Information and Communication Technologies

Date: 2/27/2025
Time: 8:45 - 11:00
Location: Dorothy Inghram Learning Center
Hosted by: SBCROP
Facilitator: Deidra Puentes
Advisory Documents: https://bit.ly/ICT_AdvDocs24-25

Advisors:

Adam Doty, Director, Technology Services, San Bernardino County Superintendent of Schools
Aldo Sifuentes, College Director of Technology Services, San Bernardino Valley College
Jeffrey Huynh, Technical Support Specialist II, San Bernardino Valley College
Nathan Vincent, CEO/Managing Consultant, EQL Consulting, LLC.

K12 Educational Participants:

Alcira Anguiano, Fontana Unified, CTE Business Applications
Christopher Avella, Riverside Unified, Teacher
David Aman, Colton-Redlands-Yucaipa ROP, K12 Pathway Coordinator
Doris Hernandez, Colton Joint Unified, Work Based Learning Technician
Evelia Terriquez, Colton Joint Unified, Work Based Learning Technician
Gary Smead, Fontana Unified, CTE Teacher
James Hattar, Colton-Redlands-Yucaipa ROP, Curriculum Developer/TOA
Kari Salinas, REAL Journeys Academy, CTE Coordinator
Michael Yu, San Bernardino City Unified, College and Career Teacher
Miguel Georgie, San Bernardino City Unified, CTE Educator
Rhonda Clement, Cal Baptist University, Director of Strategic Initiatives
Sean Baldwin, Colton-Redlands-Yucaipa ROP, GIS Teacher
Zayna Thorpe, Nuview Unified, Registrar II/SIS Tech and CTE Coordinator

Panelist Introductions:

Adam Doty: I am the Director of Technical Services at San Bernardino County Superintendent of Schools. I recently passed my probation period and have been in this role for a little over eight months. Before this, I spent eight years as the Director of Technology at Riverside County Office of Education. Prior to that, I was the Director of Engineering and Technology for Walnut Valley Unified School District. I have been in the industry for a little over 20 years, starting as a student worker at the University of La Verne, where I began my journey in the technical field.

Aldo Sifuentes: I am the Associate Director of Services for San Bernardino Valley College. I got my start as a student worker at UC Santa Barbara in the same department, providing technology support for faculty and assisting faculty with classroom and event technology. That

experience opened the door for me, and in 2007, I came to San Bernardino Valley College in the same role that Jeffrey holds now. I worked in that position for about six years, and now, after more than 2.5 years in my current role, I have been serving as Director.

Jeffrey Huynh: I am a Technology Support Specialist at San Bernardino Valley College, working under my director. I started my career at UC Santa Barbara, where I worked as a student worker and later as a Media and Technology Technician, supporting classroom technology. I have been in the field for about nine years and returned to San Bernardino three years ago. Originally from Montana, I moved back during the pandemic, and shortly after, this opportunity to work at San Bernardino Valley College came along.

Nathan Vincent: I work in consulting, but in addition to that, I have experience working with high schools. I got into tech after graduating with a degree in Management Information Systems (MIS). I worked as a technology coach and information systems manager in New Jersey. During that time, I received a call from the Department of Homeland Security informing me that I was part of an investigation because my information had been compromised. That experience made me realize that even with my tech background, I was still vulnerable to cyberattacks.

Since then, I have earned multiple certifications in cybersecurity, and started a company to help small businesses and corporations strengthen their security. I have also worked with school districts to support their cybersecurity pathways and initiatives. When the pandemic hit, I moved to California with my five-year-old daughter, and we've been enjoying the sunshine ever since.

Minutes:

The Information Communication Technology panel was composed of four industry professionals with varying degrees of responsibilities in their respective career fields. The following is a summary of their responses to the questions posed at the advisory.

Question 1: What emerging trends and technologies do you believe will drive the most change in this industry over the next 3-5 years, and what should teachers and students focus on to stay ahead?

Adam Doty: Artificial intelligence (AI) is the most significant trend currently impacting all sectors, not just IT. Adam explained that while AI has existed for years, recent advances in language models have made tools like ChatGPT and Copilot widely accessible and more powerful. He shared practical examples from San Bernardino County Superintendent of Schools, where non-technical staff have used AI to learn HTML, build websites, and automate Excel tasks through scripting—all by leveraging AI tools to guide their learning. These stories demonstrate the value of self-directed learning and integrating AI into workflows. Adam emphasized that while AI may reduce the need for some routine jobs, it creates new opportunities for those who understand how to use it effectively. For CTE programs, this highlights the importance of teaching students how to integrate AI into their work, use it to enhance productivity, and

understand its limitations. Educators should also prepare students for a shifting job landscape where roles like editors and developers replace traditional writers and manual tasks are increasingly supported by cloud and AI technologies.

