



The 16th Annual WP Educational Technology Conference

Friday, November 14th, 2025, 8:30 am–3:00 pm, ET

<https://www.wpuedtechconference.com/>

Computer Science Education in K–12 Settings: Action in Practice

The New Jersey Student Learning Standards for Computer Science (NJSLS-CS) emphasize the importance of preparing students to thrive in today's knowledge-based economy. These standards aim to equip learners across all grade levels with essential knowledge and skills in computational thinking, problem-solving, and innovation through the integration of computer science. This year's conference is designed to support teachers and school leaders in implementing effective computer science instruction in their K-12 schools. Participants will receive 6.5 professional development hours.

Conference Chairs: Heejung An and Gigi Mohamad

Conference Schedule

Time (ET)	Session
8:15 AM – 8:30 AM	Login & Tech Check Join the Main Room early to test your connection and get ready for the day.
8:30 AM – 8:40 AM	Welcome & Opening Remarks Kick off the conference with a warm welcome and overview of the day's sessions.
8:40 AM – 9:40 AM	Concurrent Session I (60 minutes) Choose one of the three workshops.
9:40 AM – 9:50 AM	Break (10 minutes)
9:50 AM – 10:50 AM	Concurrent Session II (60 minutes) Choose one of the three workshops.
10:50 AM – 11:00 AM	Break (10 minutes)
11:00 AM – 12:10 PM	Keynote Session (70 minutes) Join the inspiring keynote presentation.
12:10 PM – 12:50 PM	Lunch Break (40 minutes) Enjoy your meal and connect informally with other attendees.
12:50 PM – 1:50 PM	Concurrent Session III (60 minutes) Choose one of the three workshops.
1:50 PM – 2:00 PM	Break (10 minutes)
2:00 PM – 3:00 PM	Concurrent Session IV (60 minutes) Choose one of the three workshops and wrap up the day with great insights.

Welcome: 8:30 AM – 8:40 AM, EST (10 minutes)

Welcome Remarks: David Fuentes, Associate Dean, College of Education,
William Paterson University of New Jersey

House Keeping: Gigi Mohamad

Concurrent Session I: 8:40 AM – 9:40 AM, ET (60 minutes)**Workshop 1: Bridging Math and Code: Teaching Pre-Algebra and Algebra with Scratch Programming**

By Heejung An, William Paterson University of New Jersey

Target Audience: Grades 4-9 Teachers

This session explores how Scratch, a visual programming platform, can bring algebra concepts to life. Participants will learn how to use coding projects to visualize equations, functions, and variables, transforming abstract mathematical ideas into engaging, interactive experiences. Through guided activities, we will connect algebraic principles, such as slope, intercepts, and coordinate geometry, with coding structures like variables, operators, and conditional statements. Educators will leave with ready-to-use project ideas that align with mathematics standards and foster computational thinking, problem-solving, and creativity. No prior coding experience is required.

Workshop 2: Deploying Design Justice to Code Solutions for Communities in Need

By Antonio Byrd, University of Missouri-Kansas City

Target Audience: High School Teachers

Based on research from his book *Black Tech Ecosystems: How Black Adult Learners Use Coding Bootcamps for Liberation*, this workshop explores how to leverage design justice principles for scaffolding community-based coding projects. Design justice uses collaborative practices that center marginalized communities who have been historically excluded from technology design. Marginalized people become co-creators of their solutions *with* coders. First, teachers learn about key overarching themes from Antonio's research at a computer code bootcamp, and then explore design justice with an overview of a sample curriculum. As a starting point, participants will complete a student assignment in which they analyze mobile apps and websites designed for and with marginalized communities and nonprofits using the design justice framework. By the end of the workshop, participants will have a digital goody-bag of assignments and activities. This workshop would appeal to educators interested in strategies for helping marginalized students discover that

they matter in computer science; it also appeals to educators interested in developing an equity-mindset among their students.

Workshop 3: Teach About Artificial Intelligence Starting in Kindergarten? ABSOLUTELY

By Vicky Sedgwick, Computer Science Teachers Association (CSTA) Greater Los Angeles Chapter

Target Audience: Grades K-5 Teachers

We have all heard and seen the impact that AI is having on our world and in K-12 education. Even our youngest students encounter AI in their daily lives, but can they really start to learn how it works? Yes, they can! In this session you will be introduced to activities and lessons that can be used to demystify how AI works for K-5 students, including: what AI is and how it is already impacting our lives; how AI is trained and where bias may occur; how large language models like ChatGPT work; and more. Leave with ready-to-teach resources and knowledge of how you can implement teaching about AI in computer science lessons, as extensions to digital citizenship lessons, and in a variety of curricular areas.



