-376 (Moon). At second light turn left onto University Boulevard. Follow 1.5 miles to the sixth light. Turn right onto the RMU campus.

From Downtown Pittsburgh

Take I-376 west toward Pittsburgh International Airport. Take Exit 57, Business I-376 (Moon). At the second light, turn right on University Boulevard. Follow 1.5 miles to the sixth light. Turn right onto the RMU campus.

From Pittsburgh International Airport

Take the airport exit to I-376 west (Moon-Beaver). Follow to Business 376 (Flaugherty-Moon) exit. After the stop sign, make the second right on Business I-376 (Moon). At the third light, turn left on University Boulevard. Follow 1.5 miles to the sixth light. Turn right onto the RMU campus.

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