CCSCNE '25

The Twenty-Nineth Annual
Consortium for Computing Sciences in Colleges
Northeastern Conference

April 4-5, 2025

Hosted by SUNY Brockport Brockport, New York



In Cooperation with the ACM Special Interest Group on Computer Science Education (SIGCSE)





Thank You CCSC National Partners

Gold Level Partners





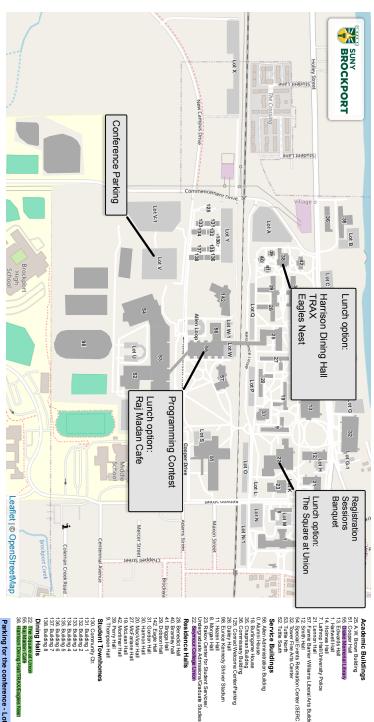


GitHub



Local Partners

Grader Than



22. The Square at Union
55. Raj Madan Cafe
38. Harrison Dining Hal/TRAX/Eagles Nest Dining Halls Parking for the conference - Lot V

Academic Buildings

Chairs' Welcome

Welcome to the Twenty-ninth Annual Consortium for Computing Sciences in Colleges Northeast Region Conference held at SUNY Brockport. We are delighted to bring together educators, researchers, students, and industry professionals to celebrate advancements in computing sciences education.

Our program features an exciting lineup of invited speakers, paper presentations, lightning talks, workshops, tutorials, and faculty and student research posters. We continue our tradition of the Friday morning programming contest, followed by dedicated student-focused sessions in the afternoon. The conference continues to offer a high-quality program with 10 out of 21 submitted papers accepted this year with an acceptance rate of 48%. We also have 3 workshops, 1 panel, 2 tutorials, 8 lightning talks, 10 faculty posters, and 52 student posters.

The success of CCSCNE is made possible through the efforts of our outstanding conference committee, board members, reviewers, and session chairs, whom we sincerely thank. We are especially grateful for the wonderful support and hard work of SUNY Brockport faculty, staff, and student volunteers in putting this event on. We extend our gratitude to our National Partners—acm2y, Code-Grade, Rephactor, GitHub, and CodeZinger—whose support made this conference possible. Additionally, we appreciate our continued collaboration with the ACM Special Interest Group on Computer Science Education (SIGCSE) for this conference.

We hope you find the conference engaging, inspiring, and rewarding. Thank you for being part of CCSCNE 2025 and we look forward to seeing you next year at Smith College in Northampton, Massachusetts.

Adita Kulkarni Conference Co-Chair SUNY Brockport Jim Teresco Conference Co-Chair Siena College

CCSCNE 2025 Host



Established in 1835, The State University of New York at Brockport (SUNY Brockport) is an inclusive learning community that inspires excellence through growth, engagement, and transformation. The University offers a wide array of academic programs across various disciplines at both the undergraduate and graduate level, all designed to provide students with a high-quality education at an affordable cost. SUNY Brockport promises to engage our students each day in cultivating their capacity for intellectual, physical, and creative accomplishment.



Conference Committee

Conference Chairs

Adita Kulkarni, SUNY Brockport
Jim Teresco, Siena College

Program Chair

Mark Bailey, Hamilton College

Papers Chairs

Yana Kortsarts, Widener University Chetan Jaiswal, Quinnipiac University

Panels, Tutorials, and Workshops Chairs Jordan Crouser, Smith College Bo Kim, Southern New Hampshire University

Faculty Posters and Lightning Talks Chairs Dan Rogers, SUNY Brockport Joan DeBello, St. John's University

Faculty Cohorts Chairs
Ali Erkan, Ithaca College
Mike Gousie, Wheaton College (Massachusetts)

Speakers Chair

Larry D'Antonio, Ramapo College of New Jersey

Undergraduate Posters Chairs
Sandeep Mitra, SUNY Brockport
Karyn Doke, Hamilton College
Liberty Page, University of New Haven
Drew van der Poel, Northeastern University

