CCSCNE 2020 Final Program

The Consortium for Computing Sciences in Colleges

In cooperation with

The Twenty-Fifth Annual
Consortium For Computing Sciences in Colleges
Northeastern Conference
April 17 - April 18, 2020 at

Ramapo College of New Jersey
Mahwah, New Jersey
CCSCNE 2020 Pandemic Cancellation

CCSCNE 2020 was unable to be held as planned at Ramapo College. It was just one of many events that had to be cancelled due to the global COVID-19 pandemic. This document represents our plans for the conference at the time when it became clear we would not be able to gather in person this year. It would have been distributed in hard copy to all attendees. All presentations of accepted submissions, vendor presentations, plenary sessions, and other events, are listed in what would have been their time slots. Some information, such as session chair and room assignments, were never finalized, so remain here as “TBD”. As usual, undergraduate student posters are listed in a separate booklet, also available on the conference web site.

All accepted papers and the abstracts for faculty posters, panels, tutorials, lightning talks, and workshops, are published as planned in *The Journal of Computing Sciences in Colleges*, Vol. 35, No. 8, available on the CCSC web site and in the ACM Digital Library. In addition, authors were given the opportunity to submit links to videos of their planned talks or PDFs of their posters. Those are available on the CCSCNE 2020 web site. It is our intent to offer all authors of accepted submissions the opportunity to present their work in person at CCSCNE 2021. We hope to see you then!

I would like to offer thanks here, as I would have expressed at the banquet, to all of our regional board members, the CCSCNE 2020 conference committee, and the reviewers whose volunteer service make CCSCNE so successful every year. And of course to the authors, whose submissions form the core of our conference.

Jim Teresco, Siena College
CCSCNE 2020 Program Chair
CCSCNE 2020 Chair's Welcome

Welcome to Ramapo College of New Jersey. This is the Twenty Fifth Annual Consortium for Computing Sciences in Colleges Northeast Region Conference. We’d like to thank everyone who has been involved with this conference since its inception at the University of Hartford in April 1996.

This year our program features two outstanding invited speakers, Alberto Cairo, University of Miami and Julia Stoyanovich of New York University. A variety of topics will be covered by the paper presentations, workshops, panels, tutorials, lightning talks, and faculty and student research posters. On Friday morning, April 17th, we will host a student programming contest. Also, on Friday afternoon there is a student “unconference”.

A special thanks goes out to the many volunteers who have worked on our conference, this includes the conference committee, the CCSCNE board, and the conference reviewers. You will find their names listed below. Out of 33 paper submissions, 21 were accepted for an acceptance rate of 63%.

We are pleased to host this anniversary conference on the lovely campus of Ramapo College of New Jersey in northern Bergen County. Ramapo will celebrate its 50th anniversary this April. The College has 5600 undergraduates and 600 graduate students.

We hope that you enjoy the conference and find it informative and engaging. We look forward to seeing you in 2021 at Pace University in Pleasantville, NY.

CCSCNE-2020 Conference Co-Chairs
Lawrence D’Antonio, Ramapo College of New Jersey
Benjamin Fine, Ramapo College of New Jersey
We would like to thank our CCSC National Partners

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FOR THOSE WITH A PASSION TO GET AHEAD
Conference Committee

Conference co-Chair, Larry D’Antonio, Ramapo College of New Jersey
Conference co-Chair, Benjamin Fine, Ramapo College of New Jersey
Program Chair, Jim Teresco, Siena College
Papers co-Chair, Ali Erkan, Ithaca College
Papers co-Chair, Yana Kortsarts, Widener University
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Panels Chair, Joan DeBello, St. John’s University
Tutorials and Workshops co-Chair, Bonnie MacKellar, St. John’s University
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Speakers co-Chair, Mike Gousie, Wheaton College (Massachusetts)
Student Unconference co-Chair, Karl Wurst, Worcester State University
Encore Chair, Darren Lim, Siena College
Undergraduate Posters co-Chair, Sandeep Mitra, The College at Brockport
Undergraduate Posters co-Chair, Liberty Page, University of New Haven
Undergraduate Posters co-Chair, Stefan Christov, Quinnipiac University
Undergraduate Posters co-Chair, Aparna Mahadev, Worcester State University
Registration co-Chair, Mark Hoffman, Quinnipiac University
Registration co-Chair, Rick Kline, Pace University
Programming Contest co-Chair, Frank Ford, Providence College
Programming Contest co-Chair, Del Hart, SUNY Plattsburgh
Programming Contest co-Chair, Sourav Dutta, Ramapo College of New Jersey
Career Fair Coordinator, Scott Frees, Ramapo College of New Jersey
Vendors Chair, Kevin McCullen, SUNY Plattsburgh
The Student Unconference, For Students by Students

