

# Computing Talent Initiative's Accelerate Program

Building an Inclusive Computing Talent Pipeline  
Through Open Source Experiences

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## Siegel Family Endowment

We are a foundation focused on understanding and  
shaping the impact of technology on society.

### About Siegel

Siegel Family Endowment employs an inquiry-driven approach to grantmaking that is informed by the scientific method and predicated on the belief that philanthropy is uniquely positioned to address some of the most pressing and complex issues facing society today. Our grantmaking strategy positions us to be society's risk capital. We support high quality work that will help us derive insights to timely questions and has high potential for future scale. Our focus is on organizations doing work at the intersection of learning, workforce, and infrastructure. We aim to help build a world in which all people have the tools, skills, and context necessary to engage meaningfully in a rapidly changing society. Siegel Family Endowment was founded in 2011 by David Siegel, co-founder and co-chairman of financial sciences company Two Sigma.

### Our Focus on Equitable Innovation Economy

We believe that innovation—whether it is technologically or organizationally driven—can happen anywhere, in any industry, region, or community. However, the foundations that support innovation are not accessible to everyone. We're asking how to bring innovative capacity closer to those who are now left out and make the rewards of innovative ideas accessible to everyone. As such, our vision is to promote an equitable innovation economy, one that enables all people and their communities to achieve prosperity.

### Community-Driven Innovation

Many communities have systems in place to generate growth: skilled workers, high quality universities, entrepreneurial spirit, quality of life, ample infrastructure, and a base of venture capital that can turn new ideas into profitable companies. However, not everyone within these communities participates in or benefits from rapidly growing, innovative sectors. Creating more equitable innovation means changing the systems that support innovation, so that more people are included in, and benefit from, rapidly growing and innovating sectors.

## About Grantee

The [Computing Talent Initiative](#) (CTI), an institute at California State University, Monterey Bay (CSUMB) provides college students studying computer science with the support necessary to obtain meaningful summer work experiences to complement their in-class learning and prepare them to contribute to the tech sector upon graduation. CTI's [Accelerate](#) program is free and open to all computer science students pursuing two- or four-year degrees in California.

The Accelerate program is built on four major pillars:

- 1 **Self-paced, scaffolded, online modules** allow students to develop their technical and professional skills beyond their classwork.
- 2 **A learning community of peers** offers inspiration, guidance, support, and accountability.
- 3 **Micro-internships** give students the opportunity to strengthen their resumes by making meaningful contributions to open source projects through a partnership with CodeDay.
- 4 **Programmatic support towards three types of paid summer work experiences**—a tech internship, a Research Experience for Undergraduates (REU), or a mentored open-source project—give students an opportunity to hone skills necessary for success in tech careers.



Accelerate is helping to diversify the talent pipeline in the tech sector, developing greater capacity in the field, and ensuring students have quality, applied learning experiences. This approach benefits the entire tech and computer science ecosystem, from students, to academic institutions, to industry. It offers a scalable approach for addressing the need for greater computing talent across sectors.



Graduates of CSin3, a precursor program, components of which are being scaled by CTI

### KEY TAKEAWAYS

- **As a single point of contact, CTI Accelerate can help companies source a higher capacity of talent from a wider array of institutions than they would be able to access on their own.** There is high quality computing talent at America's community colleges and regional public universities. Looking beyond traditional recruiting pipelines can help tech companies access these new populations of diverse and talented students.

- **Open source projects for students under the guidance of industry professionals offer a high-quality, low-cost, resource-light way for employers to engage with and cultivate potential future employees.** Through working with students on applied learning opportunities via open source projects, companies can reorient their relationship with higher education and revamp their hiring process to emphasize skills-based competencies. This approach increases the likelihood of hiring

high-quality candidates, reduces training time, increases productivity, and helps students develop lasting relationships with employers.

