State of K-12 AI Education in Your State

6 Month Updates

July 22, 2021

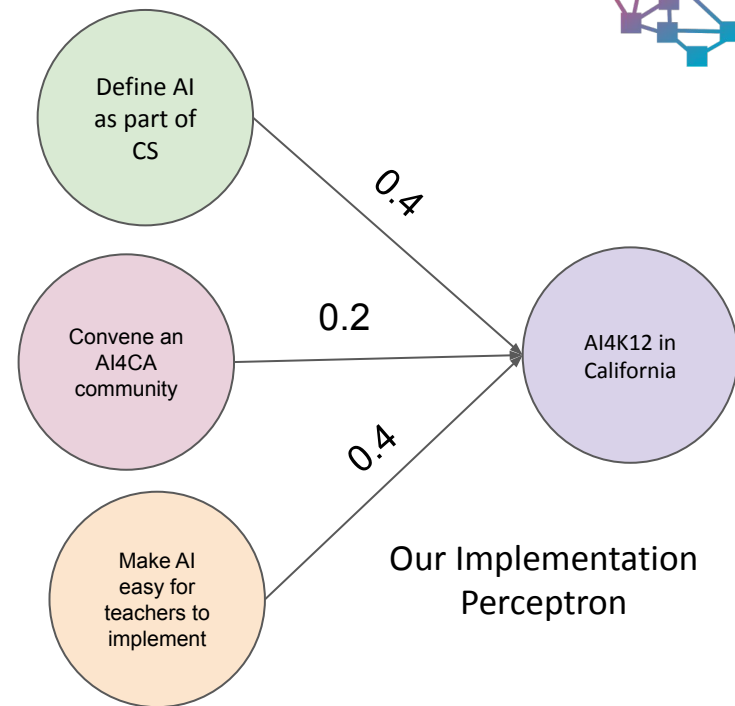#AI4K12

California

Name	Organization	Role
Jared Amalong	Sacramento County Office of Education	Director of Computer Science Education, AI4K12 9-12 Grade Band Lead
Dr. Amy Eguchi	UC San Diego	Associate Teaching Professor of CS Education, AI4K12 Advisory Board member
Daniela Ganelin	Inspirit AI	Director of Curriculum, Stanford Univ. Ph.D. candidate
Erle Wallace Hall	CA Dept Education	ICT Industry Sector Lead, CTE career pathways
Dr. Deblina Pakhira	Computer History Museum	Associate DIrector of Education
Vicky Sedgwick	Laurence School	K-6 CS Teacher AI4K12 K-2 Grade Band Lead
Dr. Emily Thomforde	CA County Boards of Education	Computer Science Program Advisor
Dr. Ning Wang	USC Institute for Creative Technologies	Research Assistant Professor
Emily Reid Sarah Judd	AI4ALL	VP Open Learning Curriculum Manager, Open Learning

Our Implementation Perceptron

Define AI as part of CS — 0.4 → AI4K12 in California

Convene an AI4CA community — 0.2 → AI4K12 in California

Make AI easy for teachers to implement — 0.4 → AI4K12 in California

California

CS Updates

- [CS funding returned!](#) $5M Educator Workforce Investment Grant, $5M supporting teachers to get CS Supplementary Authorization, $250K/year 1.0 FTE CA CS Coordinator
- New Code.org [AI/ML CS Discoveries](#) Unit 7
- ISTE is releasing a fifth AI guide this fall, which will focus on ethics + AI and aligns with the five big ideas.

Awareness

✅ 2 AI workshops at CSTA Code 'n Play (ML4K 3-8 and Teachable Machine 6-12.)

✅ Teachable Machine for 4-12 workshop at the [May CSTA-SV meeting](#).

✅ Regional industry advisory committee meeting: AI and the implications of automation on the Ag, Advanced Manufacturing, and ICT sectors.

✅ [Atlas of AI by Kate Crawford](#) @CHM: the hidden costs of AI and what's at stake as it reshapes the world.

