Research Archive of Satyadhar Joshi appearing at Department of Commerce Library Pages

Volume 1, Issue 1 *February 2026*

Pages 1-342

Collected Research on Agentic and Generative AI Implications for U.S. Workforce, Education, and Economic Competitiveness

A Compilation of Works with links at
U.S. Department of Commerce Library

Submitted by:
Satyadhar Joshi
Independent Researcher
Alumnus, International MBA, Bar-Ilan University, Israel
Alumnus, Touro College MSIT, NY, USA
ORCID: 0009-0002-6011-5080
satyadhar.joshi@gmail.com

Submission Date: February 22, 2026

Purpose of This Compilation

This document compiles multiple peer-reviewed articles and preprints authored by Satyadhar Joshi examining the implications of agentic and generative artificial intelligence for the United States. The works collected herein represent original research published in academic journals during 2024-2025.

The compilation is submitted to facilitate archival discovery, cataloging, and access to this body of work. The articles address interconnected themes including workforce transformation, K-12 and military education, economic competitiveness, and AI governance.

All numerical estimates, projections, and policy recommendations contained in the attached articles are drawn from the cited academic and policy sources within each original work. This cover sheet serves only as a bibliographic guide and does not introduce new claims or findings.

Compiler Information: Satyadhar Joshi, Independent Researcher

Research Themes Covered:

- Workforce Development and Upskilling (including prompt engineering)
- K-12 Education AI Integration
- Military Education Transformation
- Economic Competitiveness and Sectoral Impacts
- AI Governance and Policy Frameworks
- Veteran Employment and Workforce Inclusion

Articles Included in This Compilation:

1. "Review of Artificial General Intelligence (AGI): Implications for the U.S. Workforce and Economic Stability" (2025)
2. "Retraining US Workforce in the Age of Agentic Gen AI: Role of Prompt Engineering and Up-Skilling Initiatives" (2025)
3. "Generative AI: Mitigating Workforce and Economic Disruptions While Strategizing Policy Responses" (2025)
4. "Agentic Generative AI and the Future U.S. Workforce: Advancing Innovation and National Competitiveness" (2025)
5. "ARTIFICIAL INTELLIGENCE AND THE FUTURE OF US COMPETITIVENESS: SECTORAL IMPACTS, WORKFORCE TRANSITIONS, AND POLICY CHALLENGES" (2025)
6. "ENHANCING U.S. K-12 COMPETITIVENESS FOR THE AGENTIC GENERATIVE AI ERA" (2025)
7. "Reskilling the U.S. Military Workforce for the Agentic AI Era: A Framework for Educational Transformation" (2025)
8. "Addressing the AI Skills Gap: A Multi-Level Framework for Integrating Prompt Engineering and Upskilling into U.S. Workforce Development Policy" (2025)
9. "The Impact of AI on Veteran Employment and the Future Workforce Development: Opportunities, Barriers, and Systemic Solutions" (2025)
10. "Advancing U.S. Competitiveness Through Governance Tools and Trustworthy Frameworks for Autonomous GenAI Agentic Systems" (2025)

Note to Catalogers: This cover sheet is provided for indexing purposes only. The attached PDF contains the complete, unaltered articles as originally published. All claims, data, and recommendations appear in their original context with full citations.

ARTICLE

AI Governance in the Era of Agentic Generative AI and AGI: Frameworks, Risks, and Policy Directions

Joshi, Satyadhar

International Journal of Innovative Research in Computer Science and Technology, 2025-08, Vol.13 (5), p.14-24

