



## IMPACT OF GUEST WORKER VISAS ON AFRICAN AMERICAN STEM PROFESSIONALS

African American science, technology, engineering, and math (STEM) workers stand at the forefront of innovation in the U.S. economy. African Americans earn more computer and information science degrees than other racial and ethnic minorities. Despite the success and academic achievement of African American computer professionals, they face increasing competition from temporary guest workers. Labor market trends are difficult to predict, but both the number and proportion of STEM jobs are expected to grow faster than average for all occupations from 2012 to 2022, especially in computer-related occupations.<sup>1</sup> However, many Americans are not given the opportunity to compete for these jobs.

### African American STEM Employment Overview

STEM jobs include professionals employed in accounting and auditing occupations, computer and mathematical occupations, architecture and engineering occupations, and life, physical, and social science occupations. Together, these occupations employed 9.74 million workers in 2012, of which, 7.2 percent (nearly 700,000 workers) were African American.<sup>2</sup>

- From 2003 to 2012, African American STEM professionals increased their employment numbers by 82,000 workers, while STEM occupations added 880,000 new jobs.<sup>3</sup> Thus, African Americans accounted for 9.3 percent of growth in STEM occupations. However, the job growth was uneven. From 2003 to 2012:
  - African Americans accounted for just **4.3 percent** of growth in computer and mathematical occupations. While 29,500 new African Americans entered computer and mathematical jobs, nearly 700,000 computer and mathematical jobs were created;<sup>4</sup>
  - Employment of African Americans accounted for **25 percent** of the growth in architecture and engineering jobs. The number of African Americans in architecture and engineering jobs increased 32.8 percent, adding 39,400 workers;<sup>5</sup>
  - African Americans accounted for **11 percent** of job growth among accountants and auditors. Employment among all accountants and auditors increased 8.8 percent, with 13,900 additional African Americans employed;<sup>6</sup> and
  - Employment of African Americans in life, physical, and social sciences decreased one percent and African Americans lost 1,100 jobs. However, there was overall job decline in life, physical, and social science occupations from 2003 to 2012.<sup>7</sup>

## **Declining African American Employment in Computer Occupations**

From 2003 to 2012, the concentration of African Americans in computer and mathematical science occupations declined from 8.1 percent in 2003 to 7.4 percent in 2012.<sup>8</sup> From 2003 to 2012:

- Concentration of African American computer programmers declined from 7.1 percent to 5.9 percent;<sup>9</sup>
- Concentration of African American database administrators declined from 5.3 percent to 4.1 percent;<sup>10</sup> and
- Concentration of African American software engineers declined from 6.1 percent to 4 percent.<sup>11</sup>

African American employment in computer and mathematical occupations increased by just 29,500 jobs despite the addition of nearly 700,000 new computer and mathematical jobs from 2003 to 2012.<sup>12</sup> While African Americans were struggling to increase their density in computer-related occupations from 2003 to 2012, 510,993 initial H-1B guest worker visas were issued to employers to hire guest workers in computer-related occupations.<sup>13</sup> Temporary guest workers filled 74 percent of the new jobs in computer-related occupations.

The vast majority of H-1B visas were issued for guest workers in systems analysis and computer programming, occupations that have historically seen steep declines in the concentration of African American computer professionals.

### **The Education Pipeline**

African Americans earned more computer-related degrees than Asians or Hispanics in academic year 2011-12.<sup>14</sup> Thus, there is little evidence that the decrease in the African American computer-related occupations is due to a shortage of talent.

- In 2011-12, African Americans earned 6,303 associate's degrees in computer and information science.<sup>15</sup>
- In 2011-12, 5,410 bachelor's degrees were awarded to African Americans in computer and information science. African Americans earned 1,156 more bachelor's degrees than Asians and 1,402 more than Hispanics.<sup>16</sup>
- Also in 2011-12, African Americans earned 1,648 master's degrees in computer and information sciences.<sup>17</sup>

### **Unemployment**

- In December 2013, of the 80,000 African American computer systems analysts, 9.6 percent were unemployed.<sup>18</sup>
- In December 2013, of the nearly 50,000 African American software developers, applications and systems software, eight percent were unemployed.<sup>19</sup>
- Among African American computer programmers, 6.9 percent were unemployed in December 2013.<sup>20</sup>

## **Conclusion**

Increasing the number of H-1B visas available to employers will further deplete the concentration of African Americans in the high-tech workforce. Unfortunately, legislation is regularly introduced in Congress that would increase the availability of H-1B visas even where surpluses of U.S. labor exist.

