



POSITION STATEMENT

Artificial Intelligence: Jobs, Education, Workforce, and Diversity

*Adopted by the IEEE-USA Board of Directors
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IEEE-USA supports public-private efforts that will ensure that the American workforce can meet the challenges and impact of emerging technologies on our economy.

IEEE-USA believes that governmental, private sector, and non-governmental institutions have an important role in maximizing the opportunities for workers and students in the emerging AI economy, and in minimizing the negative ramifications for those individuals affected by wide scale AI deployment. IEEE-USA considers a complete STEM education pipeline – primary, secondary, and post-secondary education – as a fundamental building block to creating the AI workforce that will be critical in the success of the future economy. We also believe in protecting the workers whose livelihoods are threatened by AI systems. Finally, IEEE-USA encourages diversity in emerging technologies that will affect the American workforce and education system. To those ends, IEEE-USA recommends that governments:

1. Create an AI Education Pipeline

Principles of AI literacy, along with critical thinking and computational science, should be integrated into the core curriculum at all levels of a student's academic journey. This AI educational pipeline is necessary to ensure that the federal government encourages an AI-ready workforce. To positively influence students' development, IEEE-USA recommends:

PreK-12 – The Department of Education, the National Science Foundation, the Department of Energy, the Department of Defense, and other key federal stakeholders should work to facilitate access to AI building blocks at an early age and continuing through high school by working with state-level departments of education to implement AI education across PreK-12 classrooms. Where possible, curricula should closely integrate foundational

courses in mathematics, computer science, robotics, statistics, and probability. Additionally, courses should:

- Provide students with insights into the ethical issues that arise from the deployment of emerging technologies, along with responsible uses; and,
- Ensure that interested students are prepared for and have access to introductory courses in data science and/or machine learning in high school.

In addition, these agencies, and as appropriate other federal stakeholders, should receive additional appropriations to fund:

- PreK-12 teacher professional development and resources to teach technical and non-technical AI principles;
- Research on AI education curriculum and course integration best practices; and,
- Creation and dissemination of AI education and careers information to elevate the importance and relevance of AI-related coursework.

Postsecondary – At the post-secondary level, proper incentive structures are the key to securing an AI-ready workforce. To that end, federal and state education departments should:

- Increase undergraduate, graduate, and post-doctoral scholarships and fellowships for students pursuing studies and research in AI and AI-related fields;
- Promote alternative pathways into the AI workforce by evaluating AI-related programming, credentialing, and community and technical colleges; and,
- Formally evaluate non-traditional methods of funding educational expenses to cultivate alternative pathways into the AI field and increase its diversity (e.g., income-sharing agreements).

Public-Private Partnerships – The Department of Education, in partnership with state and local education agencies should encourage partnerships between educational institutions and AI-based firms, industry associations, and non-profits. These partnerships should be evaluated and scaled if proven effective. Collaboration between the academy and industry is fundamental to ensuring that students gain a valuable perspective on potential careers and roles within the AI industry.

Also, to enhance the technology transfer between basic research and its application in the private sector, the Small Business Administration should enable partnerships between small/medium enterprises and university researchers specialized in AI.

2. Assist Affected and Displaced Workers

The future of the American economy depends on a resilient and robust workforce. This means reimagining America's adult education and worker retraining infrastructure to ensure that individuals affected and displaced by AI systems are not left behind. To that end:

- The Department of Labor, National Science Foundation, and Census Bureau should identify the sectors where and how workers are affected in the past, present, and future.
- They should then work with the Department of Education and other stakeholder agencies to determine what programs or mechanisms, such as increasing funding to community colleges or vocational training centers, would best ameliorate their impact.

Displaced workers will need a strong social safety net to ensure stable access to housing, medical care, and other needs during periods of transition. Therefore:

- The federal government should research cost-sharing programs. This includes the expansion of unemployment insurance programs that would require firms to internalize a portion of the external costs they impose on workers and society when workers are displaced by AI systems and left without the resources needed to remain in the workforce.

3. Encourage Diversity

All individuals, regardless of their demographic and socioeconomic characteristics, deserve equal opportunities to enroll in educational institutions or participate in the AI workforce. If embraced, a diverse population provides organizations with not only access to insights, methods, and ideas that can significantly advance their overarching goals, but also creates an environment where unique perspectives can thrive. To improve the diversity of academia and industry:

- A coalition of federal and state agencies should develop organizational best-practices or standards to maximize the opportunities for all groups to participate in the learning and development of AI methods and applications;
- These agencies should open a dialogue with AI-related professional associations to build guidelines or standards for improving the diversity of teams that design and deploy AI;
- Demographic affinity groups in AI-related industries should be incentivized to take concrete steps in improving their members' participation in academia and the labor force;
- The Department of Labor should research best practices that encourage employers to proactively recruit STEM workers from diverse backgrounds;
- Congress should create incentives to motivate international STEM graduate students to establish themselves in the United States, improve the diversity of

our AI workforce, and contribute to our economy, by reforming our immigration laws to allow more international students studying AI and AI-related fields to remain in the country after graduation.¹

This statement was developed by IEEE-USA's Artificial Intelligence Policy Committee and represents the considered judgment of a group of U.S. IEEE members with expertise in the subject field. IEEE-USA advances the public good and promotes the careers and public policy interests of the nearly 150,000 engineering, computing and allied professionals who are U.S. members of IEEE. The positions taken by IEEE-USA do not necessarily reflect the views of IEEE, or its other organizational units.

¹ See IEEE-USA statement on immigration [here](#)