May 2025

AV Talent Demand Report

Hiring Trends in Autonomous Transportation

NGV TALENT

AV Industry Talent Demand Report

Overview & Key Findings

In creating this report, we analyzed over 1,500 open roles from 40 leading companies in the autonomous vehicle (AV) industry. This research intends to highlight the scale, focus, and geographic distribution of hiring across the sector as companies continue to work towards a future of autonomous mobility.

Key findings include:

- Engineering roles dominate the hiring landscape, representing a clear need for experienced, highly technical talent
- Hiring aggression across the industry is high, with an Open Role to FTE ratio that is 54% larger than the national average
- Operational and corporate functions are also experiencing notable demand, signaling an industry shift toward scaling and commercialization.
- Specialized technical roles, including machine learning, perception and simulation reflect the complexity of developing safe and reliable AV technology.

Implications for the Industry

The distribution of open roles suggests that the AV industry is transitioning from pure R&D toward a blend of innovation, production readiness and operational scalability. Companies are increasingly seeking talent that not only develops cutting-edge technology but also manages large programs, ensures safety compliance, and builds resilient supply chains and operational infrastructures.

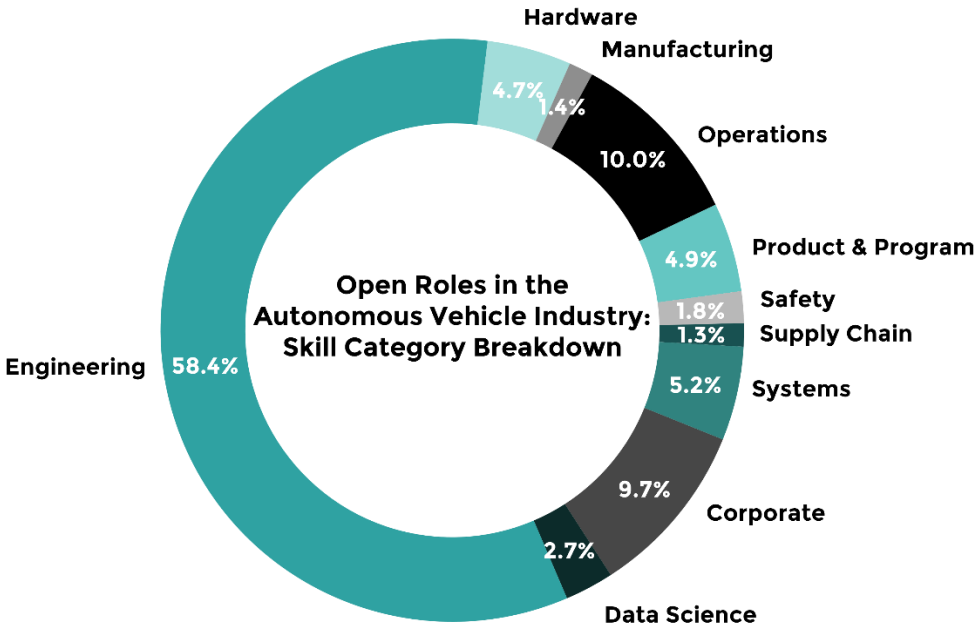
This diversification of talent demand reflects a broader industry maturation and the path toward commercial deployment. Talent shortfalls in specialized areas such as ML, Safety and Mapping may become barriers to scaling if not addressed. As AV companies shift from limited pilots to operational deployments, the need for a versatile workforce able to collaborate across engineering, manufacturing, and field operations will only intensify.

"The Autonomous Vehicle Talent Demand Report provides a clear lens into one of the most transformative industries of our time. At NGV Talent, we believe that understanding emerging skill demand is essential for both hiring companies and aspiring candidates. The future of mobility, while self-driving, needs people."

— James Norton, Principal of NGV Talent

Skill Category Breakdown

The breakdown of open roles across major functional categories further illustrates the AV industry's current priorities:



Engineering remains the largest hiring category by far, comprising nearly 60% of all open roles. These include AI, software and robotics jobs that are foundational to the AV technical stack. The growth of operations and corporate roles signal the parallel emphasis on organizational growth and functional execution as companies transition to service delivery models, with operational rollouts under way in cities across North America.