- **Flexible just-in-time, just-in-place support and accountability mechanisms in computer science education encourage future talent from low-income, first-generation backgrounds to remain in the pipeline, offering employers an expanded pool of atypically diverse candidates.** Removing barriers to entry, allowing

students to move at their own pace, and offering scaffolded learning experiences with opportunities for real-world application can help increase the likelihood that students will continue to progress in computer science education programs and remain at their hiring company for the long-term. Employers play a crucial role in achieving these outcomes by serving as mentors on open source projects, guiding students through their professional growth, and providing internship opportunities.

## Executive Summary

**I**ncreasingly, computing talent recruitment focuses on [skills-based hiring](#). Yet companies of all sizes face three conundrums in pursuing this approach. First, how can candidates certify their preparation and skills? Second, how can companies engage candidates and help to shape their training? And finally, how can companies access a large enough pool of candidates in order to meet their talent acquisition goals?

[The Computing Talent Initiative](#) helps companies address all three of these challenges by developing **capacity** at institutions with untapped potential computing talent; investing in **quality** instruction and applied learning opportunities to prepare them; and building bridges between this **diverse** group of computing students and industry.

CTI's [Accelerate](#) program partners with industry to provide both technical and career development support to computer science students across California, with a particular **focus on those attending community colleges and regional public universities**. **Supports include:**

- Online learning programs focus on **technical skills**, including programming and problem-solving using Python, understanding large codebases and their software architecture, and Git workflow, among others.
- **Career development** support focuses on subjects like technical and behavioral interview preparation, resume and LinkedIn profile development, and networking techniques, among others.
- A **learning community** features group projects and peer accountability, allowing students to apply their learning and receive support.
- **Connections with tech professionals** through mentorship, mock interviews, and presentations give students the confidence and connections necessary to be competitive for career opportunities, offer a professional development opportunity for employees of tech companies, and give CTI's industry partners access to a talent pool that is more socioeconomically diverse than talent tapped through traditional recruiting approaches.
- Accelerate students obtain paid **summer work experiences** in industry through a tech internship, an REU (Research Experience for Undergraduates), or by doing an open source project through CTI's partnership with CodeDay.

Students who participate in the program leave well-equipped to enter the workforce in computing roles because the program fills in gaps in their preparation and allows participants to develop applied skills, according to Sathya Narayanan, CTI's director and a professor of computer science at CSUMB. Narayanan says, "Our goal is to guide students to a meaningful summer work experience by the second summer of their college career," which is uncommon for computer



A CTI Learning Engineer leads an enrichment workshop

science students so early in their education. "Our hypothesis is that such an experience will strengthen our students' sense of belonging in the computer science field and will increase their likelihood of staying in the field and completing their college education."

That's a novel approach to college computer science education, which often prioritizes students fulfilling course requirements over the skill-building and networking necessary for career success. By focusing on students at community colleges and regional public universities - institutions that don't typically have the capacity and resources to supplement classroom learning with applied learning opportunities and career support - it also offers a new way of fostering socioeconomic diversity in a tech sector that [often struggles](#) to recruit diverse candidates. Offering a more integrated approach to computer science college education and developing a diverse pipeline to industry requires harnessing and building relationships among a complex web of stakeholders, including students, professors, academic advisors, career counselors, and the tech industry—each with their own systems, histories, requirements, and customs.

That's a tall order, but the CTI team has been pleased with the progress they've made. Industry partners are enthusiastic about the high-quality and socioeconomically diverse students they've met through the program. Industry professionals have found Accelerate mentorship opportunities rewarding. A high percentage of students who complete the Accelerate program go on to computing careers. The program has also received [substantial investment](#) from California's state legislature and is demonstrating it can scale to serve thousands of students over the next five years.

## Core Elements: What Makes the Program Work?

**A**ccelerate's open, flexible, and inclusive design allows students from multiple institutions with different schedules and demands on their time to engage and participate in the program, helping to develop a diverse pool of high-quality computing talent for the tech sector. Industry is also actively engaged in this process. Tech professionals mentor students who participate in open source projects in collaboration with CodeDay; help students prepare for technical interviews; and share their insights as speakers to Accelerate cohorts. Companies host students for micro-internships and help CTI tweak curricula and learning opportunities to reflect the skills needed to succeed in the computing field.