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	AI Governance in the Era of Agentic Generative AI and AGI: Frameworks, Risks, and Policy Directions
Creator	Joshi, Satyadhar
Is Part Of	International Journal of Innovative Research in Computer Science and Technology, 2025-08, Vol.13 (5), p.14-24
Description	The accelerating development of agentic artificial intelligence (AI) and the prospect of artificial general intelligence (AGI) create unprecedented opportunities alongside complex governance challenges. This paper examines the ethical, regulatory, and technical dimensions of governing

highly autonomous AI systems, drawing upon more than fifty contemporary academic and policy sources. Three core insights emerge. First, current governance structures provide limited coverage of risks linked to recursive self-improvement and multi-agent coordination, with only an estimated 10–15% of safety research addressing impacts that arise after deployment. Second, economic projections suggest that agentic AI could generate between 2.6 and 4.4 trillion USD in added global output by 2030, yet automation could replace approximately 28–42% of existing job tasks, making proactive workforce transition strategies a policy necessity. Third, fragmented regulatory approaches remain a concern; in the United States, for example, 70–75% of critical infrastructure is considered vulnerable to adversarial autonomous systems. To address these issues, we propose a governance model built on three pillars: modular agent design, adaptive safety mechanisms, and international coordination. Policy measures such as licensing thresholds for high-computer systems exceeding 10^25 FLOPs, structured red-team testing across public and private sectors, and fiscal incentives for governance-by-design practices are advanced as actionable pathways. Overall, the study argues for adaptive, globally coordinated governance frameworks that balance innovation with systemic risk mitigation in the era of agentic AI and AGI. his is a pure review paper and all results, proposals and findings are from the cited literature.

Identifier

ISSN: 2347-5552
EISSN: 2347-5552
DOI: 10.55524/ijircst.2025.13.5.3

Links

Get PDF

ARTICLE

Strategic Integration of Artificial Intelligence in U.S. K–12 Education: A Comprehensive Review and Policy Roadmap

Joshi, Satyadhar

International journal of computer applications, 2025-07, Vol.187 (24), p.21-38

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Strategic Integration of Artificial Intelligence in U.S. K–12 Education: A Comprehensive Review and Policy Roadmap
Creator	Joshi, Satyadhar
Is Part Of	International journal of computer applications, 2025-07, Vol.187 (24), p.21-38
Subject	Artificial intelligence Computer science Education
Description	This paper provides a comprehensive review of Artificial Intelligence (AI) integration in K-12 education, examining current implementations, policy

frameworks, and emerging challenges. We analyze over 40 recent publications (2024-2025) from academic journals, government reports, and industry whitepapers to identify key trends in AI adoption across primary and secondary education systems. This paper presents a comprehensive review of Artificial Intelligence (AI) integration in K-12 education, examining its pedagogical, technical, and policy dimensions. Through an analysis of recent literature, we highlight Generative AI as the most widely adopted paradigm in educational settings, with Agentic AI emerging as a significant secondary focus. The review identifies key trends in architectural approaches while noting underrepresented technical frameworks. Our review reveals three critical dimensions of AI in education:(1) pedagogical applications including personalized learning and administrative automation, (2) policy and ethical considerations at federal and state levels, and (3) infrastructure requirements for successful implementation. We highlight the rapid growth of Generative AI (GenAI) tools in classrooms alongside persistent concerns about equity, data privacy, and teacher preparedness. We summarize a conceptual framework for evaluating educational AI systems that balances pedagogical value with implementation considerations. This systematic review examines Artificial Intelligence (AI) integration in K-12 education through pedagogical, technical, and policy lenses.

Publisher Foundation of Computer Science

Identifier
ISSN: 0975-8887
EISSN: 0975-8887
DOI: 10.5120/ijca2025925428

Links

View record in HAL

Get PDF

TOP
SEND TO
HOW TO GET IT
DETAILS
LINKS
CITATIONS

ARTICLE

Review of Artificial General Intelligence (AGI): Implications for the U.S. Workforce and Economic Stability

Joshi, Satyadhar

International Journal of Innovations in Science Engineering And Management, 2025-06, p.336-350