👀 Reach out to CA state level math, science, language arts, organizations to present the AI literacy & Five Big Ideas.

Community

✅ Scheduled monthly AI team meetings.

✅ Created Google Drive repository of AI resources.

✅ Created #aiforca channel on CSforCA Slack.

👀 CSTA chapter outreach: document AI teaching and learning in our state, offer to present on AI at chapter meetings.

👀 Identify what we need from future industry partners, and reach out to potential industry partners.

Accessibility

✅ AI integrated affordable robotics kit to promote AI literacy at UCSD (beta testing stage: http://bit.ly/CogBots-AIBot)

✅ AI summer camp (Virtual SDUSD High School AI Camp) @ UC San Diego (CREATE) for the San Diego Unified high school students.

✅ NSF grant proposal for AI4K12 research projects to support the initiative.

👀 Create crosswalk among the Five Big Ideas in AI, CA CS standards, and other core subject areas.

👀 UCSD AI Literacy course

Florida

Name	Organization	Role
Sheryl Arriola	Broward County Schools	Instructional Facilitator
Alexis Cobo	University of Florida	Curriculum Developer, Graduate Student
Justin Feller	FL Department of Education	Computer Science Specialist, Innovation & Implementation
Katrina Figgett	FL Department of Education	Director, Innovation and Implementation
Dr. Christina Gardner-McCune	AI4K12 & University of Florida	Associate Professor
Dr. Kim Jacobs	University of Florida	Director of Engineering Outreach and Extension
Mike Martucci	Orange County Public Schools/Orange Technical College	Assistant Director
Lisa Milenkovic	Broward County Schools	STEM and Computer Science Supervisor

Florida

To Date:
- Stakeholder meetings (FLDOE, UF, school districts, economic development agencies, state workforce boards, philanthropic foundations, state colleges, technical colleges, SUS and industry)
- Developed industry AI workforce survey, collected and analyzed responses
- Piloted Summer '21 camp with support from UF, CareerSource Central Florida and OCPS
- Developed 4 course CTE framework for high school students (submission underway)
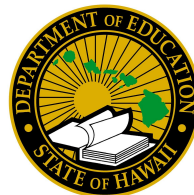
Next Steps (in progress):
- Secure funding to ensure smooth implementation of the AI Foundations CTE Framework in Fall 22
- Strategic planning and implementation for curriculum development and capacity building opportunities for teacher professional development are underway in partnership with FLDOE, districts and UF (this effort will begin in fall 2021)
- Develop feedback mechanism to connect industry, the academy and K-12 educators around AI Education
- Develop framework at elementary and middle school level

Georgia State Updates

- High School [AI pathway](#) approved
- AI4GA grant was funded by NSF to create curriculum and PD for middle school AI instruction
    - Exploring existing curriculum to include in project
- AI task force plans to meet again after the semester ends/transitions

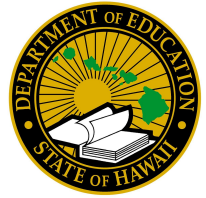COMPUTER SCIENCE for GEORGIA
Georgia Department of Education

GaDOE
Georgia Department of Education
Richard Woods, Georgia's School Superintendent
"Educating Georgia's Future"

AI4K12.org

Hawaii

Brett Tanaka	Hawaii Department of Education

- **To Date:**
  - Presented AI4K12 Initiative to the fifteen (15) complex area Computer Science Teams.
  - Connected with Industry/Community Stakeholders to confirm their participation in this initiative.
  - Incorporate AI education into ongoing Complex Area School Design for Computer Science Education implementation planning.
  - Coordinate A.I. Professional Development opportunities
- **Next Steps:**
  - Schedule focused meetings to deep dive into the AI4K12 goals and alignments.
  - Coordinate with our Career and Technical Education that is in the process of implementing an A.I. Program of Study under their new Information Technology pathway.
  - Coordinate additional A.I. related Professional Development opportunities with other partners/providers.