Accelerate's curriculum is broken down into appropriately

designed stepping stones, giving students opportunities to pick up where they left off even if they fall behind due to other demands on their time. That's key to helping students from historically under-resourced communities develop the technical skills and relationships needed to successfully land a job in computing fields. The program's incremental approach to skill development begins with learning modules, and ultimately helps students land industry internships that provide a clear pathway to future full-time employment. These learning opportunities are often otherwise inaccessible to students at regional and community colleges, but are critical steps in the process of establishing a successful computing career. Further, they allow companies to access and help shape the skill development of tech talent from diverse backgrounds.

### Kania Gandasetiawan Accelerate Participant



**KANIA GANDESETIAWAN** is now a software engineer at LinkedIn, but she began her career as an elementary school music teacher. With professional development opportunities on hold during the early months of the COVID-19 pandemic, Gandasetiawan had some extra time on her hands and found herself experimenting with the possibility of creating music apps.

"When I was teaching, I often wanted to share helpful music apps with my students, but I needed to make sure that those apps fit certain requirements that may be necessary in a school setting," Gandasetiawan recalls. "I thought, 'If I just make my own apps, then I can make them

match the criteria.'"

Gandasetiawan found that the coding work to make apps was challenging, but rewarding and enjoyable. She enrolled in [Orange Coast College](#), a community college, to pursue an associate degree in computer science. She first heard about CTI's Accelerate program during her second semester as she was researching internship opportunities, and applied in order to develop her problem solving skills and learn strategies to effectively articulate her thinking in ways that would be useful during technical interviews.

Through Accelerate, Gandasetiawan learned about how to apply the [UMPIRE method](#) to problem solving. She says that approach has been enormously valuable both in landing a position, and on-the-job.

Gandasetiawan likens her college courses to learning and developing strong fundamental operations in math. Accelerate provided opportunities to apply those fundamental operations in real-world settings. "The college curriculum teaches you how to add, subtract, multiply, and divide," she says. "Then, Accelerate helps you apply those operations for accounting or bookkeeping. The program also helps you learn strategies on how to effectively communicate and explain

what you are doing, which is very important in a technical interview."

Through Accelerate, Gandasetiawan participated in a mentored micro-internship in partnership with CodeDay Labs. She says that the experience was eye-opening. "Having the experience of working with such a large codebase, and being partnered with a more seasoned developer in the industry helped me when I got my job later," she says.

Gandasetiawan says that her Accelerate experience gave her a greater understanding of the industry and improved her confidence. "I learned that even industry professionals like our micro-internship mentor did not always have the answer to the problems we were trying to solve, and that's okay," she says. "That experience taught me that I didn't need to know everything. Knowing that made it easier to stay calm when thinking about problems that didn't have clear solutions," in both technical interviews and at work.

Those experiences and skills have paid off for Gandasetiawan, who was recently promoted from an apprentice software engineer to a full-fledged software engineer at LinkedIn. As she enters this new phase in her career, Gandasetiawan is excited to pay it forward as a mentor to aspiring software developers.

## 1

## Developing High Quality Computing Talent at Community Colleges and Regional Public Universities

The disparity in resources available to students at elite colleges compared to students at many [regional public universities](#) and community colleges is [stark](#), and has a substantial impact on the ability of each community to be competitive in their pursuit of tech sector careers. Less resourced colleges often have [limited teaching capacity](#), and typically focus on teaching students computing fundamentals rather than going a step further to explore applied learning or career preparation. In addition, many of the students who start computer science programs at non-elite institutions don't complete those programs, further narrowing the talent pipeline. For example, CTI estimates that California community colleges and state universities lose about 50 percent of their computer science students between their first and second year.

In other cases, students at community colleges and many

regional public universities achieve their degrees but don't have the applied experience or demonstrated project work necessary for accessing career opportunities. Utsab Saha, CTI's learning engineer focusing on open source experiences explains, "Within most academic programs, there is limited opportunity for students to actually practice applying these skills to solve problems or to work with large existing codebases"—the types of activities that prepare students for success in tech jobs.