African American high-tech professionals would benefit from comprehensive immigration reform. However, comprehensive immigration reform must include the creation of an independent commission that would assess and manage future labor flows based on labor market shortages that are determined on the basis of actual need.<sup>21</sup> Managing future immigration flows based on labor market shortages would increase the number of African Americans in high-tech jobs.

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<sup>1</sup> U.S. Department of Labor, Bureau of Labor Statistics, Employment Projections. Table 1.2 Employment by detailed occupation, 2012 and projected 2022. 2013.

<sup>2</sup> U.S. Department of Labor, Bureau of Labor Statistics, Household Data Annual Averages, Table 11. 2012.

<sup>3</sup> U.S. Department of Labor, Bureau of Labor Statistics, Household Data Annual Averages, Table 11. 2003 and 2012.

<sup>4</sup> *Ibid.*

<sup>5</sup> *Ibid.*

<sup>6</sup> *Ibid.*

<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*

<sup>9</sup> U.S. Department of Labor, Bureau of Labor Statistics, Household Data Annual Averages, Table 11. 2003 through 2012 (data utilized for computer programmers and to determine concentration of African Americans among systems analysts); U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics, Occupational Employment and Wages, 2003, 2004, 2005, 2006, 2007, 2008, 2009, and 2010 (data utilized to determine the size of systems analyst workforce).

<sup>10</sup> *Ibid.*

<sup>11</sup> *Ibid.*

<sup>12</sup> U.S. Department of Labor, Bureau of Labor Statistics, Household Data Annual Averages, Table 11. 2003 and 2012.

<sup>13</sup> U.S. Department of Homeland Security, U.S. Citizenship and Immigration Services, *Characteristics of H-1B Specialty Occupation Workers, Fiscal Years 2003, 2004, 2005, 2006, 2007, 2008; 2009; 2010, 2011, and 2012.*

<sup>14</sup> National Center for Education Statistics, Digest of Education Statistics. 2011-12 Tables and Figures.

<sup>15</sup> National Center for Education Statistics, Digest of Education Statistics, Table 321.30. Associate's degrees conferred by postsecondary institutions, by race/ethnicity and field of study: 2010-11 and 2011-12.

<sup>16</sup> National Center for Education Statistics, Digest of Education Statistics, Table 322.30. Bachelor's degrees conferred by postsecondary institutions, by race/ethnicity and field of study: 2010-11 and 2011-12.

<sup>17</sup> National Center for Education Statistics, Digest of Education Statistics, Table 323.30. Master's degrees conferred by postsecondary institutions, by race/ethnicity and field of study: 2010-11 and 2011-12.

<sup>18</sup> U.S. Census Bureau, DataFerrett, Currently Population Survey, Monthly Microdata, December 2013.

<sup>19</sup> *Ibid.*

<sup>20</sup> *Ibid.*

<sup>21</sup> Marshall, Ray. *Immigration for Shared Prosperity—A Framework for Comprehensive Reform*, Washington: Economic Policy Institute, 2009.

For more information on professional and technical workers, check DPE's website:  
[www.dpeaflcio.org](http://www.dpeaflcio.org).

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*The Department for Professional Employees, AFL-CIO (DPE) comprises 20 AFL-CIO unions representing over four million people working in professional and technical occupations. DPE-affiliated unions represent: teachers, college professors, and school administrators; library workers; nurses, doctors, and other health care professionals; engineers, scientists, and IT workers; journalists and writers, broadcast technicians and communications specialists; performing and visual artists; professional athletes; professional firefighters; psychologists, social workers, and many others. DPE was chartered by the AFL-CIO in 1977 in recognition of the rapidly growing professional and technical occupations.*

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