Registration Chair
Rick Kline, Pace University

Programming Contest Chairs
Del Hart, SUNY Plattsburgh
Adita Kulkarni, SUNY Brockport
Darren Lim, Siena College
Paul Olsen, Le Moyne College

Vendors and Partners Chair Jim Teresco, Siena College

Local Arrangements Chairs
Sandeep Mitra, SUNY Brockport
Eugeniya Iskrenova-Ekiert, SUNY Brockport
Ning Yu, SUNY Brockport

Conference Program

The conference proceedings will appear in the ACM Digital Library as an issue of the Journal of Computing Sciences in Colleges. A draft of that issue is available here.

Friday, April 4

Registration 7:30 – 4:00

Seymour Union Ballroom Lobby

Research Poster Setup

8:00 - 12:00 Seymour Union Ballroom

Frank Ford Memorial Programming Contest

7:45 - 12:45 Drake 44/44A

Register first at Main Registration Seymour Union Ballroom Lobby

7:45 Continental Breakfast
8:40 Pre-contest Instructions
9:00 Contest
12:00 Lunch and contest discussion

Seymour Union 185

Drake 44/44A

Seymour Union 185

Pre-Conference Workshops

9:00 - 12:00

Details about the workshops may be found in the draft journal issue on our website (ccscne.org).

Note that there is no pre-registration for workshops, and there is no additional cost to attend CCSCNE workshops.

Workshop

Team-Based Guided Inquiry for Computer Science Education: Inspired by POGIL Principles for High School and College Classrooms

Ali Al-Faris, Worcester State University Karl Wurst, Worcester State University

Lunch on your own

12:00 - 1:00

Seymour Union 119

Seymour Union The Square, Harrison Dining Hall, Raj Madan Cafe Drake Library

CCSC Partner Displays

11:00 - 5:00

Seymour Union Ballroom Lobby/Fireside Lounge

Welcome to CCSCNE

1:00 - 1:15

Seymour Union Ballroom

Adita Kulkarni Conference Co-Chair, SUNY Brockport

Dr. Monica Brasted
Dean of the School of Arts and Sciences, SUNY Brockport

Invited Speaker

1:15 - 2:15

Session Chair: Larry D'Antonio, Speaker Chair Seymour Union Ballroom

Dan Brown

University of Waterloo

Generative AI and algorithmic bias: teaching and research

In 2022, my colleague Maura Grossman and I started teaching a course on computing and discrimination, focusing on how algorithmic bias affects different communities, definitions of equity and fairness, and offering specific scenarios for our students to be prepared to face. Since that time, the alarming rise of generative AI systems (LLMs, visual models, and more) has complicated the situation: these AI models are often trained on biased samples of data and can reproduce the implicit and explicit biases when used by ordinary people in their ordinary work and personal tasks.

In this talk, I'll give some examples of the scenarios we face in teaching about this material, drawn from our course, and I'll also give specific examples where contemporary generative AI models implicitly reconstruct biases of previous information retrieval approaches, particularly in representations of LGBTQ people and Jews, with potentially more malevolent outcomes.

Break 2:15 - 2:30

Seymour Union 185

Concurrent Session 1

2:30 - 3:45

Session 1A (Papers)

Seymour Union 119

Session Chair: Michael Gousie

Designing a CS0 Programming Course for At Risk Freshmen

Yang Wang, La Salle University Yuehan Yin, La Salle University

Large Language Models and Introductory Lab Exercises: Susceptibility, Resistance, and Potential

Devin Chamberlain, University of Southern Maine

David Levine, University of Southern Maine

Abigail Pitcairn, University of Southern Maine

Nicholas Snow, University of Southern Maine

Benjamin Sweeney, University of Southern Maine

Programming Contests as a CS 1 In-Class Exercise
Paul Olsen, Le Moyne College
Delbert Hart, SUNY Plattsburgh

Session 1B (Lightning Talks)

Seymour Union 220

Session Chair: Ali Al-Faris

AccessiMove™: From Gesture to Action Redefining Accessibility in Computing Chetan Jaiswal, Quinnipiac University

Reviewing and Revising your Undergraduate CS Major: A Structured Design

Process for Creating Distinctive Curricula

Jakob Barnard, University of Jamestown

Grant Braught, Dickinson College

Janet Davis, Whitman College

Amanda Holland-Minkley, Washington and Jefferson College

Karl Schmitt, Trinity Christian College

Andrea Tartaro, Furman University

Common Errors and Case Discussions in Developing PHP-MySQL 3-Tier Integration: A Hands-On Approach