Systems hiring points to the challenge of integration—ensuring vehicle platforms, software stacks, and sensor technologies work cohesively and safely. Data science roles reflect the need to manage and derive insight from massive datasets – these contributors are analyzing driving data, optimizing model performance and improving metrics. The low demand for safety roles suggests underinvestment in this strategically important area for the industry. Lower Manufacturing and Supply Chain volume is indicative of the fact that most AV companies leave that part of the value chain to OEM and hardware partners, but we will be interested to see how this changes in future.

Top Hiring Companies

The five companies leading in open roles across the AV industry are:

No surprises here, with these companies being some of the largest and most advanced players across the industry. Their aggressive hiring strategies underline leadership in innovation, operations, and end-to-end AV solutions. Waymo and Zoox are mature players pushing toward full-scale deployment, while Applied Intuition is investing heavily in tools, simulation, and autonomy software. Aurora is leading the way in autonomous trucking, while Nuro's recent series E funding points to a re-focusing of strategy and a subsequent scaling of operations.

Regional Hiring Trends

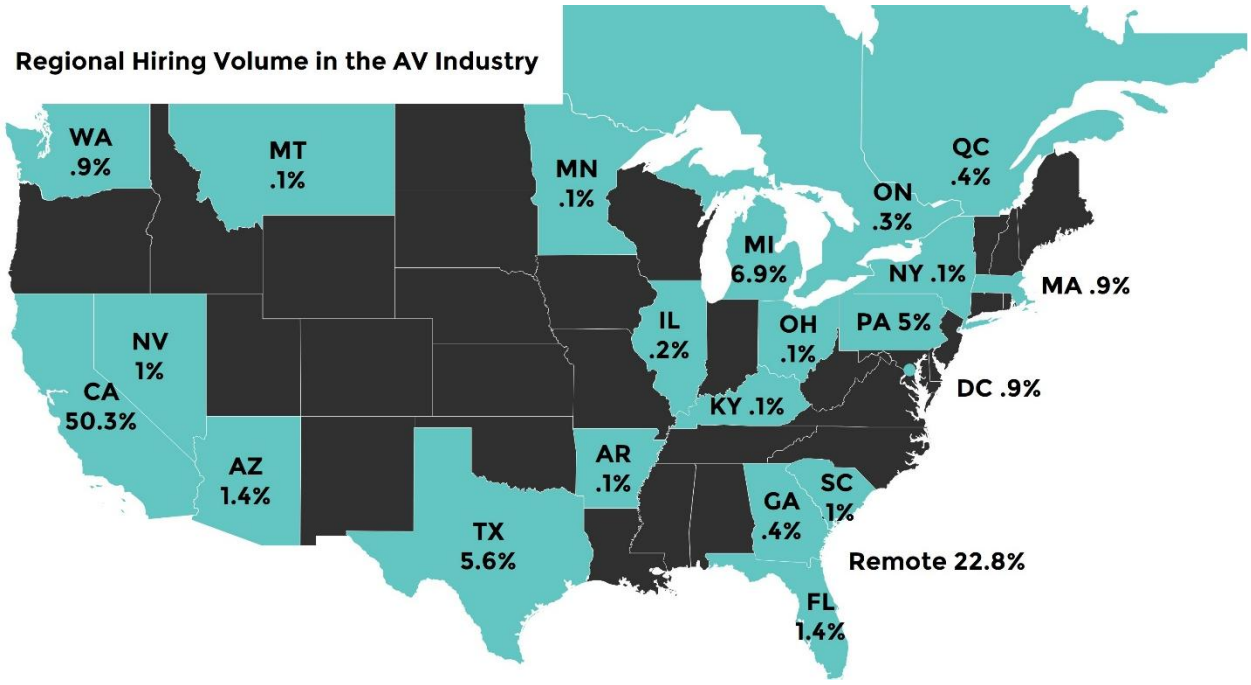
Talent demand is distributed across numerous cities, reflecting the AV industry's broad geographic footprint across North America.