As a result, companies have fewer qualified candidates to fill technical roles. "Giving these students a sense of direction—along with necessary guidance and support for them to develop meaningful work experiences in the field is the best way we have seen to help with their persistence in the field," says Anita Kinoshita, CTI's learning engineer focused on Accelerate curriculum development, delivery, and support.

### Jesus Medrano Senior Staff Software Engineer at Uber and Accelerate Employer Partner



**JESUS MEDRANO**, a senior staff software engineer at Uber, hosted four Accelerate interns during the program's first year. Two of those interns transitioned to full-time roles, and were promoted multiple times, and are both still at the company. This track record of success convinced Medrano and his colleagues to expand the program—and last summer, Uber hosted 12 Accelerate interns.

"These are very motivated and smart people," Medrano says of the

Accelerate interns. "They're at these schools where we're not typically sending recruiters. But it's sometimes better to get the top student at a state school than a mediocre student at a top school."

Medrano says that the technical skills of Accelerate interns has only improved over the years, as he and his colleagues have been able to suggest improvements to the curriculum. "We said, 'They're not as strong in this area or that area. Maybe it makes sense to emphasize this or that,'" Medrano says. He cites an example where Accelerate students were not encountering learning modules on data structures until late in their studies, even though this area makes up a critical piece of the interview process. That insight motivated CTI to offer data structures earlier in the curriculum.

This collaborative approach to working with Accelerate has paid off for Uber. The company has been able to attract interns who offer more racial, socioeconomic, and gender diversity than the typical intern class, and Medrano says that this diversity offers unforeseen benefits. "You're getting students with a vastly different experience from students at the same five schools that most companies

recruit from." He continues, "That is incredibly valuable because you get different thoughts and different ideas about how to approach problems. That helps teams be successful."

Further, Medrano says that Accelerate interns who convert to full-time hires are more likely to stay at Uber for the long-term. That loyalty not only helps improve Uber's bottom-line, but also helps to create a community of engineers with a similar frame of reference and who have encountered similar challenges. Medrano emphasizes the importance of having a good support system in place for interns—a system that alumni of the program can help contribute to.

"Mentorship isn't just about guiding with technology and coding," says Medrano. "It's also about basic things like personal finances, learning about retirement, potentially moving to a new city and figuring out rent." He continues, "We talk a lot about how to survive in those situations, where you might not have family members who've dealt with those questions." Increasingly, full-time hires who've gone through the Accelerate program are the ones offering that mentorship.

Partnering with CTI to tap computer science students who attend community colleges and regional public universities has obvious benefits for companies with open computing roles. They have access to a wider talent pool, thereby reducing their competition with other companies for software engineers and other tech roles. Companies can rely on CTI as a one-stop shop for accessing talent across two of the largest college and university systems in the country that would require massive resources for companies—especially small- and mid-size companies—to access individually. Further, companies have an opportunity to help shape the technical and career preparation that students receive, and can provide professional development opportunities for their own employees who serve as mentors for Accelerate students.

## 2 Using Open Source Projects as Experiential Learning Opportunities to Cultivate Future Employees

Accelerate was designed with the needs of industry in mind, and program organizers have made changes to the program and curriculum in response to industry requests. For example, the program has re-sequenced preparatory, scaffolded online modules to better reflect the needs of employers.

Accelerate also works closely with industry partners to understand company needs, structure experiential learning opportunities, provide mentorship opportunities, and identify talent. Perhaps most importantly, employees at tech company partners form deep relationships with Accelerate students through mentorship programs and open source project collaborations. As a result, students are well-vetted and come with known competencies when they transition to tech careers.