Aldo Sifuentes: Challenged the common belief that AI will take away jobs, emphasizing instead that it is a tool to improve efficiency and output. He explained that the real value of AI lies in the user's ability to understand the subject matter well enough to evaluate the results AI provides. Without foundational knowledge, users cannot verify or effectively apply AI-generated content. For instance, while AI can help draft emails or generate code, the person using it must still determine whether the output is accurate and useful. Aldo suggested that, with AI, professionals may now produce significantly more work in less time—such as writing 10 articles instead of two—but this requires the right skill set and mindset. CTE educators should ensure students build strong core knowledge in their fields and develop critical thinking skills so they can use AI as a powerful aid rather than a crutch.

Nathan Vincent: Reinforced the idea that AI is a tool, not a replacement for human skills. He compared AI to early search engines—powerful when used correctly, but unreliable without critical thinking. He illustrated this with a real-world example of a lawyer who used ChatGPT to write a legal brief, only to discover that the AI fabricated entire cases. Nathan cautioned that students must be trained to verify AI outputs and not accept them at face value. He also highlighted a broader caution: many new AI tools may not be sustainable, just like startups during the dot-com bubble. CTE educators should prepare students for rapid technological shifts while focusing on long-lasting, foundational skills. Additionally, Nathan emphasized cybersecurity as a major emerging trend. He explained that cybersecurity is no longer just an IT issue—it is a business-wide concern, and all employees must be trained, regardless of their job title. He cited a case where a small company lost millions to a cyberattack due to a lack of proper protocols. CTE programs should integrate cybersecurity training across disciplines and teach students about governance, risk, and compliance, even in non-technical career paths.

Jeffrey Huynh: Discussed parallels between the rise of AI and the early internet era, when people were warned not to believe everything they saw online. Now, with AI able to generate vast amounts of content, that lesson is even more relevant. He likened today's access to AI to having a calculator or smartphone—ubiquitous, convenient, and often taken for granted. Jeffrey emphasized the importance of training students to critically evaluate what AI produces and to understand that the technology is still evolving. As future generations will grow up with AI from birth, it's essential that they not only learn how to use these tools but also develop the judgment to question and verify their outputs. For CTE teachers, this means embedding AI literacy into the curriculum alongside traditional digital literacy skills.

Question 2: How should our Career Technical Education (CTE) pathways adapt to ensure students are well-equipped to meet future demands and changes in this industry?

Nathan Vincent: Emphasized that CTE programs should prioritize teaching cybersecurity through widely accepted frameworks like the NIST Cybersecurity Framework (CSF). These

standards help students understand how different systems work across various platforms, even when terminology or tools change from company to company. He explained cybersecurity as a layered, defense-in-depth model and encouraged educators to simplify complex concepts using real-world analogies—like securing a home with multiple protective layers. Nathan also stressed the importance of foundational concepts over specific technologies. Since tools and vendors will always evolve, students need to be grounded in logic, communication, and critical thinking. He added that the most essential skill students should develop is curiosity. Those who explore, experiment, and build their own side projects are more likely to succeed and stand out in interviews—not just because of their skills but because of their passion. He encouraged educators to foster environments where students are constantly tinkering and solving problems independently, as this builds confidence and leads to mastery.

Aldo Sifuentes: Shared that entry into the IT field can happen from nearly any starting point, including roles like student worker, AV technician, or cable installer. The key, he said, is critical thinking—being able to trace signals from one point to another or solve problems when systems don't work as expected. Over time, this problem-solving skill leads individuals to learn more about related systems and grow into higher-level positions. Aldo emphasized that CTE pathways should encourage students to explore hands-on opportunities, whether through help desk roles or field technician work, as these entry-level positions teach technical skills alongside crucial soft skills like customer service, empathy, and clear communication. His own career started because he responded to a job post asking if he could operate a DVD player—and from that moment, he took initiative and continued to learn. Aldo's story illustrates the importance of encouraging students to say "yes" to opportunities and gain real-world experience early, even if the role doesn't match their original career goals.

Jeffrey Huynh: Reinforced the importance of starting early, pointing out that students can pursue certifications like Microsoft's even while still in high school. Many colleges, including his, offer CTE programs that align coursework with certification exam prep, helping students gain practical, job-ready skills. He also encouraged students to take advantage of free learning platforms like YouTube to begin building their technical foundation. Sharing his own experience, Jeffrey explained that although he had a degree in chemistry and no formal background in IT, he landed his first tech role because of his ability to problem-solve, think critically, and communicate clearly across a variety of audiences. He emphasized that what matters most to employers is a candidate's ability to provide solutions—not just technical expertise. For educators, this means focusing not only on hard skills but also on teaching students how to explain technical issues in simple terms, work collaboratively, and approach problems with empathy and a service mindset.