Ching-Yu Huang, Kean University

Paolien Wang, Kean University

Common Errors and Case Discussions for Learning SQL: Enhancing Understanding Through Examples and Analysis

Paolien Wang, Kean University Ching-Yu Huang, Kean University

Session 1C (Tutorial)

Seymour Union B116

Equitable Grading in a Mastery Learning Class
Timothy Hickey, Brandeis University
Ella Tuson, Brandeis University

Session 1D (Vendor)

Seymour Union 209

Rephactor Presentation
Tom Way, Rephactor

Break 3:45 – 4:10

Seymour Union 185

Concurrent Session 2

4:10 - 5:00

Session 2A (Papers)

Seymour Union 119

Session Chair: Amanda Holland-Minkley

An Enrollment Database Used for Course Schedule Planning Christine Reilly, Skidmore College

Bachelors of Arts versus Bachelors of Science Degrees in Computer Science

Edward Talmage, Bucknell University

Barbara M. Anthony, Southwestern University

Andrea Tartaro, Furman University

Session 2B (Papers)

Seymour Union 220

Session Chair: Giancarlo Crocetti

Teaching Dynamic Programming: Top Down or Bottom Up?

Ali Erkan, Ithaca College

Suryash Malviya, Ithaca College

From Algorithms to Axioms: Classifying Proof Errors of Novice Programmers

Steve Earth, Drexel University

Bruce Char, Drexel University

Jeremy Johnson, Drexel University

Session 2C (Lightning Talks)

Seymour Union B116

Session Chair: Kimberly Cornell

Designing Modern Computer Science Syllabi: Enhancing Visual Engagement, Clarity, Accessibility, and Flexibility

Ali Al-Faris, Assistant Professor at the Computer Science Department, Worcester State University

Teaching the methodology of science through programming Jan Plaza, SUNY Plattsburgh

Choices and Compatibility in Single Board Computer Selection Kevin McCullen, SUNY Plattsburgh

Reception and Poster Sessions

5:00 - 6:30

Sevmour Union Ballroom

Faculty Poster Session

Seymour Union Ballroom

Undergraduate Poster Exhibit and Research Competition

Seymour Union Ballroom

All poster titles and authors can be found on pages 16-21

Banquet and Awards

6:30 – 8:30 Seymour Union Ballroom

Welcome Jim Teresco, CCSCNE Board Chair

Frank Ford Memorial Programming Contest Winners Del Hart, Programming Contest Co-Chair

Undergraduate Poster Display and Research Competition Winners Sandeep Mitra, Undergraduate Posters Co-Chair

Saturday, April 5

Registration

8:00 - 8:30

Seymour Union Ballroom Lobby

Continental Breakfast

8:00 - 8:30

Seymour Union 185

Concurrent Session 3

8:30 - 9:45

Session 3A (Papers)

Seymour Union 119

Session Chair: David Levine

Evaluating the Pedagogical Impact of Large Language Models on Programming Skills in Data Science Programs in Higher Education

Giancarlo Crocetti, St. John's University

Seonwoo Bak, St. John's University

Naqib Noory, St. John's University

Daena Vautor-Laplaceliere, St. John's University

The Effectiveness of ChatGPT in Coding Novel Agent Classes for a Predator-Prey Model-inspired Iterated Prisoner's Dilemma Model Christopher Morales, SUNY Plattsburgh

Incorporating LLM Activities into Established CS1 Curriculum: An Experience Report

Amanda Fernandez, University of Texas at San Antonio

David Patrick, Texas State University

Mauricio Gomez, University of Texas at San Antonio

Kimberly A. Cornell, University at Albany

Session 3B (Tutorial)

Seymour Union 220

Supporting Experiential Computing Education With the Accessible Learning Labs

Carla Lopez, Rochester Institute of Technology

Samuel Malachowsky, Rochester Institute of Technology

Farzana Rahman, Syracuse University

Daniel Krutz, Rochester Institute of Technology

Session 3C (Panel)

Seymour Union B116

Software Engineering in the Computer Science Curriculum

Michael Gousie, Wheaton College (MA)