With upwards of 65 cities across North America currently sourcing talent, the geographic distribution of roles shows how AV companies are adapting their hiring to local opportunities, talent pools, and deployment needs. While the Bay Area is still the hub, others are coming to the fore. Cities in Texas are leading the way when it comes to autonomous trucking, with industry leaders working closely with state government to be among the first to enact legal frameworks for the industry. A rising number of roles in cities like Pittsburgh, Atlanta and Las Vegas reflects a growing decentralization as well as the rollouts of operational teams in new host cities.

We expect this footprint to grow even more in 2026 with technical advancements opening the door to deployments in more and more cities.

Regional Hiring Volume

We have also segmented talent demand on a regional basis. The below graphic shows the percentage of roles being hired in each state.



Unsurprisingly, California accounts for more than half of all hiring, confirming its role as the epicenter of AV innovation, particularly when it comes to engineering and systems talent. The deep talent pool, venture capital networks, and dense concentration of AV headquarters drive this dominance. Michigan's presence reflects the strong base of automotive engineering and traditional OEM partnerships. Texas shows growing importance due to its large logistics hubs and regulatory openness. States like Pennsylvania and Arizona are drawing talent due to active testing corridors and government collaboration. The dispersion across smaller markets perhaps points to the next cities we can expect to see deployments.

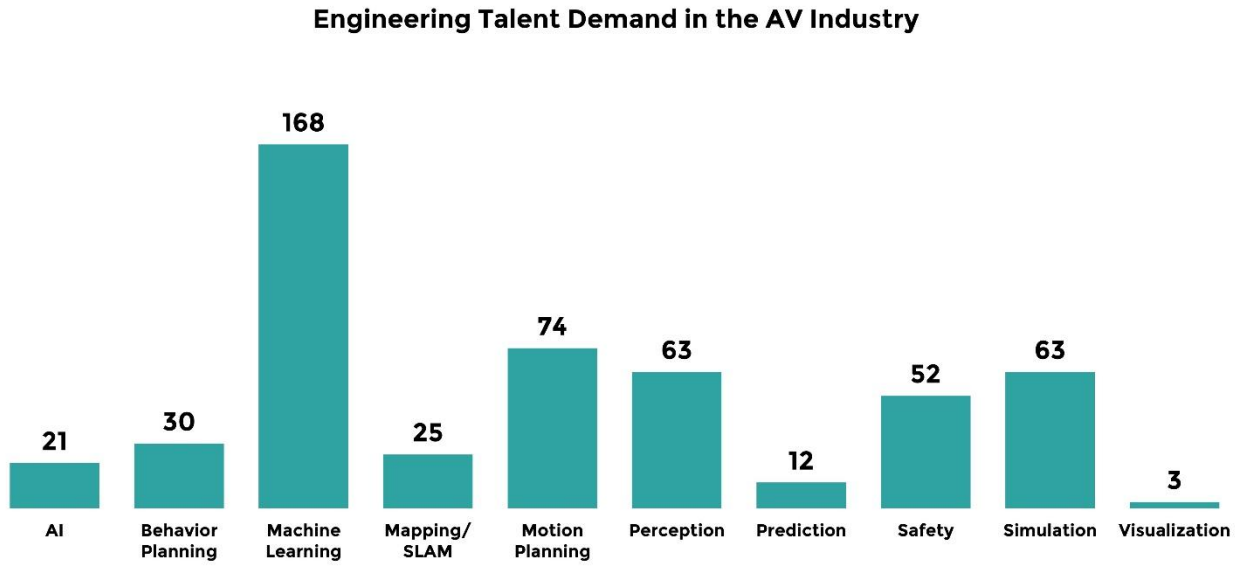
Remote Workers

A significant factor impacting regional hiring volume is the large percentage of roles that are either remote or open to being based in multiple cities. Even long after Covid, when remote work was a necessity, employees continue to want this flexibility, driving employers to cast a wider net to access the best quality talent available.

Engineering Insights:

Specialized Technical Needs

Looking at the engineering data in more detail, it becomes clear that AV companies are not just hiring broadly, they are targeting deep technical expertise to drive innovation and push technology forward. Many engineering roles being sourced have a singular, dedicated technical focus, and this section examines the engineering subfields most in demand.