Hawaii

To Date:

- Adopted CS standards aligned to the CSTA K-12 CS Standards and CS Teaching license options with the Hawaii Teachers Standards Board.
- Established fifteen (15) complex area CS Team who are developing their "school design" K-12 CS education implementation plans.

Next Steps:

- Establish Hawaii State AI Team/Delegation
- Incorporate AI Concepts and Resources

Illinois

To date: A committee met with Illinois State Board of Education over the last 2 months to write new CS standards. A sub committee met to organize a beta version of a toolkit that will include emerging technologies, such as the AI4K12 framework. The beta version toolkit will be open to teachers. Committees will meet to update and revise the toolkit over the next 3 years, once it is complete and formalized, then it will go to the board to be approved and adopted.

Next steps: Today, March 2nd, the CS standards will be presented to the Board and made available for public comment. Then moved forward to get approval and adopted by the board. This process should be completed by the summer and ready for teachers to use the beginning of next school year.

Indiana

Jake Koressel	Indiana Department of Education
Stephanie Zircher	Nextech
Anne Leftwich	Indiana University
Krista Glazewski	Indiana University
Amanda Moore	MSD Wayne Township
Raj Acharya	Indiana University

Indiana

Updates:
- Finalizing AIforIN Plan and adding dates for 2021
- AI professional development opportunities on calendar for elementary and middle school
- Work related to K-8 standards updates and CTE pathway development is underway
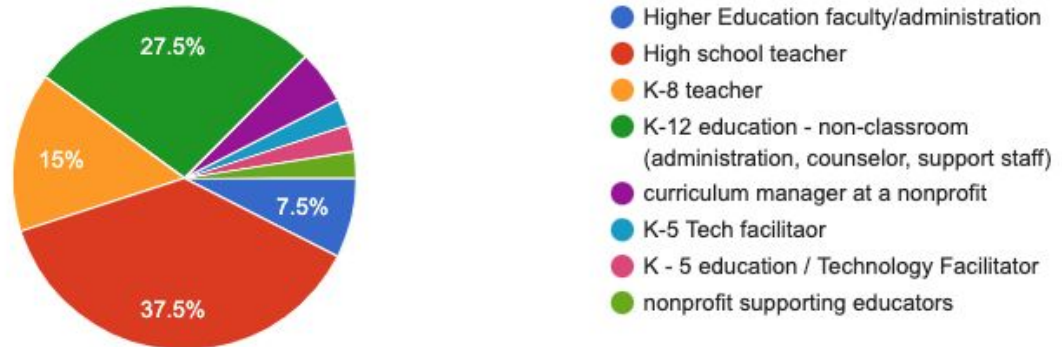
Maryland team

Our team:

1. Elissa Hozore, CS Specialist, MD state department of education
2. Jan Plane, Iribe initiative for inclusion, CS/cyber faculty at UMD
3. Nora Burkhauser, CS teacher, AI4All camp leader, Md
4. Dianne O'Grady-Cunniff, Director, MCCE

Over 200 MD educators have participated in MCCE AI education events in MD.

Who is interested in AI in MD?

Symposium attendees:

- Higher Education faculty/administration
- High school teacher
- K-8 teacher
- K-12 education - non-classroom (administration, counselor, support staff)
- curriculum manager at a nonprofit
- K-5 Tech facilitaor
- K - 5 education / Technology Facilitator
- nonprofit supporting educators

27.5%
15%
7.5%
37.5%

Maryland

BCPS CTE Artificial Intelligence/Machine Learning Advisory Committee met bi-weekly

AI Symposium that included K12, community college and 4-year higher ed had 50+ attendees.

[Video playlist](#) on YouTube for AI resources

Continuing to develop AI learning pathway for teachers

1. Introduction to AI 1 credit
2. Follow up to AI topics 1 credit
3. AI careers ½ credit ← not now.
4. AI and equity 1 credit
5. Teaching advanced AI in high school 1 cr.