Karina Assiter, Landmark College

Maria Ebling, United States Military Academy

Sandeep Mitra, SUNY Brockport

Mehdi Mekni, University of New Haven

Break 9:45 – 10:00

Seymour Union Ballroom Lobby

Invited Speaker

10:00 - 11:00

Session Chair: Jim Teresco

Seymour Union Ballroom

Sonia Lopez Alarcon Rochester Institute of Technology

Quantum computing interfaces: Challenges and opportunities for everyone

Classical computing is successful and widespread today thanks to a series of interfaces that translate applications from high-level programming languages down to manipulating electrons to perform specific tasks. Similarly, for quantum computers to become viable application accelerators, a comparable quantum software-hardware stack is essential. This stack will guide applications from high-level quantum descriptions to the precise control of quantum systems. While the quantum stack draws inspiration from decades of advancements in classical computing, the emerging quantum technology comes with its own set of challenges and opportunities. These include facilitating user access, managing a compilation process full of graph-based optimization problems, and developing a new workforce capable of bridging communication gaps across disciplines. This talk will explore and discuss some of the exciting challenges ahead in the field of quantum computing.

Membership Meeting

11:00 - 11:30

Seymour Union Ballroom

All members (if you registered for this year's conference, you're a member) are welcome to join the regional board and conference committee to share your thoughts about CCSCNE and find out more about the organization.

Board Meeting

11:45 - 1:30

Seymour Union Ballroom

Concurrent Session 4

12:30 - 3:30

Session 4A (Workshop)

Seymour Union 119

PLCC: A Tool Set for Teaching Programming Languages Courses
Timothy Fossum, SUNY Potsdam
James Heliotis, Rochester Institute of Technology
Stoney Jackson, Western New England University

Session 4B (Workshop)

Seymour Union 220

Communicating Empathy via the Syllabus Alex Chao, Duke University Maíra Marques Samary, Boston College Farzana Rahman, Syracuse University Tammy Vandegrift, University of Portland

Invited Speakers

Dan Brown is Professor of Computer Science at the University of Waterloo, where he has been a faculty member since 2000. His research (and that of his students) is characterized by its interdisciplinarity, from analysis of evolution in the Human and Mouse Genome Projects, to developing the first algorithms for analysis of the complex rhyme structure of rap lyrics to teaching LLMs to write creative poetry in the style of Walt Whitman. Currently he is studying the effects of the generative AI revolution on creative professionals, particularly how much these systems can perpetuate discrimination and stereotype. He'll be happy once Google Gemini tells him a non-stereotypical story about two men in love without him asking for it, but he's not holding his breath.

Sonia Lopez Alarcon After completing her PhD degree in Computer Engineering at the University Complutense of Madrid, Dr. Sonia Lopez Alarcon joined the Department of Computer Engineering at the Rochester Institute of Technology in the fall of 2009. In the last 15 years, she has taught and developed courses on Computer Architecture and Quantum Computing. Her current research interest is on Quantum Computing and heterogeneous hardware solutions. She is particularly interested in the compilation process of quantum circuits, their scalability and resilience to error.

Faculty Posters

Abstracts are included in the conference proceedings issue of JCSC and can be found on our website (ccscne.org).

Common Errors and Case Discussions for Learning SQL: Enhancing Understanding Through Examples and Analysis

Paolien Wang, Kean University Ching-Yu Huang, Kean University

Common Errors and Case Discussions in Developing PHP-MySQL 3-Tier Inte-

gration: A Hands-On Approach
Ching-Yu Huang, Kean University
Paolien Wang, Kean University

Reviewing and Revising your Undergraduate CS Major: A Structured Design

Process for Creating Distinctive Curricula

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Grant Braught, Dickinson College

Janet Davis, Whitman College

Amanda Holland-Minkley, Washington and Jefferson College

Karl Schmitt, Trinity Christian College

Andrea Tartaro, Furman University

Recursion and Student Preparedness of Functional Programming Sunjae Park, Wentworth Institute of Technology Frank Kreimendahl, Wentworth Institute of Technology

Teaching the methodology of science through programming Jan Plaza, SUNY Plattsburgh

Examining Computer Science Education Activities for Liberal Arts Colleges Edwin Dauber, Widener University

Choices and Compatibility in Single Board Computer Selection Kevin McCullen, SUNY Plattsburgh

Teaching AI Ethics through Interactive Classroom Activities
Divya Sri Sathya Prathipati, Western New England University
Hanieh Shabanian, Western New England University

Integrating Image Processing in Assistive Technologies for Visually Impaired Users: A Review

Divya Sri Sathya Prathipati, Western New England University Hanieh Shabanian, Western New England University

Student Success and Peer-Led Team Learning in Introductory Computational Skills Course

Sarbani Banerjee, SUNY Buffalo State University Neal Mazur, SUNY Buffalo State University

Undergraduate Student Posters

Poster abstracts are in a separate booklet, which can be found in the student poster area and on the conference website (ccscne.org).