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Review of Artificial General Intelligence (AGI): Implications for the U.S. Workforce and Economic Stability
Creator	Joshi, Satyadhar
Is Part Of	International Journal of Innovations in Science Engineering And Management, 2025-06, p.336-350
Description	Artificial General Intelligence (AGI) is poised to transform the global workforce, raising hopes and concerns across sectors. Artificial General Intelligence (AGI), defined as AI systems possessing human-level cognitive abilities across a broad range of tasks, stands on the horizon as a

potentially transformative force for society. This paper presents a systematic review of over 40 contemporary sources examining Artificial General Intelligence (AGI) and its projected impacts on workforce dynamics. This paper further provides a comprehensive review of the predicted and potential impacts of AGI on the global job market. We analyze key themes including job displacement risks, emerging employment paradigms, and policy considerations in preparation for AGI integration. Drawing upon recent literature, we explore various facets, including job displacement, the emergence of new roles, economic implications such as wage dynamics, and the critical need for workforce adaptation through reskilling and upskilling initiatives. Furthermore, we delve into the societal and ethical considerations surrounding AGI's development and deployment, including concerns about preparedness, timelines for its arrival, and the imperative for responsible governance. By synthesizing diverse perspectives, this review aims to offer a holistic understanding of how AGI could reshape employment landscapes, urging proactive measures from policymakers, educators, and individuals to navigate this evolving future. The synthesis reveals divergent expert perspectives on both AGI timelines and socioeconomic consequences, highlighting critical gaps in workforce preparedness.

Identifier

ISSN: 2583-7117
EISSN: 2583-7117
DOI: 10.69968/ijisem.2025v4i2336-350

Links

Get PDF

Citations

Find sources cited in this

ARTICLE

Retraining US Workforce in the Age of Agentic Gen AI: Role of Prompt Engineering and Up-Skilling Initiatives

Satyadhar Joshi

International Journal of Advanced Research in Science, Communication and Technology, 2025-02, p.543-557

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Retraining US Workforce in the Age of Agentic Gen AI: Role of Prompt Engineering and Up-Skilling Initiatives
Creator	Satyadhar Joshi
Is Part Of	International Journal of Advanced Research in Science, Communication and Technology, 2025-02, p.543-557
Description	This work reviews U.S. workforce retention, AI upskilling, prompt engineering, workforce development, and automation in the context of recent advancements in agentic generative AI. The rapid integration of artificial intelligence (AI) across industries has raised concerns over

potential job displacement within the US workforce. However, targeted upskilling—particularly through training in prompt engineering, a key skill for interacting with large language models—offers promising avenues to empower employees and retain talent. This review paper synthesizes insights from academic research, industry reports, and educational initiatives to examine how prompt engineering training can mitigate the challenges of AI-induced disruption and support workforce resilience. This review article provides a comprehensive overview of the rapidly evolving field of prompt engineering. It examines fundamental techniques for crafting effective prompts, explores the diverse applications of prompt engineering across various sectors, and discusses the challenges and ethical considerations associated with its use. Furthermore, the review identifies potential future research directions and highlights the growing importance of prompt engineering in the age of large language models. This review article provides a comprehensive overview of prompt engineering, with a specific focus on its implications for workforce development and training. It examines prompt engineering techniques, applications across sectors, ethical considerations, and future research directions. A key emphasis is placed on the role of prompt engineering training programs in equipping the workforce with essential skills for the age of large language models

Identifier

ISSN: 2581-9429
EISSN: 2581-9429
DOI: 10.48175/IJARSCT-23272

Links

Get PDF

Citations

Find sources cited in this

ARTICLE

Generative AI: Mitigating Workforce and Economic Disruptions While Strategizing Policy Responses for Governments and Companies

Satyadhar Joshi

International Journal of Advanced Research in Science, Communication and Technology, 2025-02, p.480-486