Adam Doty: Highlighted the value of project-based learning in preparing students for the workforce. While certifications are helpful for getting past HR filters, employers are increasingly looking for candidates who can demonstrate problem-solving and adaptability—especially in environments where cloud technology, AI integration, and software interoperability are constantly evolving. At his college, Adam assigns projects where students must build systems in one cloud environment, tear them down, and rebuild them using different tools. This develops transferable skills and ensures students understand the "why" behind the tech—not just how to

follow steps. He emphasized that successful IT professionals aren't locked into one tool (like AWS or Azure); instead, they must understand how to integrate various tools and data systems to solve business problems. Adam also advised students to build a portfolio of hands-on work—whether by volunteering to run a website, managing social media, or launching a small project like a t-shirt business. These experiences show initiative and problem-solving, which often weigh more heavily in hiring decisions than formal education. He stressed that students don't necessarily need a college degree to succeed in tech, but they do need curiosity, drive, and demonstrable experience.

Question 3: What essential skills, educational qualifications, and certifications are currently required to gain employment in your industry, and how might these requirements change in the near future?

Aldo Sifuentes: Emphasized the importance of building both technical and instructional skills. He suggested having students create how-to videos—like updating a computer or setting up a printer—as a way to build instructional technology skills. This not only reinforces technical learning but also introduces students to the growing field of instructional content creation. He highlighted the value of certifications in audiovisual systems programming, particularly those that involve interfacing with control systems for devices like projectors, speakers, and displays. These certifications are widely applicable in many workplaces, and students can begin by learning to install and manage AV equipment before progressing to programming it. Aldo also recommended networking certifications like Cisco's CCNA, noting that while it's tied to a specific company, the core concepts are transferable to other brands since many systems emulate Cisco's operating environment. For CTE educators, Aldo's insights underscore the importance of including hands-on projects, multimedia instruction, and hardware integration in the curriculum to mirror real-world IT responsibilities.

Adam Doty: Pointed to foundational certifications as key stepping stones for students entering the field. He recommended starting with CompTIA certifications such as A+, Network+, and Security+, which demonstrate baseline competency in essential areas. However, he also noted that cloud certifications from platforms like AWS, Microsoft Azure, or Google Cloud may offer more advanced and practical experience, sometimes at a lower cost. He encouraged students to pursue cloud-based projects that show they've used and built within these environments—emphasizing the importance of practical application over theory. Adam also mentioned that although certifications help candidates get past resume screenings, hands-on experience and problem-solving ability are even more critical. For educators, this suggests integrating cloud labs, sandbox environments, and project-based learning into coursework to develop both technical skill and adaptability.

Jeffrey Huynh: Reiterated the value of foundational certifications but also shared practical considerations, such as the rising cost of the A+ certification and its required renewals. He noted the increasing shift toward cloud-based systems like AWS and advised students to pursue certifications offered directly through these providers, many of which can be completed online.

He emphasized the flexibility of online programs and the importance of test-taking strategy—recommending in-person proctored exams to avoid issues common with remote proctoring systems. For educators, his feedback suggests preparing students not only with technical knowledge but also with guidance on certification logistics, cost, and test prep strategies to ensure they are well-positioned to complete credentialing successfully.

Nathan Vincent: Highlighted the growing accessibility of industry-recognized certifications through platforms like Google and Coursera. He advised educators to recommend certification paths like Google IT Support or Security+ that include built-in learning modules, helping students who may struggle with traditional test-taking. He stressed that certification is just the beginning—students should view it as part of a broader personal growth journey. Foundational knowledge in IT can evolve into managing people and projects, especially as students gain more experience and confidence. Nathan encouraged educators to cultivate a growth mindset in their students, pushing them to think not just about technical execution but also about team leadership, planning, and systems-level thinking. Project management skills, he said, are especially valuable as students move from individual contributors to leadership roles in tech environments.

Question 4: What are a few occupations within the industry that do not require advanced degrees yet offer a living wage? Additionally, what advice would you give to a recent high school graduate that would help them gain employment in your industry?

Adam Doty: Emphasized that the IT field offers numerous entry-level roles that do not require a college degree, especially in government and education settings. Certifications can help students get past resume screenings, but what truly stands out is a candidate's growth mindset, communication skills, and ability to explain technical issues simply. He pointed out that hiring managers often prefer candidates who show curiosity, initiative, and self-learning—even with limited experience—over someone who's been doing the same task for years. Adam stressed the importance of interview skills and advised educators to help students practice articulating both their technical and soft skills. He also encouraged CTE programs to connect students with internship opportunities, especially over the summer, noting that many interns he has worked with were eventually hired. For students, Adam recommended leveraging even informal experience—like volunteering to run a church website—as a way to build credibility, showcase initiative, and break into the field.