What about looking at ways to implement CS standards across K-12 using AI as the context?

3 Districts planning to offer MS AI courses. 2 HS CTE

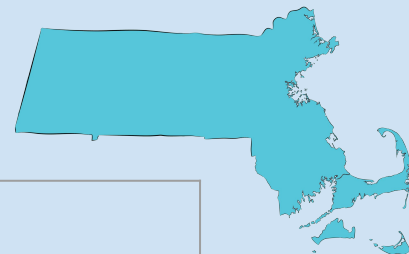School for the blind piloted AI materials

Maryland Center for Computing Education
Supporting Maryland Computer Science Education
UNIVERSITY SYSTEM of MARYLAND

Maryland Artificial Intelligence Symposium Agenda

Meeting ID: Passcode: (register online to receive the links)

April 17, 2021

Time				
8:00 AM	Arrive Early! Join us for breakfast and casual conversation.			
8:30 AM	Welcome and Overview of AI in Maryland: Dianne O'Grady-Cunniff , MCCE			
8:45 AM- 9:30 AM	**Panel Discussion: Karen Chen, Rebecca Knowles, and Dr. Mohammad Hafezi and Dr. William (Bill) Phillips "Interesting areas related to AI: research in AI to support teachers and healthcare workers, computational linguistics, quantum computing"**			
Concurrent Sessions	**Areas of Interest**			
9:30 AM-10:15 AM	AI in Elementary and Preservice education	Careers in AI	AI in Secondary	Break out discussions
10:15 AM- 10:30 AM	**Stretch Break**			
Concurrent Sessions	**Topics/Resources**			
10:30 AM- 11:30 AM	Sara Judd and Irena Trifunovic from AI for All "Bytes of AI: Drawing AI for AI and more"	Katie Stoddard "IBM and Mindspark Resources"	Irene Lee. MIT and Merijke Coenraad, Digital Promise. "Introductory AI curriculum"	Robert Steele, Capitol Technology University "Where AI and data science overlap"
11:30 AM- 12:00 PM	Wrap-Up			

60 more educators registered for summer 2021 intro, 7 for advanced with Python, 27 for MS AI, 10 for follow up

Massachusetts

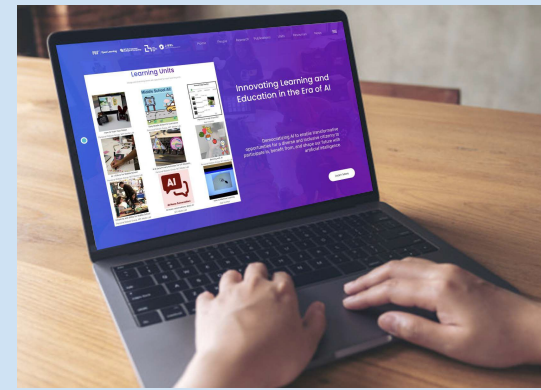| Name	Organization	Role
Cynthia Breazeal	MIT	Professor, AI4K12 working group
Hal Abelson	MIT	Professor, AI4K12 working group
Irene Lee	MIT	Research Scientist, AI4K12 working group
Fred Martin	Univ. of MA Lowell	Professor, AI4K12 working group
Padmaja Bandaru	Adv. Math and Science Academy Charter School	CS Teacher
Anne DeMallie	MA Dept. of Elementary and Secondary Education	STEM, DLCS Content Support Lead
Paula Moore	MA Dept of Education (DESE)	Digital Literacy and Computer Science Specialist

Massachusetts

University Work

MIT's new initiative on AI education has been actively involved in a wide range of activities to support AI and ethics education in MA and across the USA.