Do you want to …

- Discuss the programming contest problems and solutions?
- Demo your new favorite tool or programming language?
- Learn about new tools or programming languages?
- Discuss job interview questions?
- Talk about your favorite games?
- Present on a topic you are passionate about?

See Sessions 1D and 2D
CCSCNE 2020 Conference Program

Friday, April 17

Registration (7:30 AM - 4:00 PM)  
TBD

Poster dropoff and setup (8:00 AM - Noon)  
TBD

Programming Contest (7:45 - 12:45 PM)

7:45AM  Continental Breakfast  
TBD

8:40AM  Pre-contest Instructions  
TBD

9:00AM  Contest  
TBD

12:00PM  Lunch and contest discussion  
TBD

Pre-conference Workshop (Friday, April 17, 9AM - Noon)

Workshop 1  
TBD
Real-World Data, Interactive Games and Visualizations in Early CS Courses Using BRIDGES
Kalpathi Subramanian, University of North Carolina at Charlotte
Erik Saule, University of North Carolina at Charlotte
Jamie Payton, Temple University

Workshop 2  
TBD
How to Create, Host, and Successfully Run a High School Programming Contest
Darren Lim, Siena College
Daniel DiTursi, Siena College
Robin Flatland, Siena College
Ira Goldstein, Siena College
James Matthews, Siena College
Scott Vandenberg, Siena College
Pauline White, Siena College
Welcome Address (1:00 PM - 1:15 PM)  TBD

Welcome to Ramapo College of New Jersey, TBD

Invited Speaker (1:15 PM - 2:15 PM)  TBD

Dr. Alberto Cairo, The University of Miami

What You Design Is Not What People See—How Visualizations Mislead Us and How They Can Tell the Truth Instead

Visualizations such as charts, maps, and infographics are ubiquitous nowadays. They are useful because they can reveal patterns and trends in data. Good visualizations make us smarter—if we know how to read them. However, visualizations can also deceive us by displaying incomplete or inaccurate data, suggesting misleading patterns, and concealing uncertainty. They are also frequently misunderstood. Many of us are ill-equipped to interpret the visuals that politicians, journalists, advertisers, and even our employers present each day. We are in need of expanding the notion of literacy to include numeracy (numerical literacy) and graphicacy (graphical literacy).

Break (2:15 PM - 2:30 PM)

Concurrent Session 1 (2:30 PM - 3:45 PM)

Concurrent Session 1A (Papers: AI and Data)  TBD
Session Chair: TBD

An Overview of Data Analytics: Spreadsheet Modeling, Visualization, and Supervised and Unsupervised Learning
Carolyn Matheus, Marist College

An Interdisciplinary Approach to Detecting Empathy Through Emotional Analytics and Eye Tracking
Jami Cotler, Siena College
Luis Villa, Siena College
Zachary Bult, Siena College
Garrison Grant, Let’s Chat About It
Dmitry Burshteyn, Siena College
Michael Tanski, dumbstruck.com
Anthony Parente, dumbstruck.com

Jupyter Notebooks in Place of a Textbook in a Big Data Course
Roland DePratti, Central Connecticut State University

Concurrent Session 1B (Papers: Games, Plus Lightning Talk)  TBD
Session Chair: TBD

Simple Agent Analyses for CS1 using BritishSquare
Courtney Brown, Furman University
Lori Alvin, Furman University
John Harris, Furman University
Chris Alvin, Furman University

Using Gamification to Encourage Student Success
Patricia Morreale, Kean University
Nohelia Diplan, Kean University

Animated Hints Help Novices Complete More Levels in an Educational Programming Game
Michael Lee, New Jersey Institute of Technology
Joseph Chiou, New Jersey Institute of Technology

