

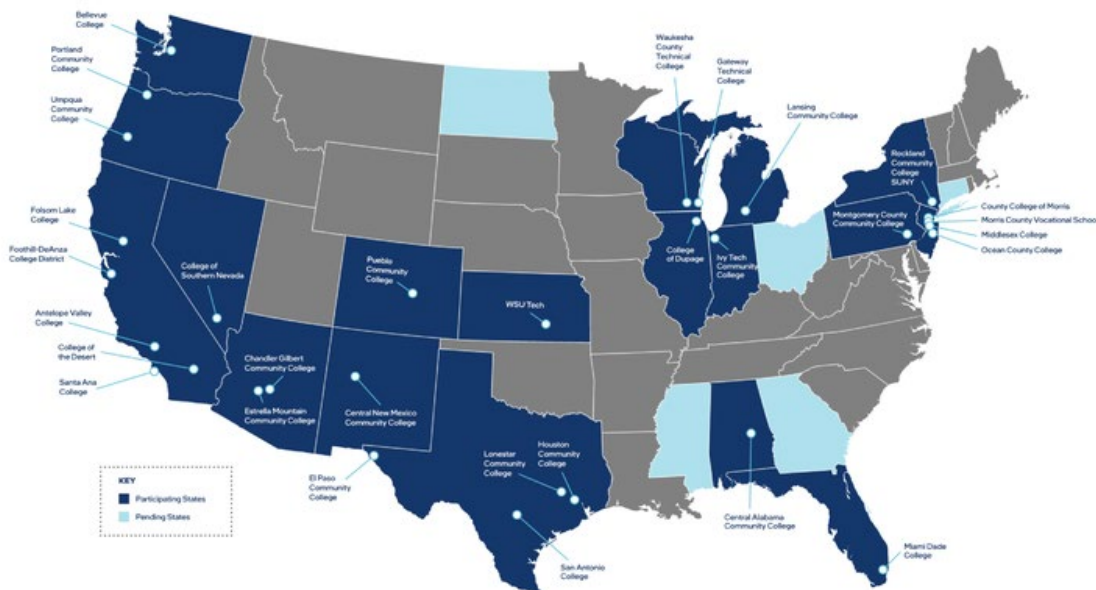
## Education Policy



# Community colleges and employer partners are teaming up to expand pathways to artificial intelligence jobs of the future

Community colleges have teamed up with major companies like Intel to create AI education opportunities to expand equitable pathways to new jobs in the innovation economy. They are "critical partners" says Intel's Carlos Contreras.

## BLOG POST



By  
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As [federal investments in emerging technologies](#) accelerate, community colleges, which have long prepared the “skilled technical STEM workforce” are taking on new roles to align

emerging technology with talent development and expand equitable pathways to emerging jobs of the future. This is particularly true in "innovation economy" industries like [autonomous vehicles](#), [electric vehicles](#), and [artificial intelligence](#).

Beyond the usual challenges associated with creating [high-quality workforce programs](#), colleges must partner strategically with employers, government, and [tech-based economic development](#) entities to excel in this expanded role.

I sat down with [Intel](#)'s Senior Director of AI and Digital Readiness [Carlos Contreras](#) to learn more about one major employer's approach to expanding community college pathways to jobs of the future.

## How does Intel work with community colleges on AI education?

Launched in 2020, Intel's [AI Workforce program](#) provides over 225 hours of AI content to community colleges, [training for faculty](#), and implementation guidance to develop AI certificates, augment existing courses, or launch full AI associate degree programs for their students. Intel's pre-packaged courses cover data analytics, AI ethics, natural language processing, AI model training, computer vision, and coding.

**Intel aims to have AI education at the community college level in all fifty states by 2023.**

[Thirty-one schools in eighteen states](#) have joined the program as of December 2021, and Intel and [Dell Technologies](#) have also funded the [American Association of Community Colleges \(AACC\)](#) to create an [AI community of practice](#) that will expand AI offerings at community colleges to all fifty states by 2023. Later this year, the selected participants will be invited to join AACC's peer network, offered technical assistance, and awarded \$40,000 to support their AI programming.

**"We can't wait until AI is firmly established to train the workforce. At that point, it might be too late and jobs can go somewhere else. Our community colleges have an opportunity to establish themselves as AI community resources."**

**- [Carlos Contreras](#), Senior Director for AI and Digital Readiness, Intel**

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Type of AI educational offering	Example ▼
<b>K-12 programs</b>	<b>Miami Dade College</b> is offering an AI Summer camp for <a href="#">high school students</a> , and <b>Morris County Vocational School District</b> and the <b>County College of Morris</b> teamed up for <a href="#">AI offerings at the high school and community college level</a> .
<b>Associate's degrees</b>	<b>Maricopa Community College District's Chandler-Gilbert College and Estrella Mountain College and Houston Community College</b> <a href="#">have established associate's degree program</a> in AI whose first class of students graduated this spring.
<b>Bootcamps and short courses</b>	<b>Ivy Tech Community College</b> won a U.S. National Security Agency grant to partner with universities on <a href="#">military transition program focused on AI and cybersecurity</a> , <b>Folsom Lake College</b> introduced its <a href="#">first AI and Data Science course</a> , and <b>Middlesex Community College</b> <a href="#">created a bootcamp in AI</a>
<b>Certificates</b>	<b>Central New Mexico</b> offers a <a href="#">non-credit certificate</a> in Artificial Intelligence and Machine Learning while <b>Miami Dade College</b> is offering a <a href="#">for-credit certificate</a> .