Nathan Vincent: Underscored that in IT, the ability to solve problems, work well with others, and adapt to team dynamics often outweighs credentials. Employers look for people who can take complex issues and simplify them for business leaders, bridging the gap between IT and management. Nathan advised students to not be discouraged by intimidating job descriptions that demand excessive experience—they often reflect employers' uncertainty rather than actual job requirements. Instead, students should pursue real-world experiences, even through

volunteering, to build confidence and expand their professional network. He urged students to skip the traditional “gap year” unless they spend it actively learning, building projects, or forming industry connections. He shared his own entrepreneurial path, which began with learning HTML in college and saying “yes” to a project opportunity, emphasizing that being curious, consistent, and visible in the field can create long-term success. Nathan encouraged CTE educators to reinforce that the value students build through experience will lead to both opportunity and financial rewards.

Aldo Sifuentes: Reinforced that IT is full of accessible opportunities that do not require a degree. Entry-level roles like help desk support or AV installation can open doors, especially when students show initiative. He encouraged students to take every small opportunity seriously, such as helping someone set up a printer, because that reliability and positive attitude are what employers remember. He shared that students can begin building a portfolio by creating websites using platforms like Google Sites for family or friends, which showcases their initiative and growing skill set. Aldo also highlighted the importance of students being open to small tasks and willing to learn outside of their job description, as that’s often how they get noticed and promoted. Currently, he’s working to hire more student workers and build a student tech workforce that can support other students with tasks like Canvas support and device troubleshooting. For CTE educators, Aldo’s advice points to the need for strong work-based learning structures and student tech assistant programs embedded in campus operations.

Jeffrey Huynh: Pointed out that technical skills alone are not enough—what impresses him most in interviews is a student’s willingness to find solutions when they don’t know the answer. He values candidates who simply say they’d "Google it" or collaborate with a teammate when faced with something unfamiliar. He shared that his own path began by building a strong work ethic and relationships with mentors, which ultimately led to career opportunities. He emphasized that networking and dependability are as important as knowledge. To help students gain real experience, he recommended volunteering at high school weekend events to provide AV and tech support, which helps build practical skills and resumes. For CTE educators, this underscores the importance of encouraging students to seek out informal opportunities to apply their skills, while also reinforcing the value of professional conduct, teamwork, and customer service in every interaction.

Audience Questions:

Audience question 1: We've talked about emerging technologies, and while virtual reality (VR) is already here, augmented reality (AR) seems underutilized in education. I recently tested an AR-based automotive repair program where goggles identified the vehicle and presented an interactive, exploded view for selecting repair tasks—very impressive and educational. Why aren't we seeing more of this in classrooms? I use VR in mine, but I haven't seen AR implemented widely, especially in high schools.

Nathan Vincent: Highlighted a company he works with called Sea Space that uses AR-enabled laptops, eliminating the need for traditional AR glasses. These devices use retinal projection technology to display 3D visuals directly onto the eye, allowing users to interact with exploded views of objects using a stylus. He emphasized how AR can provide hands-on interaction in real-world space, making it safer and more practical than VR in some environments. He also noted that every field has potential for enhanced learning through technology—it just requires vision and integration.

Jeffrey Huynh: Described San Bernardino Valley College's investment in immersive technology, including a truck driving simulator with full-size displays and controls, as well as upcoming developments in aviation and nursing simulation labs. He mentioned that their nursing program is now incorporating AR capabilities for simulated surgeries and hospital-based experiences like monitoring vitals and documenting patient care.

Aldo Sifuentes: Emphasized that successful AR/VR implementation depends heavily on faculty leadership. IT departments can support and configure technology, but instructional success requires educators to champion its use and build curriculum around it. He shared an example where their active studies professor built a VR curriculum from scratch to help students experience global events like protests and wars. Without that faculty initiative, he noted, it's difficult to get these technologies off the ground.

Key Takeaways and Action Items by Panelist

These key takeaways and action item lists highlight each respondent's insights, concerns, and suggested actions to address industry trends and to prepare students for the evolving landscape within their respective industries.

Adam Doty, Director, Technology Services, San Bernardino County Superintendent of Schools

Key Takeaways:

- Predicts artificial intelligence (AI), especially generative AI like ChatGPT and Copilot, will continue transforming workflows across industries.
- Emphasizes the importance of being vendor-agnostic and focusing on problem-solving over specific technologies or platforms.
- Highlights the value of hands-on, project-based experience and the ability to integrate multiple tools and systems.
- Notes certifications (CompTIA, AWS, GCP, Azure) are helpful for entry but emphasizes real-world application and curiosity-driven learning.
- Identifies soft skills, particularly communication and customer service, as essential for long-term success in IT roles.