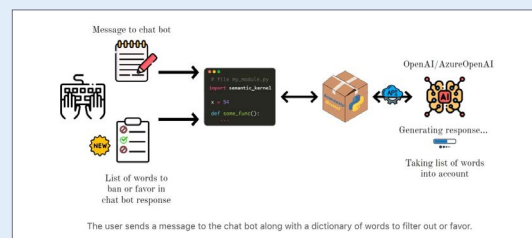
Accelerate’s focus on applied learning opportunities is fundamental to its approach. After helping students develop foundational skills in Python, Git workflow and other areas, Accelerate focuses on project opportunities that mimic those that they will encounter in the workplace. Students work on open source projects with large codebases, allowing them to develop problem-solving skills and a comfort with ambiguity. One of the benefits of using open source for these applied learning experiences is its ability to scale, as there are thousands of possible projects with multiple open issues for students to work on.

Accelerate students who work on open source projects are part of a learning community of peers and are mentored by industry professionals. This type of collaborative learning inspires accountability within a flexible structure while introducing students to workplace norms and helping students to strengthen key skills. As a result, Accelerate graduates are ready to hit the ground running when they land computing jobs, and come to these roles having established relationships with some industry professionals.

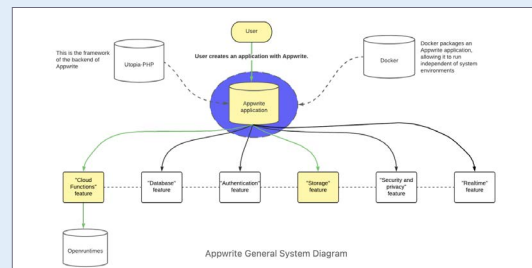
## ACCELERATE PARTICIPANTS REFLECT ON THEIR CTI-CODE DAY SUMMER OPEN SOURCE EXPERIENCE PROJECTS

Students who participate in the Accelerate program document their projects in blog posts published on LinkedIn, demonstrating both their technical and communication skills to potential employers. Recent CTI Accelerate projects in collaboration with CodeDay include the following:

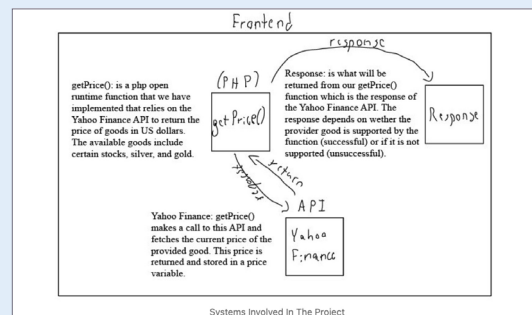
► Alisha Maddy participated in an eight-week open source experience along with two other teammates under the guidance of a mentor from Microsoft. In her [blog post](#), she reflected on her journey, leading to four code submissions to Microsoft’s semantic kernel.



► In a [blog post](#) and a [video presentation](#), Tam Nguyen documented his experience working with two other interns and an industry mentor from Winjit Tech to contribute enhancements to the backend functionalities of the open source software “Appwrite.”



► Edgar Hernandez and his partner worked with an industry mentor from Wells Fargo to widen the available functions of open-source software during their eight-week internship. Hernandez’s [blog post](#) reflects on the issue, challenges, and solutions to the problem.



## Matthew Glotzbach

CEO at Quizlet and  
Accelerate Employer Partner



### Quizlet

**AS A LONGTIME TECH EXECUTIVE, MATTHEW GLOTZBACH** is deeply familiar with the challenges of finding highly skilled technical talent. Glotzbach reports that Quizlet, the education technology company that he leads, typically has dozens of open technical positions. “The competition for highly skilled, well-trained talent is fierce amongst tech companies,” Glotzbach says.

In response to that reality, Glotzbach has charged his organization with finding “alternative sources of talent and pathways

that aren’t as obvious.” Because the typical tech industry recruiting process targets elite universities, students at community colleges and regional public universities often get left out of the recruiting pipeline. However, these are exactly the types of institutions that CTI Accelerate students typically come from.

By partnering with Accelerate, Quizlet has been able to access these nontraditional pipelines of talent. Quizlet has hosted a number of Accelerate interns over the years, with some returning for full-time roles after completing their studies. Quizlet staff members have also served as mentors to Accelerate students, and have helped students prepare for technical interviews. Glotzbach himself serves as a member of CTI’s Leadership Council.