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## What AI jobs are available to community college students?

Contreras described Intel's approach to the AI labor market as a pyramid, "At the top, you have top researchers, PhDs usually, followed by middle-skill workers, and entry-level workers towards the base of the pyramid." Community colleges train for the latter two categories.

So far, Intel has hired two community college interns, which resulted in Intel creating a new job category – AI engineering technicians. **Miami Dade College**, one of Intel's partners, is

training for “[AI Specialist](#)” roles while **Ocean County College** lists a [number of regional employers and roles for graduates](#) of its associate’s degree program.

But it’s not just bachelor’s degree-level education that’s a focus for Intel and others in the [tech industry](#).

[A report](#) from Georgetown University's Center for Security and Emerging Technology identified fifty-four occupations that constitute the AI workforce – and a notable share of the AI workforce has less than a bachelor’s degree. The researchers in a [follow-on report](#) and [panel](#) urged policymakers to support degree and non-degree community college-level AI education and for employers to embrace AI talent that has come up through non-degree pathways.

Intel's college partners are only just graduating their first classes of students, so there isn’t outcomes data to report just yet.

However, Intel plans to monitor student outcomes. Across their partnerships, some employers have committed internships and work-based learning opportunities and new non-profits like [Hack.Diversity](#) are helping to place Black and Latinx students from community colleges in AI jobs.



Arnav Bawa, a student in the artificial intelligence program at Chandler Gilbert Community College, has developed an AI application to interpret EEG brain waves.

Source: Intel Corporation

**“The big advantage in having the program at our level is that Maricopa Community College District is a very diverse place and one of the big risks in AI is that if all of the work is done from one perspective, the AI can become bias, so it’s really important to have our diversity of voices participating in this [partnership].”**

**- *Chris Zagar - Computer Science Faculty at Estrella Mountain Community College***

Not all colleges are focused solely on the entry or middle-skill AI workforce. Maricopa Community College District supported Intel’s suppliers with upskilling working professionals with university degrees. Contreras cited the ability of community colleges to be nimble, affordable, and willing to customize training programs, through bootcamps for example, as reasons why they are an ideal partner for upskilling.

He also affirmed something I have heard from community college leaders like **Antonio Delgado**, Vice President of Technology Partnerships at **Miami Dade College**: Sometimes community colleges play the **unexpected role** of helping local employers identify opportunities for emerging technologies.

**“In some instances, community colleges are actually leading the conversation with local small businesses in terms of what capacity they’re trying to build, so they’re almost like ambassadors of AI technology.”**

**- *Carlos Contreras, Senior Director for AI and Digital Readiness, Intel***

When **Maricopa Community College District** conducted a job market analysis to map the skills included in its AI program with regional needs, they found that many financial sector employers including Wells Fargo and State Farm were seeking the same skills taught in their programs.

Other colleges explored regional and sector-specific AI task use cases through new industry advisory boards with representation from the pharmaceutical industry and biotech companies in New Jersey or oil and gas companies in Texas.

Based on this feedback, Intel soon hopes to build out new resources for colleges to create credentials and courses relevant to specific geographic and sector needs including in advanced manufacturing and healthcare.

Emerging technologies can be infamous for their **hype cycles**, and community colleges must carefully navigate them when training for new kinds of jobs. In addition to employer partnerships, more colleges are working with **tech-based economic development organizations** which have a deep understanding of the innovation economy, workforce training needs, and risks.

As AI matures over the **next ten years**, Intel, the AACC, community colleges, and a variety of intermediary partners believe that their programs will address labor market needs while creating paths for a more diverse and broader swath of society to benefit from jobs born out of the innovation economy.

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## More on community colleges, tech jobs, and the Future of Work:

- [How can community colleges take an institutional approach to Future of Work training?](#)
- [What community colleges should know about the U.S. National Science Foundation's new Technology, Innovation, and Partnerships Directorate](#)
- [Community College Partners Up to Create First Certificate Program to Train Autonomous Vehicle Truckers](#)
- [Community colleges can use this U.S. Department of Energy-sponsored map to guide students into "energy efficiency" careers that don't require degrees](#)
- [Empowering community colleges to train for the Future of Work](#)
- [Colleges and "Federally Funded R&D Centers" are partnering to align technology and talent development](#)
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