Break: 9:40 AM – 9:50 AM (10 minutes)

Concurrent Session II (60 minutes): 9:50 AM – 10:50 AM, ET (60 minutes)

Workshop 4: Teaching Introductory Programming with Generative Artificial Intelligence (AI): Strategies for Computer Science and Engineering Educators

By Olgun Sadik, Indiana University

Target Audience: High School and Early College-Level Computer Science and Engineering Educators (Grades 9–14)

This one-hour interactive workshop explores how generative AI tools can be leveraged to support and transform the teaching of introductory programming skills. Designed for CS and engineering educators, participants will learn practical strategies for using AI to scaffold learning, personalize feedback, support debugging, and foster student creativity. Through interactive examples and classroom-ready activities, the session will emphasize how AI can enhance rather than replace core teaching practices. Ethical use, prompt design, and student engagement will also be covered, preparing educators to confidently integrate AI into their teaching toolkit.

Workshop 5: Advancing Computer Science (Python Programming) Instruction through Process-Based Analytics

By Donggil Song, Texas A&M University

Target Audience: K-12 Teachers and Higher Education Faculty

We invite computer science educators to join a professional development workshop on leveraging process-based analytics in computer science to enhance Python programming instruction. This hands-on session will provide practical training in analyzing high-frequency programming log data to examine students' coding patterns, self-regulated learning strategies, and computational thinking skills. Participants will learn how to apply computational analytics to identify novice learners' behaviors in online coding environments, enabling the design of targeted tasks and scaffolding to improve student outcomes. No prior experience with analytics is required. Join us to strengthen your instructional practice with data-driven insights.

Workshop 6: Pathways to CS: Scaffolding Learning Across K-6 Grades with Free Online Resources

By Denise Post and Melissa VanWingerden, New Providence Public Schools, NJ

Target Audience: K-6 Teachers

Dive into the exciting world of Computer Science with this workshop designed for K-6 educators! Discover engaging and accessible ways to introduce foundational computer science concepts to your elementary students, building a strong pathway for their future success. We'll explore the New Jersey Student Learning Standards for Computer Science & Design Thinking (NJSLS Computer Science & Design Thinking) and learn how to scaffold these critical skills across grade levels, from introductory free coding resources to hands-on robotics. Participants will gain practical strategies, a curated list of free online coding resources, and ideas for integrating robotics into their classrooms.



Break: 10:50 AM – 11:00 AM (10 minutes)

Keynote Session: 11:00 AM – 12:10 PM, ET (70 minutes)



Keynote Speaker: Amy Eguchi, University of California San Diego

Introductory Remarks: Jonathan Lincoln, Associate Provost, William Paterson University

Introduction to the Keynote Speaker: Heejung An

**CS and AI for Everyone:
Integrating Computer Science Education and AI Literacy into Everyday Lessons**

The keynote explores how computer science (CS) education and artificial intelligence (AI) literacy can be seamlessly integrated into everyday classroom experiences across subjects and grade levels. Grounded in the belief that CS and AI literacy should be accessible and relevant to all learners, the presentation offers practical strategies for culturally responsive integration that honors students' diverse identities, needs, and lived experiences. It will also highlight inclusive pedagogies, interdisciplinary approaches to CS and AI integration, and classroom practices that empower every student.

Biography. Amy Eguchi is an Associate Teaching Professor of Computer Science (CS) Education at the University of California, San Diego (UCSD). She possesses a wealth of experience as a teacher and leader in technologically enhanced education to promote students' STREAM (R=robotics), CS education, and AI literacy in K12. Her professional background and experience focus on providing better STREAM+CS+AI learning opportunities for all students. Her work in educational robotics became the foundation of her work in AI in education, with which she has collaborations with UCSD faculty members across the departments as well as Google, UNESCO, MathWorks, SONY, SoftBank Robotics /United Robot Group, State level and International educators, and more.



**Lunch Break
12:10 PM – 12:50 PM (40 minutes)**

Concurrent Session III: 12:50 PM – 1:50 PM, ET (60 minutes)**Workshop 7: Cybersecurity in the Classroom: Attacks, Tools, and Defenses**

By Kiho Lim, William Paterson University of New Jersey

Target Audience: Grades K-12 teachers

In this one-hour, teacher-focused workshop, we will demystify how common cyberattacks work at a high level and model practical, classroom-friendly defenses. Through brief demonstrations and discussion, participants will compare attacker and defender mindsets, practice simple risk-spotting, and see how to use safe, widely available resources without handling real data or installing complex software. We will translate each concept into age-appropriate mini-activities and wrap with a concise planning guide teachers can adapt immediately.