- Developing a range of K12 AI Literacy curriculum, assessments and teachers guides that span the 5 Big Ideas of AI.
- K12 AI Literacy materials available on aieducation.mit.edu under creative commons license
- Developing innovative tools to support project based learning with AI technologies such as enhancements to App Inventor, a custom scratch-based AI tools, and web apps, robot kits, and more.
- Running pilot and evaluation workshops with schools and afterschool programs (upper-elementary thru high school)
- Developed the first AI & Ethics curriculum for Middle School
- Developed the first AI curriculum for MA STEM Week
- Developing a comprehensive middle school curriculum on Responsible AI for Computational Action
- Contribution to MA DLCS Standards
- Teacher PD development for middle school and high school

DESE's Work

The goal of the Massachusetts public K-12 and adult education is to prepare all students for success in life. The ability to effectively use and create technology to solve complex problems is the new and essential literacy skill of the twenty-first century.

- K-12 Digital Literacy and Computer Science Curriculum Frameworks
- Teacher and Specialist Educator Preparation Programs and Licensure
- Approved Courses may swap for Math or Science course in high school
- State Grants
- Actively engage stakeholder groups

New Mexico
(On a flight during the meeting time)

Name	Organization	Role
Yolanda Lozano	CS Alliance CSTA NM	COO President
Paige Prescott	CS Alliance Supercomputing Challenge	Exec Dir
Jaime Cherry	NM Department of Education	Dept of Workforce Development
Ali Ashar	AFRL	AI/ML researcher
Amery Martinez- Started Jul 1	NM PED	CS Specialist

New Mexico's Initiatives

1. Facilitators training in May as part of ED AI
2. Summer camp for MS students in July 12 (25 students)
3. Presentation/workshop- NM STEM Symposium Jul 12
4. New CS specialist position filled for K-8
5. Invitation to apply to DOD grant based on white paper submission- still waiting to hear!
6. NM CS PD week (CS in the Sun) 200+ teacher participants DS & ML course offered
7. Fall Summit 1 day event around CS will include AI session

North Carolina - AI4NC Team

Charlotte Dungan - State Lead
AI Program Architect, NC School of Science and Mathematics, AIforTeachers.org

Deborah Seehorn
AI4K12 Steering Team

Dr. Tiffany Barnes
Faculty, NC State University, Beauty and Joy of Computing

Marnie Hill
CSTA NC President, SCRIPT facilitator

Sam Morris
Friday Institute for Educational Innovation

Kim Forbes
CTE, NC Dept of Public Instruction

Cheryl Cox
Workplace Based Learning, NC Dept of Public Instruction

Dr. Jeff McDaris
Superintendent of Transylvania County Schools

Dr. Sambit Bhattacharya
Faculty, Fayetteville State University

Dr. Cameron Harmon
Fayetteville Community College

Kiy Benton
AI Educator Advocate, AIforTeachers.org

TBD - Informal Education/K5 Team Member

North Carolina - Progress Update

1. Active AI4NC Team (10) with diverse experiences; want to add an informal educator.

2. Fall Statewide Summit planning is ongoing; we have identified broad themes to address issues related to AI education, guest list, speakers, and logistics. We have identified funding.

3. CSTA, ISTE, ECEP, Code.org - partnerships are invaluable to extending our work. Local CSTA.

4. Friends in Puerto Rico - offering Spanish translation of AI Family Code Nights.

5. NC State developing AI curricular resources, Fayetteville has a NASA grant for AI.

6. [Free curriculum](#) for AI instruction. Teacher partners wanted!

TAKEAWAYS:
1.   A single time and place, with one document containing links.
2. Summer is necessarily focused on recharging, conferences, and gearing up for the 2021 year.