Want your students to participate in Open Source? Join us in LibreFoodPantry!
(Lightning talk, will run to 3:55 PM)
Karl Wurst, Worcester State University
Stoney Jackson, Western New England University
Darci Burdge, Nassau Community College
Lori Postner, Nassau Community College
Heidi Ellis, Western New England University

Concurrent Session 1C (Vendor Hands-on Workshop)  TBD

Hands on with Cloud Computing
Wesley Chun, Google

Please see the details in the handout provided in your registration packet.
Concurrent Session 1D - Student Unconference

2:30 - 3:00 PM   Planning and voting on sessions.  TBD
During this time, the group will collectively develop and vote on the six sessions for the Student Unconference.

3:00 - 3:45 PM   Session 1D-a  TBD
                 Session 1D-b  TBD

Break  (3:45 PM - 4:15 PM)

Concurrent Session 2 (4:15 PM - 5:40 PM)

Concurrent Session 2A (Papers: Course curriculum)  TBD
Session Chair: TBD

Activity Based Learning for Cloud Computing
Michalina Hendon, Bloomsburg University
Loreen Powell, Bloomsburg University

Creation of a Virtual Machine for a Database Class
Christine Reilly, Skidmore College

Learning Assembly Language through Visual Simulation
Kamen Kanev, Shizuoka University
Mokhtar Aboelaze, York University
Reneta Barneva, SUNY Fredonia

Concurrent Session 2B (Papers: Games and Algorithms)  TBD
Session Chair: TBD

(Re)Engaging Novice Online Learners in an Educational Programming Game
Michael Lee, New Jersey Institute of Technology

Dealing with Uncertainty: a PiecewiseGrid Agent for Reconnaissance Blind Chess
Real-World Assignments at Scale to Reinforce the Importance of Algorithms and Complexity

Jason Strahler, The University of North Carolina at Charlotte
Matthew Mcquaigue, The University of North Carolina at Charlotte
Alec Goncharow, The University of North Carolina at Charlotte
David Burlinson, The University of North Carolina at Charlotte
Kalpathi Subramanian, The University of North Carolina at Charlotte
Erik Saule, The University of North Carolina at Charlotte
Jamie Payton, Temple University

Concurrent Session 2C (Tutorial)  
Session Chair: TBD

Using Subgoal Labeling in Teaching Introductory Programming
Adrienne Decker, University at Buffalo
Briana Morrison, University of Nebraska at Omaha
Lauren Margulieux, Georgia State University

Concurrent Session 2D - Student Unconference

4:15 - 4:45 PM  
Session 2D-a  
Session 2D-b  

4:45 - 5:15 PM  
Session 2D-c  
Session 2D-d  

Poster Session  (5:45 PM - 7:00 PM)

Faculty Posters  
TBD

Please see the list of faculty poster titles and authors on Page 18.
Please see the list of undergraduate student poster titles, authors, and abstracts in the separate poster abstract booklet.

**Dinner Banquet and Awards (7:15 PM - 9:15 PM)**

TBD
Saturday, April 18

Registration (7:30 AM - 10:00 AM)  
Continental Breakfast (8:00 AM - 9:00 AM)  

Concurrent Session 3  (9:00 AM - 10:15 AM)

Concurrent Session 3A (Papers: First Year)  
Session Chair: TBD

Teaching Database for Freshmen: A Two-Thread Model  
Yang Wang, La Salle University  
Margaret McCoey, La Salle University  
Thomas Blum, La Salle University

Integrative Learning in CS1: Programming, Sustainability, and Reflective Writing  
Jeffrey Stone, The Pennsylvania State University  
Laura Cruz, The Pennsylvania State University

Cohorting Incoming Students in a CS1 Course: Experiences and Reflections from the First Year of Implementation  
Adrienne Decker, University at Buffalo  
Christopher Egert, Rochester Institute of Technology  
Erin Cascioli, Rochester Institute of Technology

Concurrent Session 3B (Papers: Meta-learning)  
Session Chair: TBD

Experiential Learning Framework for Smaller Computer Science Programs  
Zachary Kissel, Merrimack College  
Christopher Stuetzle, Merrimack College