Action Items:

- Incorporate project-based learning into CTE pathways, including cloud platform deployment and system integration projects.
- Prioritize teaching problem-solving, adaptability, and systems thinking over memorization of tools.
- Prepare students for real-world interviews by practicing how to communicate technical knowledge in simple, clear terms.
- Promote summer internships and self-initiated projects as pathways to employment and skill development.
- Integrate AI tools into curriculum activities to expose students to how AI can support creativity, productivity, and problem-solving.

Aldo Sifuentes, College Director of Technology Services, San Bernardino Valley College

Key Takeaways:

- Views AI as a powerful tool that can improve productivity rather than eliminate jobs, stressing the importance of foundational technical knowledge to verify AI outputs.
- Emphasizes critical thinking, curiosity, and the willingness to say “yes” to small opportunities as keys to building a career in tech.
- Advocates for hands-on, entry-level roles like help desk or AV installation as excellent launch points into the IT field.
- Highlights the value of soft skills, especially in customer service, for building trust and credibility in technical roles.
- Promotes instructional technology and content creation as growing career areas that intersect with traditional IT.

Action Items:

- Build CTE curriculum around troubleshooting and real-world tasks like AV setup, basic networking, and tech support.
- Encourage students to create instructional content (e.g., videos or tutorials) as a way to reinforce learning and demonstrate skill.
- Include certifications such as Extron, CTS, and CompTIA (especially Network+ and A+) in CTE pathways.
- Promote internships, campus roles, and peer tech support jobs to help students build experience and visibility.
- Embed professional behavior training (initiative, adaptability, teamwork) throughout CTE coursework.

Jeffrey Huynh, Technical Support Specialist II, San Bernardino Valley College

Key Takeaways:

- Encourages early exposure to certifications and tech tools, noting that students can begin building skills in high school through platforms like YouTube, AWS, and Microsoft.
- Emphasizes the importance of problem-solving, resourcefulness (e.g., "Google it"), and peer collaboration in tech roles.
- Highlights that hiring decisions are often based more on interpersonal skills and curiosity than formal credentials.
- Attributes career success to mentorship, networking, and maintaining a positive and helpful attitude.
- Supports student work-study programs and community volunteer opportunities as resume builders.

Action Items:

- Promote certifications (Microsoft, AWS) and online self-paced learning tools as early-access opportunities for high school students.
- Reinforce real-world problem-solving and critical thinking as core competencies across all CTE courses.
- Offer mock interviews and peer collaboration projects to build interpersonal and communication skills.
- Provide students with volunteer opportunities or event support roles to gain technical and customer-facing experience.
- Cultivate a mentoring culture within schools to help students connect with professionals and grow through relationships.

Nathan Vincent, CEO/Managing Consultant, EQL Consulting, LLC

Key Takeaways:

- Predicts cybersecurity will grow significantly, transitioning from a shared responsibility to a specialized department in most organizations.
- Stresses the importance of foundational concepts and standards (e.g., NIST Cybersecurity Framework) to ensure adaptability across changing platforms.
- Promotes curiosity, problem-solving, and project-based learning as essential to growth and career advancement.

- Urges students to build hands-on experience and professional networks, even during "gap years."
- Highlights the need for students to bridge technical skills with business communication and teamwork.

Action Items:

- Include cybersecurity fundamentals and layered security models in CTE pathways, tied to NIST or similar frameworks.
- Emphasize curiosity, passion, and project-building through student portfolios and self-initiated work.
- Develop CTE units that teach students how to communicate technical ideas to non-technical audiences.
- Encourage job-shadowing, internships, or volunteer-based tech support opportunities to build confidence and networks.
- Incorporate certifications such as CompTIA Security+, Google Professional Certificates, and project management into pathways.

Labor Market Information

The following labor market information was sourced from https://www.onetonline.org/ on March 21, 2025.