Ohio

Name	Position	Affiliation
Lisa Patt-McDaniel	Chief Executive Officer	Workforce Development Board of Central Ohio
Dr. Debbie Jackson	Professor & Department Chair, Teacher Education	Cleveland State University
Mark Black	Executive Director, Secondary Education	Akron Public Schools
Alyse Clark	Executive Director, Secondary Curriculum	Columbus City Schools
Ora D Tanner	Co-Founder, Chief Learning Officer	The AI Education Project

Ohio

What we've done:
- Piloted an 'Intro to AI' course developed by the national non-profit, [The AI Education Project](#), district-wide with 9th graders in Akron Public Schools and in several other individual schools throughout the state. Currently working with Ohio Educational Service Center Association (OESCA) and other ESCs to scale the curriculum.
- Ohio Lieutenant Governor, Jon Husted, delivered opening remarks at the [Forum on AI Education and Workforce Readiness](#) in December 2020. Individuals from various levels of leadership in the state also participated in the virtual gathering of more than 100 leaders from government, K12 education, academia, and civil society for a conversation about how to bring AI education to K12 schools. .
- *InnovateOhio* Initiative and the Governor's Office of Workforce Transformation is working to help people gain the skills they need to participate in the economic success that technology will bring forth.
- Work is being done to prioritize CS education for the state's K-12 students.

Pennsylvania

Brandt Hutzel	Pennsylvania Department of Education
Judd R. Pittman	Pennsylvania Department of Education
Sara Frey	Pennsylvania Training and Technical Assistance Network (PaTTAN)
Jeremy Gabborin	Pennsylvania Training and Technical Assistance Network (PaTTAN)
Avni Dyer	Pennsylvania Training and Technical Assistance Network (PaTTAN)
Ethan Pan	Pennsylvania Training and Technical Assistance Network (PaTTAN)
Dr. Brian Stamford	Allegheny Intermediate Unit (AIU3)

Pennsylvania

1. AI included in CS education and STEM

2. Reviewing standards

3. Informal and formal discussions

4. AI support through regional ESAs (Intermediate Units)

#CSinPA

South Carolina

Name	Organization	Role
Angel Malone	SC Dept. of Education	CTE Director
Dominick Sanders	SC Dept. of Education	CS State Supervisor
Steven Watterson	SC Dept. of Education	Education Associate
Andrew Cook	SC Dept. of Education	Education Associate
Rosemary Bianchi	N/A	Independent Contractor
Jennifer Albert	The Citadel	STEM Center Director
Tim Swick	Sandlapper Elementary	CS Teacher

South Carolina

- We are currently in the beginning of stages of AI program development.
- We are working on course development and instructional support materials.
- We plan to have a program of study created by 2022-2023
- Working to create a committee for write standards (infuse in CS and manufacturing)

Texas

Dan Blier	Plano ISD
Joy Schwartz	TACC
Dara Betz	Del Mar College
Philip Davis	Del Mar College

Texas

- Texas is in the beginning stages of looking into AI for our K-12 schools.
- No courses have been approved by our State Board of Education.
- There is a legislative passed requirement to develop a K-12 CS Strategic Plan. This hasn't started being built yet. This opens an opportunity to bring AI into the process.

Virginia

Name	Organization	Role
Dr. Brendon Albon	VA Department of Education	Director, STEM
Keisha Tennessee	VA Department of Education	CS Coordinator
Dr. Paula Leach	Longwood University - ITTIP	Director
Michael Bolling	VA Department of Education	Assistant Supt, Learning and Innovation
Dr. Helen Crompton	Old Dominion University	Associate Professor
Dr. Manorama Talaiver	Cogent Cause (Retired from Longwood University)	Professional Learning Consultant - STEM C
Steven Jones	*Arlington Public Schools*	*Educator*
Jill Collins	*Martinsville City Public Schools*	*Educator*
Brandie Wright	*Newport News Public School*	*Educator*