Naturally, machine learning significantly outpaces all other technical focuses, underscoring the importance of data-driven autonomy. Roles in motion planning and perception reflect ongoing efforts to refine navigation and sensor fusion systems. Simulation continues to be vital for validating safety at scale and accelerating development. While behavior planning and SLAM are more niche, they are crucial for handling complex urban environments. Seeing safety as such a key specialization within the engineering field is a positive sign, within which we additional specializations like SOTIF compliance.

Bay Area View

Despite the previously highlighted regional expansion of the AV industry, the Bay Area continues to be the location that companies are looking to source their engineering and technical talent. This dense cluster supports rich collaboration and fast iteration but also creates fierce talent competition and high labor costs.

It's a significant challenge for the industry that talent consolidation remains so high as the demand for technical expertise grows in other locations across the country. Companies are struggling to source the people and skills they need in other states, and it is extremely challenging to convince Bay Area individuals to relocate. The industry requires a solution to this problem in the coming years.

"What's most striking in this year's report is the continued surge in demand for core engineering talent — from perception and controls to embedded systems and AI. These roles aren't just hard to fill; they're defining the pace of innovation across the autonomous vehicle ecosystem."

— Olesya Meeker, Tech & Engineering Lead of NGV Talent

Operations Insights

Operations talent is in growing demand within cities emerging as operational anchors for AV deployment and testing:

These cities were selected not only for their population density and road complexity but also for their policy environments and commercial relevance. San Francisco, Los Angeles and Phoenix streets have seen commercial robotaxis for many years, while Austin, Atlanta, Vegas and Miami will go live in 2025. While operations leadership teams continue to be built out in these places, there are significant needs for vehicle operators, fleet management, service technicians and training teams among many other roles.

As autonomous vehicles move from prototype to large-scale deployment, the demand for operational roles will increase significantly. Far from being rendered obsolete by AI technology, these roles will evolve to support the new realities of AV operations. Technicians, fleet maintenance specialists, remote support operators, and safety drivers will be critical to keeping autonomous fleets operational, compliant, and efficient. Additionally, new types of roles will emerge—such as AV system calibrators, sensor maintenance experts, and real-time fleet monitors—requiring both traditional mechanical skills and basic technological literacy. Companies that invest early in training and upskilling blue-collar workers for these hybrid roles will gain a crucial operational advantage in scaling their services. While the industry as a whole needs to ensure it communicates this transition effectively to ensure continued support and engagement from the public.

Top Operational Hiring Companies

The three companies leading in open roles for operations are:

The names of Moove.io and Transdev here highlights the fact that many AV companies are outsourcing their operations to specialist partners. These companies specialize in fleet support and transport operations and represent a specific type of operational model preferred by many AV software companies. While Zoox appearing here highlights that as well as being a leader in technical hiring, it has a dual investment in creating and operating its own autonomous fleets.

"While engineering talent often takes the spotlight, our report shows that operations roles — in safety, fleet management, and maintenance — are becoming just as critical. As autonomous companies scale, it's the strength of operational teams that will determine real-world success."

— Erik Garcia, Operations & Testing Lead of NGV Talent

Hiring Aggression

An important measure of company growth velocity is the **Open Roles to Full-Time Employee (OR to FTE) Ratio**. This metric measures talent demand as a percentage of organization size - offering a clear view into which companies are aggressively expanding their teams, which are growing steadily, and which are focused more on operational maturity and optimization.

Across the 40 companies studied, the OR to FTE Ratio is 8%

This means that talent demand in the AV industry is 54% higher than the number across all industries across the US and Canada (OR-FTE 5.2%), highlighting the fact that the industry is in a high growth phase of its existence. However, there is wide variance by company based on maturity stage, business model, and commercialization timelines. We group companies into three broad categories based on their ratio:

High Growth Companies (Over 10% OR to FTE)

13 Companies exhibit a ratio above 10%.
This indicates an aggressive expansion phase, often associated with:

- Scaling technical teams to accelerate AV platform development.
- Building operational capacity for imminent pilot or commercial launches.
- Rapid investment following significant funding rounds or strategic partnerships.
- Internal talent acquisition teams are struggling to keep up with demand.