Glotzbach says that Quizlet’s partnership with Accelerate has paid off in many ways, most notably by enlarging the pool of available technical talent. The program has been easy for Quizlet to manage, with minimal overhead compared with hiring through typical channels. But more than that, Accelerate interns have qualities that Glotzbach seeks out in new hires.

“Hungry is the word that comes to mind,” Glotzbach says. “These are really motivated students. They haven’t had access to the same opportunities

as students at colleges on the traditional recruiting circuit. They have the skills and the intelligence. But they’ve had more adversity. CTI helps students tap into their ambition and give them that opportunity.”

The partnership with CTI has also helped Quizlet diversify its workforce. The program attracts many students from underrepresented backgrounds, including those who are first-generation college students, students from low-income families, and underrepresented minority students. “The talent that we get through CTI tends to be more diverse than the typical Silicon Valley or college recruiting talent pool,” Glotzbach says.

Glotzbach says that the benefits extend beyond access to motivated, diverse talent. It’s also an opportunity for industry to build a bridge to higher education. “It establishes a two-way dialogue. Industry can point out some of the things that would help students be better prepared for tech careers, especially with the industry moving so quickly,” Glotzbach says. For their part, community colleges and regional public universities can offer insight into their program design and explain the critical services that they provide to students. “It’s an opportunity for on-the-ground, day-to-day, pragmatic feedback in both directions,” Glotzbach reflects.

### 3

## Diversifying the Tech Workforce Through Industry Partnership with Higher Education

The tech sector is known for [high salaries](#), but disproportionately few of those well-paying jobs are held by people from underrepresented groups, including [Black](#), [Hispanic](#), [women](#), first-generation college students, and socioeconomically disadvantaged workers. Many tech companies have instituted programs designed to recruit diverse talent, but some also perceive the talent pipeline coming from higher education as inadequate, leading to heightened competition for the limited number of diverse candidates available. Non-tech companies with computing roles often find themselves at even more of a disadvantage.

With limited resources available, companies don’t often actively engage with students early in their academic careers, and few prioritize recruitment at community colleges and regional public universities where students are [much more likely](#) to be

first-generation college students, and to come from low-income and underrepresented racial and ethnic backgrounds.

“The tendency in industry is to think that higher ed institutions can develop the necessary talent by themselves, without realizing there is a need for industry involvement,” says CTI Associate Director Leslie Maxwell. The Accelerate program is designed to showcase the value of industry involvement, while also making the outreach process easy for employers.

CTI’s Accelerate program makes direct connections between socioeconomically diverse students and tech employers through mentorship opportunities, presentations, and summer internships that can lead to full-time job offers upon graduation. The program also acts on industry feedback when revising their curricula and learning experiences, a two-way exchange that is unusual in higher education.

Because the typical tech industry recruiting process targets elite universities, students at community colleges and regional public universities often get left out of the recruiting pipeline. CTI's Accelerate program fills that gap by connecting these socioeconomically diverse students and tech employers.

## Vanessa Valle

### Accelerate Participant



**VANESSA VALLE**, now a junior computer science major at University of California-Merced, remembers the exact moment when she first learned about CTI's Accelerate program from her college's advising department. "The email said, 'Are you a first or second year computer science student? Do you want an internship, but you're not sure how to get one?' I thought, 'That's me,'" Valle recalls.

Valle had heard her classmates discussing the need to complete programming projects that they could showcase on their resumes for internships or full-time positions. Unlike many of her peers, Valle had never taken computer science classes before and, as a first generation college student, lacked industry connections and career models in the field. The idea of figuring out a career pathway on her own, on top of her regular studies was overwhelming.

"I didn't think I could get an internship without the Accelerate program," Valle says. "I was very intimidated. I went into my first introductory college class and it seemed like everybody else already knew what they're doing. I was still learning the basics. I thought, 'Those students are going to get all the internships.'"

Valle credits Accelerate with helping her to gain the confidence necessary for pursuing a career in computer science. Accelerate's scaffolded design appealed to Valle, allowing her to make incremental progress without feeling overwhelmed.