Workforce and Career Readiness for Computing and Technology Students  
Jean Chu, Kean University
Cooperative Learning in Computer Science: Jigsaw Activity.
Anastasia Kurdia, Tulane University

Concurrent Session 3C (Tutorial)  
Session Chair: TBD

From Drawing to Coding: Teaching Programming with Processing
Mihaela Malita, St. Anselm College
Ethel Schuster, Northern Essex Community College

Concurrent Session 3D (Panel)  
Strategies for Maximizing the Value of Industry Adjuncts: The Tech-in-Residence Corps Model
Robert Domanski, NYC Tech Talent Pipeline
Susan Imberman, City University of New York
Shermane Austin, Medgar Evers College CUNY
Ross Dakin, New Jersey Office of Innovation

Invited Speaker (10:15 AM - 11:15 AM)  
Dr. Julia Stoyanovich, New York University

Teaching Responsible Data Science: A Quest for Balance

Dr. Stoyanovich will discuss her experience in developing and teaching a "Responsible Data Science" course at New York University. Although numerous technology ethics courses are available, pedagogical approaches employed in these courses rely exclusively on texts rather than on software development or data analysis. Technical students often consider these courses unimportant and a distraction from the "real" material. To develop instructional materials and methodologies that are thoughtful and engaging, we must strive for balance: between texts and coding, between critique and solution, and between cutting-edge research and practical applicability. Finding such balance is particularly difficult in the nascent field of responsible data science, where we
are only starting to understand how to interface between the intrinsically
different methodologies of engineering and social sciences. All "Responsible Data Science" course materials are publicly available on the course website.

Concurrent Session 4  (11:30 AM - 12:45 PM)

Concurrent Session 4A  (Papers: Tools and Techniques)  TBD
Session Chair: TBD

Project-Based App Programming: Tools and Techniques for a Successful Novice-Focused App Development Course
    Michael Makutonin, Saint Bonaventure University
    Samuel Chen, Upstate Medical University

Automatic Programming Assignment Assessment Beyond Black-box Testing
    Karen Jin, University of New Hampshire
    Michel Charpentie, University of New Hampshire

Oh the Robots that You can Choose: A Technical Review of Mobile Robot Platforms
    Benjamin Fine, Ramapo College of New Jersey
    Jory Denny, University of Richmond
    Nate Dix, University of Richmond
    Ashley Frazier, University of Richmond

Concurrent Session 4B (Tutorial)  TBD
Session Chair: TBD

Tutorial on Open Educational Resources and Creative Commons License
    Susan Imberman, City University of New York
    Ann Fiddler, City University of New York

Concurrent Session 4C (Panel)  TBD

Bringing Industry into the University Experience
    Adrienne Decker, University at Buffalo
Concurrent Session 4D (Vendor Presentation)  TBD

Cloud Computing and Google Cloud Overview
Wesley Chun, Google

Please see the details in the handout provided in your registration packet.

Post-Conference Meetings

Membership Meeting (1:15 PM - 1:45 PM)  TBD

All are invited to share your thoughts about CCSCNE.

Board Meeting (1:45 PM - 3:45 PM)  TBD
The Keynote Speakers

Dr. Alberto Cairo, The University of Miami

Alberto Cairo is a journalist and designer, and the Knight Chair in Visual Journalism at the School of Communication of the University of Miami (UM). He is also the director of the visualization program at UM’s Center for Computational Science. He has been head of information graphics at media publications in Spain and Brazil. The author of several textbooks, Cairo currently consults with companies and institutions like Google and the Congressional Budget Office, and has provided visualization training to the European Union, Eurostat, the Centers for Disease Control and Prevention, the Army National Guard, and many others. He lives in Miami, Florida.

Dr. Julia Stoyanovich, New York University

Julia Stoyanovich is an Assistant Professor in the Department of Computer Science and Engineering at the Tandon School of Engineering, and the Center for Data Science, New York University. Her research focuses on responsible data management and analysis practices: on operationalizing fairness, diversity, transparency, and data protection in all stages of the data acquisition and processing lifecycle. She established the Data, Responsibly consortium, and serves on the New York City Automated Decision Systems Task Force (by appointment by Mayor de Blasio). In addition to data ethics, she works on management and analysis of preference data, and on querying large evolving graphs. Dr. Stoyanovich received her M.S. and Ph.D. degrees in Computer Science from Columbia University, and a B.S. in Computer Science and in Mathematics and Statistics from the University of Massachusetts at Amherst.
Faculty Posters

Abstracts are included in the conference proceedings JCSC issue.