Many of these companies have ratios between 20-80% and are outpacing the industry average by a wide margin. Some are pushing toward significant inflection points in product readiness or market entry and others are new entrants to North America and building out their organizations.

Medium Growth Companies (5–10% OR to FTE)

10 Companies maintain ratios in the 5–10% range.
This suggests steady, deliberate growth, often tied to:

- Expanding into new markets or operational corridors
- Refining existing AV products or services
- Scaling teams cautiously in alignment with real-world deployment milestones

These companies are broadly in line with, or slightly above, the industry average, reflecting careful headcount management during operational scaling.

Low Growth Companies (<5% Open Roles to FTE)

7 companies exhibit Open Roles to FTE Ratios below 5%.
This indicates a focus on operational efficiency and product maturation, typically characterized by:

- Tight control of workforce size relative to deployment needs
- Focused investment in optimizing or monetizing existing technology
- Consolidation after earlier phases of aggressive R&D hiring

These companies are well below the industry average, suggesting they are more advanced in commercialization phases or deliberately maintaining a conservative growth posture.

Key Observations of Hiring Aggression

- Early-stage companies and those approaching major commercial milestones show the highest Open Roles to FTE ratios.
- Many industry giants maintain lower ratios, consistent with their more mature operational profiles.
- Mid-sized players with real-world deployments show balanced hiring strategies, growing carefully to match operational needs.
- Strategic hiring surges often precede major program or city launches, suggesting that spikes in OR to FTE ratio could serve as a leading indicator of upcoming AV deployments or expansions.

Conclusions

The AV industry is moving in the opposite direction to the wider jobs market in North America. Talent needs are high, hiring is aggressive, and the industry is growing significantly. However, it stands at an inflection point. While engineering talent continues to be the highest priority, increasing hiring in operations, corporate infrastructure, and safety illustrates an industry moving beyond the lab and into the real world. As AV companies scale from pilot programs to commercial offerings, their talent strategies reflect a mix of deep technical development and operational readiness. Strategic investments and partnerships in underrepresented areas like manufacturing and supply chain hiring will be key to full commercialization.

Future Outlook

The next phase of growth in the AV industry will hinge on the available talent growing in line with the growth of the business. We expect to see:

- A talent crunch - as the industry grows, the pool of people with AV industry experience will struggle to keep up.
- Continued demand for machine learning and motion planning experts, increasingly those with real-world deployment experience
- Increased hiring in fleet operations and safety compliance to support public road activity
- Expansion into new geographic markets for both testing and deployment as AV adoption scales
- Strategic partnerships between AV firms and local governments, transit authorities, and commercial operators to enable infrastructure and regulatory alignment
- A rise in remote and hybrid roles to attract specialized talent outside traditional tech hubs

Recommendations

To meet future workforce demands and accelerate industry readiness:

- **Invest in external training**: Support programs that develop engineers with exposure to systems, operations, and regulatory frameworks.
- **Strengthen industry-academic partnerships**: Facilitate real-world experience for students and early-career professionals, especially in emerging AV markets.
- **Localize hiring strategies**: Tap into regional strengths—e.g., Detroit for hardware and manufacturing, Silicon Valley for software, Texas for logistics.
- **Plan for scale**: Build out operational and support teams now in anticipation of deployment demands.
- **Train talent before you need it**: The most successful companies will be the ones who take an active role in upskilling and re-skilling talent from other industries
- **Prioritize safety and compliance hiring**: Ensure regulatory alignment through proactive recruitment and upskill in policy, risk assessment, and cybersecurity.
- **Diversify talent pipelines**: Include non-traditional backgrounds, such as logistics, manufacturing, and robotics, to enrich AV system development.

The companies that successfully attract and integrate this diverse range of talent will be best positioned to lead in the autonomous mobility future.

For further information, or to see your company-specific data and analysis, please contact:

NGVTalent.com

All data in this report was independently collected and analyzed by NGV Talent, using publicly available sources including LinkedIn and company career pages. While every effort has been made to ensure accuracy, the data reflects a snapshot in time and may be subject to change.

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