- Crime Prediction Using Machine Learning Techniques Ryan Basir (La Salle University)
- Mage Hand: A Virtual Reality Computer Networking Education Solution
 Daniel Cerulli, Kian Fatemi, Nicholas Larkin, Lucero Melendez, Joshua Stewart, Declan Straut, Johnell Taylor, (University of New Haven)
- Predictive Real-time Intelligent Motion Enhancement Virtual Reality (PRIME-VR) Solution Fredlyne Antoine, Evan Vojta, Ryan Larrea, Hashim Ali, Steve Nwachukwu,

Matthew Rosenblum, (University of New Haven)

Prototyping an AI-Powered Software to Generate Lab Procedures for Linux and CyberSecurity

Thomas Rzeznik, (SUNY Oneonta)

- Scaling Memcached: Improving Cache Failures
 Makayla Coleman, Kate Vaughan, (Utica University)
- Cryptography in the Quantum Era
 John Hrustich, Christopher Rawlins, Kate Vaughan, (Utica University)
- Beneath the Surface: Cybersecurity in the Human Body
 John Hrustich, Christopher Rawlins, Kate Vaughan, (Utica University)
- Using Insights from Game Theory to Combat "Gaming the System" Behavior in CS Education

Nicole Qian, (Bucknell University)

- Parking Palooza: Avoiding Campus Car-tastropies
 Shaikh Ismid Jobayer Kibria, (Buffalo State University)
- Digital Etch-a-Sketch: A Web-Based Drawing Experience Jonathan Grano, (Buffalo State University)
- Predicting Natural Disasters: Analyzing Trends and Patterns Bakim Alijaj, (Buffalo State University)
- Buff State Shuttle Navigate Campus Life Saugat Siwakoti, (Buffalo State University)
- Evolution of Cryptography: The Importance of Cybersecurity Communication Data Ryan Thompson, (Buffalo State University)

- Ethical Hacking with Kali Linux
 Rakib Kabir, (Buffalo State University)
- Combining Classic Cryptanalysis and Al: A Study of Affine and Shift Ciphers Shawn Beaty, Abdullah Al-Quaid, (Widener University)
- Unicon Language Server Extensions
 Nathan Shapiro, (SUNY Brockport)
- Portable LiDAR System for 3D Mapping: Assembling, Data Collection, and Visualization

Abdullah Abadi, (Buffalo State University)

Gentrification Watch: Using Python to Track Changing Neighborhoods in Buffalo, NY

Makaila Hall, (Buffalo State University)

- From Chaos to Cipher: The Beauty of RSA Mathematics Jade Taylor, (Buffalo State University)
- Evaluating Cloud-Based Vs Private Network Data Storage Zaire Coore, (Buffalo State University)
- Promoting Powerful Passwords
 Fransley Michel, (Buffalo State University)
- Bengal Bot: Enhancing Students' Experience with Artificial Intelligence Ei Reh, (Buffalo State University)
- Lock It Down: Evaluating and Enhancing Password Strength Sadat Nurudeen, (Buffalo State University)
- ParcelHub: An Optimized Mail Management System Sarah Hussey, (SUNY Brockport)
- Using Book Order Depth to Model Price Joseph Scorsone, (Pace University)
- Tortilla A Custom Linux Shell
 Eric Garcia, (University of New Haven)
- EduAlly: Integrated AI Education Assistant
 Trinity Thiele, Jayden Asbie, Naya Brown, Ryan Fantigrossi, Tyler Jones,
 David Lonski, Caleb Mesiti, (SUNY Brockport)
- Trend of waste
 Virdeep Singh, Juliana Sanchez, (Widener University)
- Debugging the Gender Gap
 Nicole Limer, (SUNY Brockport)
- Designing an Accessible Programming Education Platform: Integrating Accommodations for Children With Disabilities to Promote Inclusive Learning and