Workshop 8: The Synergy Between Literacy and Computer Science in Elementary Grades

By Vicky Sedgwick, Computer Science Teachers Association (CSTA) Greater Los Angeles Chapter President.

Target Audience: Grades K-5 Teachers

Engage with resources and lesson ideas for using literacy to increase engagement in and success with Computer Science, as well how CS can be integrated into English Language Arts (ELA) and other curricular areas in elementary grades through books and other text materials. Participants will take away multiple resources from the session, including lists of relevant texts, ideas on how to use them, and tools to implement and integrate CS and literacy in their own classrooms. All session activities will be aligned to the New Jersey Student Learning Standards for Computer Science & Design Thinking (NJSLS Computer Science & Design Thinking).

Workshop 9: Develop a Foundational Understanding of Coding Through Geometric Patterns Using Hopscotch

By Woonhee Sung, The University of Texas at Tyler

Target Audience: Grades K-6 Teachers

In this session, you'll explore how to integrate geometry concepts into coding by designing patterns with the Hopscotch application. Although the lesson is designed for 4th–6th grade classrooms, it can be adapted for K–6 with appropriate scaffolding and facilitation. This hands-on workshop will guide you in teaching students to code geometric shapes using angle measurements and coordinate movements. We will begin by programming and drawing a circle through angle rotations, then expand it into a clock face using 30-degree increments. Starting with 2D geometric shapes, you will learn how to help students create interactive projects that explore angle

relationships and build engaging patterns, such as honeycomb designs, that bring math concepts to life while fostering computational thinking. No prior coding experience is required—Hopscotch's intuitive drag-and-drop interface makes programming accessible for both teachers and young learners. By the end of the session, you'll leave with ready-to-use lesson plans and coding projects, from clock geometry to complex pattern design, to implement in your classroom.



Break 1:50 PM – 2:00 PM (10 minutes)

Concurrent Session IV: 2:00 PM – 3:00 PM, ET (60 minutes)

Workshop 10: Unplugged-to-Plugged: A Blended Approach to Coding Instruction

*By Jessica Kerr, Barnett Shoals Elementary in Athens, GA; University of Georgia
Target Audience: Grades 3-5 Teachers*

This session explores strategies for guiding 3rd- 5th grade students from "unplugged" coding activities - hands-on, screen-free exercises that build computational thinking- into "plugged" coding experiences using digital tools. Participants will learn how to scaffold skills, connect concepts between physical and digital formats, and create engaging transitions that deepen students' understanding of coding principles.

Workshop 11: Introducing Machine Learning to Young Learners: Practical Approaches

*By Gihan Mohamad, William Paterson University of New Jersey
Target Audience: Grades K-12 Teachers, School Librarians, Instructional Technology Specialists, and Curriculum Coordinators*

As artificial intelligence becomes increasingly embedded in daily life, students must begin to develop an early understanding of machine learning (ML), a key branch of AI. This workshop introduces K-12 educators and school librarians to foundational concepts in machine learning and offers age-appropriate, hands-on strategies to help students grasp how machines "learn" from data. No prior coding or technical background is required.

Workshop 12: Empowering Computer Science (CS) Teaching with Artificial Intelligence (AI): Practical Uses of Large Language Models in Programming Education

*By Meina Zhu, Wayne State University
Target Audience: Middle and High School Teachers*

This workshop will introduce K–12 and postsecondary educators to the practical applications of large language models (LLMs), such as ChatGPT and Copilot, in computer science programming instruction. Participants will explore how LLMs can assist teachers in planning lessons, designing activities, and creating assessments, as well as support students with code generation, debugging, and explanation to enhance learning and engagement. The session will feature hands-on demonstrations and provide strategies for integrating AI tools ethically and effectively into programming education. By the end of the workshop, attendees will have a foundational understanding of how to leverage LLMs to support diverse learners, foster computational thinking, and strengthen their instructional practices.

New Program Announcement

The College of Education at William Paterson University of New Jersey offers a 7-week asynchronous **Educational Technology Certificate Program** (consisting of four courses) designed to support working professionals.

For more information, please visit:

<https://online.wpunj.edu/degrees/education/educational-technology-certificate/>

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