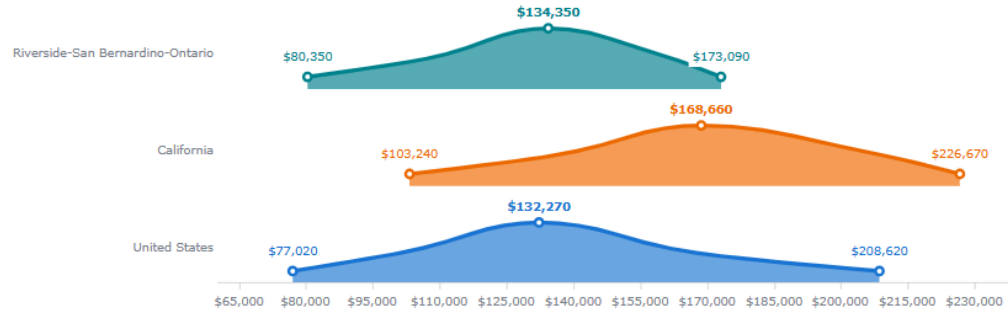
Local Wages

15-1252.00 - Software Developers Bright Outlook

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$134,350**.
- 10% of workers earn **$80,350 or less**.
- 10% of workers earn **$173,090 or more**.

In California:

- Workers on average earn **$168,660**.
- 10% of workers earn **$103,240 or less**.
- 10% of workers earn **$226,670 or more**.

In the United States:

- Workers on average earn **$132,270**.
- 10% of workers earn **$77,020 or less**.
- 10% of workers earn **$208,620 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

15-1252.00 - Software Developers Bright Outlook

View trends for state: California Go

In California:

Employment data for **Software Developers and Software Quality Assurance Analysts and Testers**.

Employment (2020)	321,600 employees
Projected employment (2030)	437,800 employees
Projected growth (2020-2030)	36%
Projected annual job openings (2020-2030)	39,040

In the United States:

Employment data for **Software Developers**.

Employment (2023)	1,692,100 employees
Projected employment (2033)	1,995,700 employees
Projected growth (2023-2033)	■■■■ 18% Much faster than average
Projected annual job openings (2023-2033)	125,100

California source: Projections Central 2020-2030 long-term projections. United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

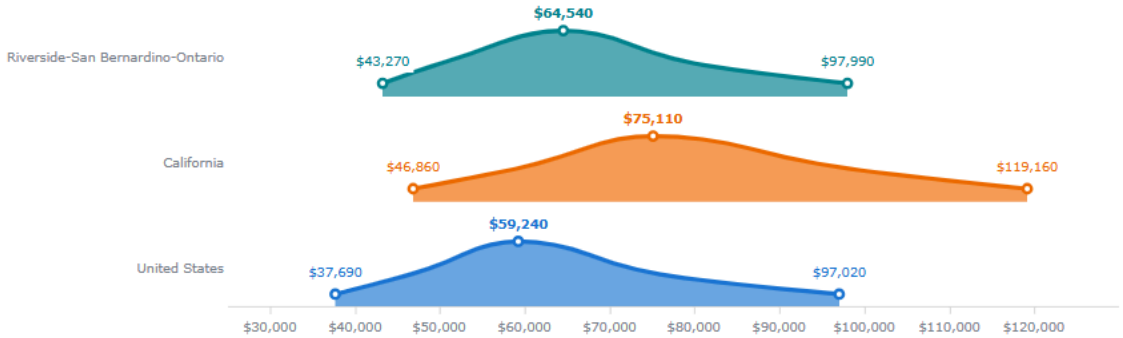
Local Wages

15-1232.00 - Computer User Support Specialists

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$64,540**.
- 10% of workers earn **$43,270 or less**.
- 10% of workers earn **$97,990 or more**.

In California:

- Workers on average earn **$75,110**.
- 10% of workers earn **$46,860 or less**.
- 10% of workers earn **$119,160 or more**.

In the United States:

- Workers on average earn **$59,240**.
- 10% of workers earn **$37,690 or less**.
- 10% of workers earn **$97,020 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

15-1232.00 - Computer User Support Specialists

View trends for state: California Go

In California:

Employment (2020)	66,600 employees
Projected employment (2030)	76,100 employees
Projected growth (2020-2030)	14%
Projected annual job openings (2020-2030)	6,070

In the United States:

Employment (2023)	725,300 employees
Projected employment (2033)	762,500 employees
Projected growth (2023-2033)	5% Average
Projected annual job openings (2023-2033)	50,600

California source: Projections Central 2020-2030 long-term projections. United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

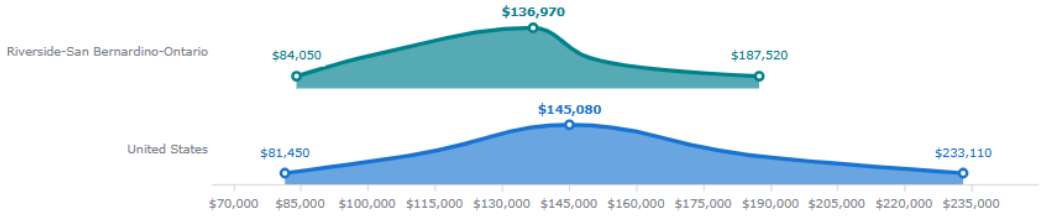
Local Wages

15-1221.00 - Computer and Information Research Scientists Bright Outlook

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$136,970**.
- 10% of workers earn **$84,050 or less**.
- 10% of workers earn **$187,520 or more**.