For example, online modules to strengthen students' technical and professional skills sometimes required Accelerate participants to record videos of themselves explaining how they tackled a problem. "At the time I was very shy, so even just recording myself speaking is not something that I enjoyed," Valle says. "But the more I did it, the more confident I got, and the more I got used to running through the whole thing."

This positive experience allowed Valle to feel comfortable signing up for Accelerate's micro-internship when she had completed her online modules. Over four weeks, she collaborated on an open source project with two peers and an industry mentor. Initially, Valle says that she felt overwhelmed. She wasn't sure that she understood the problem fully, the code was much larger than she was used to working with, and the program was in a language that Valle hadn't worked with before.

Despite her nerves, Valle quickly realized that she was capable of making significant contributions to the project. "I realized that I didn't have to build from scratch," Valle says. "I just needed to work on top of what was already there."

That realization was driven home by her teammates and mentor, all of whom had more experience in the field than Valle did. "At first I was shy, but I had a great team that helped me," Valle says. "Our industry mentor noticed that I was shy and began to ask me what I saw. Soon I was able to start talking more and more

about what I thought was going on in the code." In fact, the experience was so positive that Valle and her teammates decided to continue to meet weekly to continue working on other problems for months after their micro-internship officially ended.

Last summer, Valle landed a summer internship to automate quality assurance testing at an investment firm. She says that CTI's Accelerate program was essential to her success. The micro-internship gave Valle a portfolio of projects to share with prospective employers and demonstrated her ability to work on a team.

Most importantly, Valle says that Accelerate helped her develop the confidence to apply to positions that she might previously have ignored. "I had never really applied anywhere before that, because you see these job postings and you see one qualification that you don't meet, and you think, 'There's someone out there who does; I might as well not even apply,'" Valle says. "But through Accelerate, I started the habit of applying even if I didn't meet all the requirements."

Valle discovered that the experience and communication skills that she had strengthened as an Accelerate participant made her an attractive candidate for employers, even if she didn't meet all of the qualifications on paper.

When asked for her advice for students who are considering Accelerate, Valle is quick in responding, "Just do it! It will help you!" Valle emphasizes that Accelerate's supportive and scaffolded approach makes it ideal for students who might not be confident in their skills or who are unsure about how to break into industry. "If I didn't do it, I don't know where I'd be right now," Valle says. "So just do it!"



There are huge benefits for employers who participate in the program, says CTI Industry Partnerships Coordinator Nancy Rios. “Companies receive connections with a curated list of well-prepared, diverse students—future talent—and have the ability to provide specific feedback that influences the preparation these students receive,” she says.

For instance, Uber has hired many CTI students as interns, and later extended full-time offers to a significant proportion of them. This pipeline not only streamlined recruitment for Uber, but boosted the organization’s diversity—increasingly recognized as [important for improving a business’ bottom-line](#). “Many of the students who went to work for Uber were from first-generation, low-income and underrepresented minority families, and have continued to stay with Uber and contribute to its business,” says Narayanan.

In turn, Uber has provided feedback to CTI about how Accelerate can better prepare students to succeed at the organization—including choosing Python for coding interview practice, emphasizing debugging skills, and emphasizing the balance between self-directed problem solving and asking for help. CTI has taken this feedback to heart and made substantive changes in its curricula as a result, leading to better preparation among Accelerate participants who intern at Uber and other companies. Meanwhile, Uber employees have benefitted from a unique professional development experience mentoring Accelerate students.



TOP: Students work with their mentor in an ag-tech startup, HeavyConnect. BOTTOM: Student enrichment workshops

## Impact

The Accelerate program is having a profound impact, not only on the lives of participating students, but also as a mechanism for widening and diversifying the computing talent pipeline. The program has emerged as a model for a pragmatic, applied approach to computer science education and career development that bridges the gap between industry and students by addressing the needs of both.

