THE WALL STREET JOURNAL.

==Technology== **(A Special Report) --- How Pittsburgh Has Become a Hot Tech Center. Sort of: Home to Carnegie Mellon, the former steelmaking hub now can boast of its tech prowess. But it's not Silicon Valley.**

Pittsburgh, whose prosperity once relied heavily on Andrew Carnegie's steel mills, now draws much of its vibrancy from another legacy of the Scottish industrialist: Carnegie Mellon University.

CMU's expertise in computer science and robotics is helping to draw high-tech jobs to the Pittsburgh metro area, as shown in a new study by the Burning Glass Institute ranking cities in terms of the "future readiness" of their labor forces.

Pittsburgh ranks fifth among large metro areas in the "momentum" category -- or the growth in the number of ==technology== workers and demand for advanced skills, according to the Burning Glass study. In that category, the Pittsburgh metro area trailed only those of Seattle; San Jose, Calif.; San Francisco; and Austin, Texas. The institute cited demand for software skills, including ==cybersecurity==. Much of the demand for those skills comes from a growing array of tech companies and the presence of two major banks, Bank of New York Mellon and PNC Financial Services Group.

Pittsburgh also is a center for research in artificial intelligence. "There's a feeding frenzy among corporations to hire ==AI== people," says Michael Shamos, a computer science professor at CMU. "They're starting to try to poach our [graduate] students before they can finish their degrees."

Though Pittsburgh isn't particularly hip or glamorous, it has one huge lure for tech workers: affordable housing. The median price for home sales in September was $240,000, according to Redfin. That compares with $548,800 in Austin and $1.3 million in San Francisco.

With a metro-area population of around 2.4 million scattered around hills and rivers, Pittsburgh "does not drown you," says Cetin Mericli, a co-founder of Atlas Robotics, a Pittsburgh-based startup working on self-driving forklifts. "It's not overcrowded and claustrophobic, like New York or Istanbul, my hometown."

Formerly blighted Pittsburgh neighborhoods like Lawrenceville and East Liberty now attract highly paid young people. Yet gentrification hasn't erased the jumble of 19th-century architecture, winding streets and distinct neighborhoods that give Pittsburgh its character.

"It's an urban forest," says Drew Bagnell, who grew up in Florida and has lived in Pittsburgh since arriving as a CMU graduate student in robotics in the late 1990s. Bagnell, now a consulting professor in robotics at CMU and chief scientist of Aurora Innovation, a developer of ==technology== for self-driving vehicles, lives near a 644-acre park and can walk to his favorite restaurant and coffee shop.

CMU has nearly 3,000 students in its computer science school at the undergraduate, master's and Ph.D. level. The nearby University of Pittsburgh is noted for biomedical research.

Still, nobody is saying Pittsburgh is ready to supplant Silicon Valley. Among its drawbacks is the small number of direct flights to the West Coast and many other popular destinations. It isn't a major center of venture capital and doesn't tend to spawn billion-dollar tech companies.

Young people have fewer career options than they would in, say, New York or the San Francisco Bay Area. Pittsburgh's downtown, which grew much more appealing in recent years, has struggled since the Covid pandemic drained many office buildings.

Overall, however, Pittsburgh has rebounded surprisingly well from the collapse of the local steel industry in the 1980s and the decline of Westinghouse, once a world-renowned technological powerhouse. An early sign of Pittsburgh's tech revival came in 2006, when Google opened an office near CMU. The Pittsburgh branch of Google, a unit of Alphabet, occupies a former Nabisco bakery and does engineering work in internet shopping, advertising and ==cloud computing==.

About a decade later came a boom in autonomous-vehicle development. Self-driving test cars became a familiar sight on Pittsburgh streets. That industry has developed more slowly than promoters expected but is still a source of many tech jobs in Pittsburgh.

Aurora Innovation, which is testing self-driving **technology** for freight-hauling trucks and passenger cars, has about 700 employees in Pittsburgh, many of them in a brick building that once housed a cable factory. Aurora also has a sizable presence in Mountain View, Calif., allowing it to draw on talent in Silicon Valley.

Jake Loosararian, co-founder and chief executive of Gecko Robotics, grew up in the Washington, D.C., area and England and then studied electrical engineering at Grove City College, about an hour north of Pittsburgh. A tour of a power plant gave him the idea of using wall-climbing robots to inspect for corrosion and other problems at critical infrastructure.

When he formed Gecko Robotics in 2013, Loosararian decided to base it in Pittsburgh, partly because of the robotics expertise spawned by CMU, where there were "a lot of great people I could learn from."

One big venture-capital firm said it would invest in Gecko only if the company moved to Silicon Valley. Loosararian moved briefly to California but returned to Pittsburgh after finding investors willing to back him there. The company employs about 240 people, roughly half of them in Pittsburgh. Gecko does most of its hardware development in Pittsburgh and much of its software development in Boston and New York.

Loosararian figures Gecko's real-estate costs would quadruple if the company moved to Silicon Valley.

One weakness of Pittsburgh, he says, is the lack of a Silicon Valley-style startup culture fueled by successful initial public offerings. That means people in Pittsburgh are less likely to be familiar with the idea of getting much of their compensation in the form of equity. In Pittsburgh, he says, the typical mentality is "you put in your time and go home. You don't feel like an owner." He hopes more local startups will have successful IPOs and change that attitude.

One big local success is Duolingo, a provider of language-teaching apps. Luis von Ahn, who co-founded the company in 2011, has a Ph.D. in computer science from CMU. The company employs about 400 people in Pittsburgh and draws on talent from around the world.

Astrobotic **Technology**, which has more than 200 employees in Pittsburgh, is a spinoff from CMU that has developed lunar landing vehicles. The company expects to make its first moon landing with one of those unmanned vehicles in December 2023 or January 2024. Astrobotic also has developed roving vehicles and power-generation **technology** for use on the moon.

Mericli, the co-founder of Atlas Robotics, has lived in Pittsburgh since he moved there 14 years ago from his native Turkey for graduate studies in robotics at CMU. He describes the city as a "hidden gem." Though he doesn't completely share the local obsession with Steelers football, he has concluded that the game isn't just brutality. "It's a thinking game," he says.

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