In California:

- Workers on average earn **$175,530**.
- 10% of workers earn **$95,210 or less**.
- 10% of workers earn **$239,200+ or more**.

In the United States:

- Workers on average earn **$145,080**.
- 10% of workers earn **$81,450 or less**.
- 10% of workers earn **$233,110 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

15-1221.00 - Computer and Information Research Scientists Bright Outlook

View trends for state: California Go

In California:

Employment (2020)	8,500 employees
Projected employment (2030)	12,000 employees
Projected growth (2020-2030)	41%
Projected annual job openings (2020-2030)	1,050

In the United States:

Employment (2023)	36,600 employees
Projected employment (2033)	46,000 employees
Projected growth (2023-2033)	■■■■ 26% Much faster than average
Projected annual job openings (2023-2033)	3,400

California source: Projections Central 2020-2030 long-term projections. United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

Local Wages

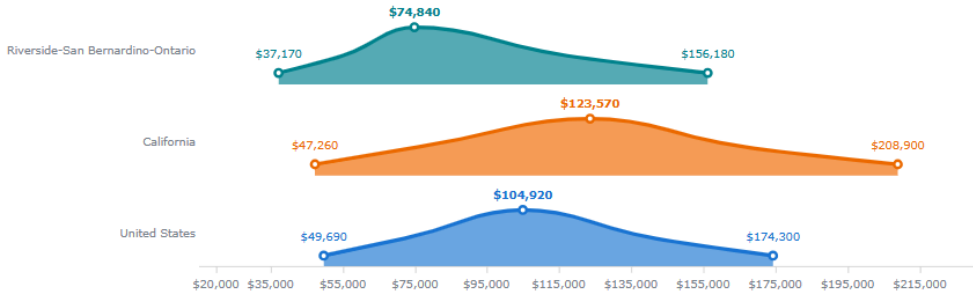
15-1299.08 - Computer Systems Engineers/Architects Bright Outlook

Wage data collected from **Computer Occupations, All Other**.

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

Wage data for **Computer Occupations, All Other**.

- Workers on average earn **$74,840**.
- 10% of workers earn **$37,170 or less**.
- 10% of workers earn **$156,180 or more**.

In California:

Wage data for **Computer Occupations, All Other**.

- Workers on average earn **$123,570**.
- 10% of workers earn **$47,260 or less**.
- 10% of workers earn **$208,900 or more**.

In the United States:

Wage data for **Computer Occupations, All Other**.

- Workers on average earn **$104,920**.
- 10% of workers earn **$49,690 or less**.
- 10% of workers earn **$174,300 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

15-1299.08 - Computer Systems Engineers/Architects Bright Outlook

View trends for state: California Go

In California:

Employment data for **Computer Occupations, All Other**.

Employment (2020)	107,900 employees
Projected employment (2030)	128,100 employees
Projected growth (2020-2030)	19%
Projected annual job openings (2020-2030)	10,550

In the United States:

Employment data for **Computer Occupations, All Other**.

Employment (2023)	470,900 employees
Projected employment (2033)	522,000 employees
Projected growth (2023-2033)	■■■■ 11% Much faster than average
Projected annual job openings (2023-2033)	34,800

California source: Projections Central 2020-2030 long-term projections. United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

Local Wages

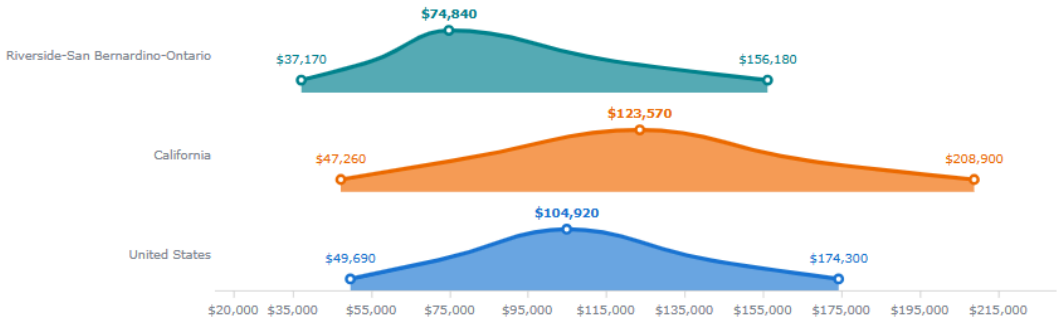
15-1299.05 - Information Security Engineers Bright Outlook

Wage data collected from **Computer Occupations, All Other**.