Virginia

As of July 22, 2021

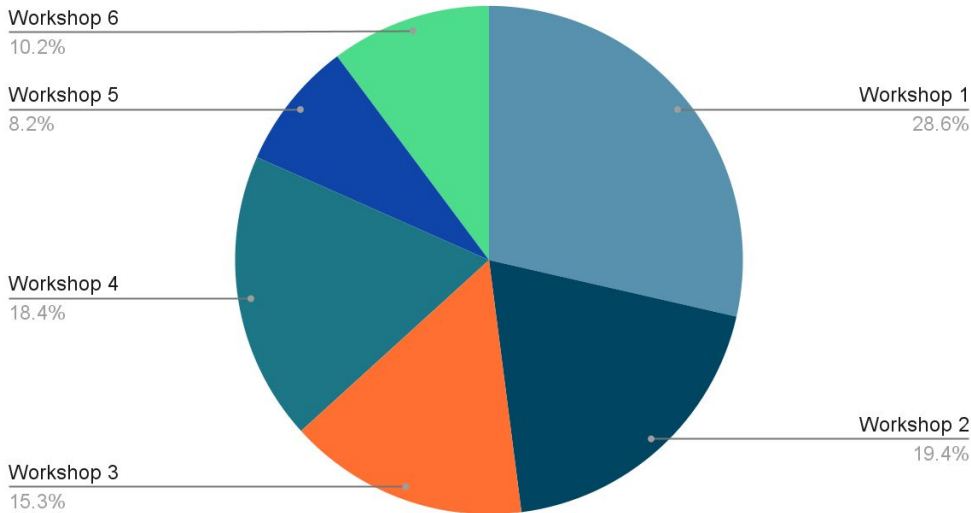| Updates |
|---|
| Bimonthly State Meetings Expanded State Team Development of AI4K12 Vision Statement Priority Focus: AI4K12 Summit for Educators and Standard Alignment/Resources for Educators |
| **Next Steps** |
| Distribution of Division and Teacher Surveys to gather data for CS Landscape Report Educator AI Summit: Conference Planning, Funding Source Crosswalk & Standard Alignment: Review of Big Ideas 1-3 with Current Computer Science Standards |

Puerto Rico and US Virgin Islands

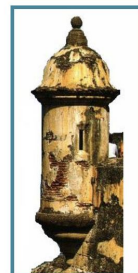| Name	Roles and Institution
Dr. Juan Arratia	PR - Committee Leader and Workshop coordinator, SCF
Dr. Elba Sepúlveda	PR - General Activities Coordinator, JHU
Dr. Sol León Prof. José Torres	PR Department of Education Coordinator, CROEV Director MS FarmBeats Project
Dr. Marc Boumedine	USVI, UVI St.Thomas Coordinator
Dr. Michael Francois	USVI, UVI St Croix Coordinator

Scientific Caribbean Foundation

PR & USVI - Initiatives

- A total of 6 webinars offered to PR and USVI teachers for AI-Spring21 and more to plan for FA21 impacting near 100 teachers from PR and USVI.

- Educators from PR, USVI, Nicaragua, Colombia, China, and many other regions are participating in our workshops.
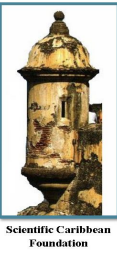
Participants

Workshop 6
10.2%

Workshop 5
8.2%

Workshop 4
18.4%

Workshop 3
15.3%

Workshop 1
28.6%

Workshop 2
19.4%

- Teachers are participating in the webinars to find ways to integrate CS and AI modules in both USVI and PR

PR & USVI - Results

1) DEPR coordinators and representatives are encouraging teachers to integrate CS into their current classes

2) PR and the USVI are planning planning on how to integrate AI into the curriculum.

3) CROEV - PR MS Farm Beats

    a) MS FarmBeats - kits available from Microsoft for participant teachers to request and support them in classrooms - Prof. José Torres implemented

Additional Participants

Also joining us in the conversation about K-12 AI Education are representatives from the following states/territories and organizations:

Alabama
Colorado
Connecticut
Delaware
England
Hawaii
Kentucky
Michigan
Mississippi
Nevada
New Mexico
New York

Oklahoma
Puerto Rico
US Virgin Islands
Utah
Virginia
Washington
Washington, DC
Wisconsin

And representatives from the National Science Foundation and ECEP