Brockport, NY 19

Development of Computational Skills
Alexis Adam, (SUNY Brockport)

Retinal OCT Image Classification Leveraging AI with Pytorch Caleb Mesiti, (SUNY Brockport)

Simple Firewall

Connor Mack, (Buffalo State University)

Al-Driven Socratic Dialogue: The Impact of Questioning Styles and Al Personas on Critical Thinking in Education
Vanessa Mpofu, (Ithaca College)

Higher-Ed Course Registration Web Application

Casey Harris, David Lonski, Adam Thomas, Huseen Munye, (SUNY Brockport)

MENACE: the Rudimentary Tic-tac-toe AI Spencer Jensen, (SUNY Plattsburgh)

An exploration of Cybersecurity Intrusion detection Latiq Pratt, (SUNY Brockport)

Enhancing Real Time Object Detection with Semi-supervised Learning in Plants vs. Zombies

Savior Wah, Nathaniel Baumes, (Utica University)

Bridging the Digital Divide: Teaching Empathy through Accessibility in Computing Education

Jardina Gomez, Madison Smeallie, Annabelle Fisher, Emily Nanartowic, (Siena College)

Designing a Trauma-Informed Website to support the well-being of Ukrainian children

Trenton Mychack, Donevan Mysliwiec, Maxim Kril, Annabell Fisher, (Siena College)

A Comparative Analysis of UINL and HTML/CSS for Web Application Development

Prince Mensah, (Caldwell University)

Analyzing the Creator Economy: Growth, Monetization & Engagement Samprada Pradhan, (SUNY Brockport)

We are watching: Intrusion Prevention Systems
Jamie Olivier, (Buffalo State University)

Plagiarism detection in Computer Programming assignments using behavior tracking

Krenjila Sharma, (Caldwell University)

- Spanish Speaking Confidence Al Tutor
 Kenneth Mosley, (Buffalo State University)
- Adapting Sensor Data Transplantation from Autonomous Rovers to Autonomous Drones

Peyton Hamilton, (St. Lawrence University)

- Computing Education Using Experiential Labs

 Elaina Trapatsos, Emma Schmitt, (Rochester Institute of Technology)
- Strong Passwords In Cybersecurity

 Abdikadir Farah, (Buffalo State University)
- Co-Design for Edge Intelligence: Binary Neural Networks
 Victor Nault, (Haverford College)
- Cyber Ethics
 Rose Rivera, (Buffalo State University)
- Eagle Pass: A Digital ID to Improve Campus Security
 Jeff Wright, Serena Gould, Asianz Ninnasopha, (SUNY Brockport)
- A Data-Driven Approach to Exploring Retention of Women in Computing Using Machine Learning

 Darlyn Gomez, Giovanna Rodriguez, (CUNY Manhattan CC)
- A Blockchain-Based Framework for Ensuring Data Integrity and Regulatory Compliance in Healthcare 5.0

 Gokdeniz Tingur, (Roger Williams University)

Thank You CCSCNE 2025 Reviewers

Chris Alvin, Furman University

Alex Chao, Duke University

Lawrence D'Antonio, Ramapo College

Alfreda Dudley, Towson University

Maria Ebling, United States Military Academy, West Point

Michael Gousie, Wheaton College (MA)

Delbert Hart, SUNY Plattsburgh

Mark Hoffman, Quinnipiac University

Michael Huelsman, Saint Anselm College

Ifeoluwatayo Ige, Rochester Institute of Technology

Chetan Jaiswal, Quinnipiac University

Michael Jonas, University of New Hampshire at Manchester

Sotirios Kentros, Salem State University

Daniel Krutz, Rochester Institute of Technology

Rongxin Liu, Harvard University

Linh Ngo, Drexel University

Liberty Page, University of New Haven

Sunjae Park, Wentworth Institute of Technology

Sofya Poger, Felician University

Daniel Rogers, The College at Brockport

Erik Saule, UNC Charlotte

Jessica Schwartz, University of the Cumberlands

Kalpathi Subramanian, The University of N Carolina at Charlotte

Vikas Thammanna Gowda, Champlain College

Nanette Veilleux, Simmons College

Marc Waldman, Manhattan College

Yang Wang, La Salle University

Chad Williams, Central Connecticut State University



Northeastern Region

We look forward to seeing you again next year for CCSCNE 2026.

Smith College Northampton, Massachusetts