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

Wage data for **Computer Occupations, All Other**.

- Workers on average earn **$74,840**.
- 10% of workers earn **$37,170 or less**.
- 10% of workers earn **$156,180 or more**.

In California:

Wage data for **Computer Occupations, All Other**.

- Workers on average earn **$123,570**.
- 10% of workers earn **$47,260 or less**.
- 10% of workers earn **$208,900 or more**.

In the United States:

Wage data for **Computer Occupations, All Other**.

- Workers on average earn **$104,920**.
- 10% of workers earn **$49,690 or less**.
- 10% of workers earn **$174,300 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

15-1299.05 - Information Security Engineers Bright Outlook

View trends for state: California Go

In California:

Employment data for **Computer Occupations, All Other**.

Employment (2020)	107,900 employees
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Local Wages

11-3021.00 - Computer and Information Systems Managers Bright Outlook

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages

In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$165,960**.
- 10% of workers earn **$99,330 or less**.
- 10% of workers earn **$239,200+ or more**.

In California:

- Workers on average earn **$210,490**.
- 10% of workers earn **$128,710 or less**.
- 10% of workers earn **$239,200+ or more**.

In the United States:

- Workers on average earn **$169,510**.
- 10% of workers earn **$101,590 or less**.
- 10% of workers earn **$239,200+ or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

11-3021.00 - Computer and Information Systems Managers Bright Outlook

View trends for state: California Go

In California:

Employment (2020)	94,700 employees
Projected employment (2030)	117,200 employees
Projected growth (2020-2030)	24%
Projected annual job openings (2020-2030)	10,000

In the United States:

Employment (2023)	613,500 employees
Projected employment (2033)	720,400 employees
Projected growth (2023-2033)	■■■■ 17% Much faster than average
Projected annual job openings (2023-2033)	54,700

California source: Projections Central 2020-2030 long-term projections. United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.

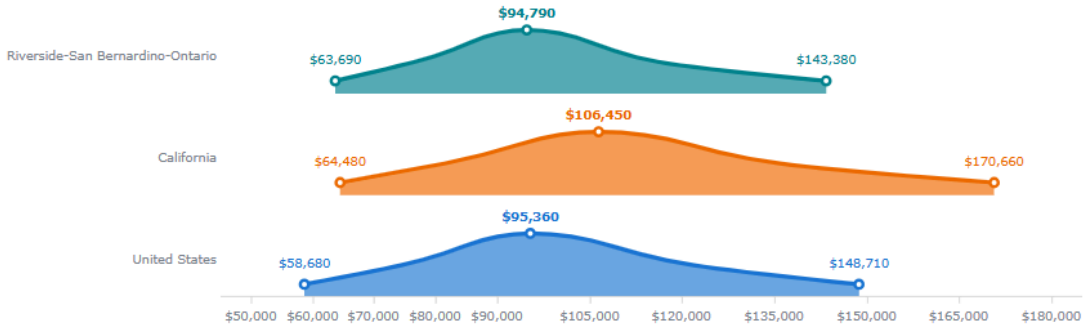
Local Wages

15-1244.00 - Network and Computer Systems Administrators

Wages for state: California Go

Wages near ZIP Code: 92408 Go

Annual Wages | Hourly Wages



In Riverside-San Bernardino-Ontario, CA:

- Workers on average earn **$94,790**.
- 10% of workers earn **$63,690 or less**.
- 10% of workers earn **$143,380 or more**.

In California:

- Workers on average earn **$106,450**.
- 10% of workers earn **$64,480 or less**.
- 10% of workers earn **$170,660 or more**.

In the United States:

- Workers on average earn **$95,360**.
- 10% of workers earn **$58,680 or less**.
- 10% of workers earn **$148,710 or more**.

Source: Bureau of Labor Statistics 2023 wage data.

California Employment Trends

15-1244.00 - Network and Computer Systems Administrators

View trends for state: California Go

In California:

Employment (2020)	29,100 employees
Projected employment (2030)	33,000 employees
Projected growth (2020-2030)	13%
Projected annual job openings (2020-2030)	2,370

In the United States:

Employment (2023)	335,400 employees
Projected employment (2033)	326,600 employees
Projected growth (2023-2033)	-3% Decline
Projected annual job openings (2023-2033)	16,400

California source: Projections Central 2020-2030 long-term projections. United States source: Bureau of Labor Statistics 2023-2033 employment projections. "Projected growth" represents the estimated change in total employment over the projections period. "Projected annual job openings" represent openings due to growth and replacement.