*Integrating Cloud Computing across existing Computer and Information Science Courses*
  
  Ruth Kurniawati, Westfield State University

*The Low-Budget Experimental Computer Lab Boosts Students' Research*
  
  Vladimir Riabov, Rivier University
  David Pitts, Rivier University

*Integrating Personalized Online Practice Into an Introductory Programming Course*
  
  Yana Kortsarts, Widener University
  Kamil Akhuseyinoglu, University of Pittsburgh
  Jordan Barria-Pineda, University of Pittsburgh
  Peter Brusilovsky, University of Pittsburgh

*Becoming Lifelong Learners: CS Learners' Autonomy*
  
  Ruiqi Shen, New Jersey Institute of Technology
  Joseph Chiou, New Jersey Institute of Technology
  Michael J. Lee, New Jersey Institute of Technology

*Jupyter Notebooks in Education*
  
  Jeremiah Johnson, University of New Hampshire
  Karen Jin, University of New Hampshire

*End-to-End Machine Learning Project Design for Undergraduate Classrooms*
  
  Karen Jin, University of New Hampshire

*Applying Three Machine Learning Algorithms to Three Breast Cancer Diagnosis Datasets*
  
  Lilly Shelomyanov, Felician University
  Sofya Poger, Felician University
Differentiating Computer Science Courses in Undergraduate and Graduate Level
   Songmei Yu, Felician University
   Sofya Poger, Felician University

Capstone: Transitioning a Successful Undergraduate Research Program to a Multi-Research Model
   Michael Jonas, University of New Hampshire at Manchester

What Makes Students’ Capstone Projects Successful?
   Vladimir Riabov, Rivier University

Assessment of Computer Science Courses in the Context of a Global Knowledge Economy
   Viktoria Popova, Felician University
   Sofya Poger, Felician University

Integrating Industry Certifications into Academic Curriculum
   Paul-Marie Moulema Douala, Western New England University
   Sriharsha Mallapuram, Plymouth State University

LibreFoodPantry: Developing a Multi-Institutional, Faculty-Led, Humanitarian Free and Open Source Software Community
   Karl Wurst, Worcester State University
   Stoney Jackson, Western New England University
   Heidi Ellis, Western New England University
   Darci Burdge, Nassau Community College
   Lori Postner, Nassau Community College

Student Reflections on Learning in HFOSS
   Gregory Hislop, Drexel University
   Heidi Ellis, Western New England University
   Becka Morgan, Western Oregon University

Comparing Methods of Python Education
   Kevin McCullen, SUNY Plattsburgh
We would like to thank our reviewers

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Lawrence D’Antonio, Ramapo College of New Jersey
Garrett Dancik, Eastern Connecticut State University
Elise Deitrick, Codio
Dan DiTursi, Siena College
Peter Drexel, Plymouth State University
Benjamin Fine, Ramapo College of New Jersey
Alice Fischer, University of New Haven
Robin Flatland, Siena College
Timothy Fossum, Rochester Institute of Technology
Seth Freeman, Capital Community College
Martin Gagne, Wheaton College
Alessio Gaspar, University of South Florida Polytechnic
Micheal Gousie, Wheaton College
Nadeem Hamid, Berry College
Scott Harrison, St. John Fisher College
Delbert Hart, SUNY Plattsburgh
Michalina Hendon, Bloomsburg University
Mark Hoffman, Quinnipiac University
Karen Jin, University of New Hampshire
William Joel, Graphics Research Group/WCSU
Erin Johnson, CodeCrew
Jeremiah Johnson, University of New Hampshire
Sotirios Kentros, Salem State University
Bo Kim, Southern New Hampshire University
Zach Kissel, Merrimack College
Bradley Kjell, Central Connecticut State University
Devorah Kletenik, City University of New York
Daniel Krutz, Rochester Institute of Technology
David Levine, St. Bonaventure University
Jingsai Liang, Westminster College