During its first two years, Accelerate has served hundreds of students, leading to a healthy pipeline of skilled workers for tech companies:

- Over 300 students completed a micro-internship experience, making a contribution to solve an open source issue.
- Over 150 students participated in Accelerate’s eight-week summer open source experience to deepen their expertise.
- Over 60 Accelerate students have landed internships at tech companies immediately following their CTI experience; others report that the program helped them land internships later on in their college careers.
- Over 40 Accelerate students have participated in a Research Experience for Undergraduate (REU) experience at a research university.
- Over 150 students completed the entire Accelerate’s problem-solving curriculum, practicing over 200 individual problem-solving activities.
- Over 220 students completed three-fourths of the Accelerate curriculum, practicing 150 individual problem-solving activities.
- Accelerate students come from over 40 community colleges, 18 universities in the California State University system, 9 University of California campuses, and a few private and out-of-state institutions.

The number of participants only tell a part of the story. In addition, Accelerate’s impact can be felt in who those participants are and the ways in which the program is transforming computer science education and tech recruiting:

- **Students who participate in Accelerate are disproportionately from backgrounds that are underrepresented in the tech industry, offering a way of diversifying the field.** A majority are first-generation college students. Most come from community colleges and regional public universities. Nearly half are underrepresented minority students. Nearly a third are women. Many don’t have prior internship or outside project experience.
- **Accelerate’s industry partners have tremendously positive feedback for the program, citing the preparation that tech interns bring to their roles.** Accelerate has worked with more than 20 companies in

various capacities. Many companies have transitioned from lightweight mentorship by employees to offering summer internships to Accelerate students to hiring Accelerate graduates full-time.

- **On average, Accelerate participants who are hired full-time remain at their companies longer than typical employees, reducing costs and increasing value for employers.** Employers report that Accelerate students who are hired full-time are more likely to remain at their companies in the long-term when compared with peers who were hired through traditional recruiting mechanisms.
- **Accelerate’s model for bridging existing gaps between higher education, industry, and students is increasingly recognized as effective and worthy of investment.** Accelerate’s promise and track record of success in diversifying the talent pipeline was recently [awarded](#) \$10 million in state funding, which opens the door to expanding the program to many more institutions and students across California.

### A SCALABLE MODEL

State funding for Accelerate recognized its potential for scalability. The program currently serves hundreds of students and dozens of organizations, but it is designed to serve thousands of students without a proportional investment of resources:



► *Open source projects* pursued in collaboration with CodeDay offer a virtually limitless number of real-world learning experiences for students to cut their teeth on.



► *Community colleges and regional public universities* boast huge numbers of students enrolled in computer science classes, but who lack applied learning opportunities and connection to industry.



► *Mentorship opportunities* are limited only by the number of industry professionals who choose to commit to the program.



► *Scaffolded, online learning modules* combined with appropriate support and accountability provide students with the grounding they need to succeed, maximizing the value of more resource-intensive real-world learning experiences.



Students participate in an Hackathon

## Next Steps

CTI invites a range of stakeholders to get involved in its work:

- 1 **Hiring organizations** with computing talent needs can learn more about partnering with CTI as mentors or for summer internship or full-time job recruitment by [reaching out](#) to CTI staff.
- 2 **Computer science students in California** can [apply](#) to join the Accelerate program.
- 3 **Community colleges, regional public universities, other public institutions of higher learning in California, and individual faculty members** can [reach out](#) to CTI staff about partnering with CTI or promoting the Accelerate program to their students.
- 4 Visit CTI’s [website](#) at [www.computingtalentinitiative.org](http://www.computingtalentinitiative.org) to learn more about other initiatives that aim to support computer science students from underserved communities by helping them prepare for college, succeed in their academic goals during the first year, and prepare them for the professional world during their second year of college.

CTI is continually learning and adapting as it strives to expand the tech talent pipeline. Please reach out to CTI’s director at [snarayanan@computingtalentinitiative.org](mailto:snarayanan@computingtalentinitiative.org) with questions, comments, or feedback.

To learn more and contact Siegel Family Endowment, visit [www.siegelendowment.org](http://www.siegelendowment.org)