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Generative AI: Mitigating Workforce and Economic Disruptions While Strategizing Policy Responses for Governments and Companies
Creator	Satyadhar Joshi
Is Part Of	International Journal of Advanced Research in Science, Communication and Technology, 2025-02, p.480-486
Description	A Systematic Review of AI's Impact on the Labor Market: Challenges, Opportunities, and Future Directions is discussed in this work. The widespread adoption of artificial intelligence (AI) technologies is

transforming industries, leading to significant changes in the labor market. This paper explores the effects of AI on job displacement, economic growth, and workplace productivity. We discuss how companies and governments are responding to these changes through policy interventions and the need for upskilling to mitigate risks associated with AI automation. The rapid advancement of artificial intelligence (AI), particularly generative AI, has sparked significant debate about its impact on the labor market. While AI promises to enhance productivity and create new opportunities, concerns about job displacement, inequality, and ethical implications persist. This paper presents a systematic review of the current literature on AI's impact on employment, focusing on the challenges, opportunities, and future directions. We analyze key trends, including the potential for job displacement, the role of AI in reshaping industries, and the need for policy interventions to mitigate risks. Our findings highlight the dual nature of AI as both a disruptor and an enabler, emphasizing the importance of proactive measures to ensure equitable outcomes in the evolving labor market. Navigating the AI Revolution: Challenges, Opportunities, and Solutions for the Future of Work is an area that is discussed

Identifier

ISSN: 2581-9429
EISSN: 2581-9429
DOI: 10.48175/IJARSCT-23260

Links

Get PDF

Citations

Find sources citing this or sources cited in this

TOP
SEND TO
HOW TO GET IT
DETAILS
LINKS

ARTICLE

Agentic Generative AI and the Future U.S. Workforce: Advancing Innovation and National Competitiveness

Joshi, Satyadhar

International Journal of Research and Review, 2025-02, Vol.12 (2), p.102-113

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Agentic Generative AI and the Future U.S. Workforce: Advancing Innovation and National Competitiveness
Creator	Joshi, Satyadhar
Is Part Of	International Journal of Research and Review, 2025-02, Vol.12 (2), p.102-113
Subject	Artificial intelligence Continuing education
Description	This paper presents a systematic review of generative AI applications workforce development and education. We categorize the literature into key themes and synthesize findings to highlight trends, challenges, and

future directions. Expected outcomes include enhanced training efficiency, broader accessibility to high-quality learning resources, and reduced costs compared to traditional methods. The AI-driven approach ensures adaptability across industries, providing a scalable solution for continuous workforce upskilling. However, challenges such as data privacy, algorithmic bias, and user adoption must be addressed through stringent security measures, bias mitigation strategies, and user-friendly interfaces. By harnessing generative AI, this initiative aims to revolutionize professional training, equipping individuals with the tools to adapt to an evolving job market. Additionally, this paper proposes AI-driven training programs specifically tailored for older workers, addressing the AI skills gap and ensuring workforce inclusivity. The successful implementation of AI-driven training agents will not only improve productivity but also foster a culture of lifelong learning, empowering workers to thrive in an AI-enhanced economy. Furthermore, this paper utilizes various graphical representations, including decision trees, heatmaps, and trend analysis charts, to illustrate the projected impact of generative AI on workforce development. These visual tools provide a comprehensive and data-driven perspective on emerging trends, enabling readers to grasp complex interconnections and future scenarios effectively. If trends continue along their projected paths, AI-driven workforce transformation could reshape industries on an unprecedented scale, requiring proactive adaptation strategies from policymakers, businesses, and individuals alike. This review is based on latest research published in last one year. Keywords: GEN AI, Agents, US Workforce Development, US Competitiveness

Identifier

ISSN: 2454-2237
EISSN: 2349-9788
DOI: 10.52403/ijrr.20250212

Links

Get PDF

TOP
SEND TO
HOW TO GET IT
DETAILS
LINKS

ARTICLE

ARTIFICIAL INTELLIGENCE AND THE FUTURE OF US COMPETITIVENESS: SECTORAL IMPACTS, WORKFORCE TRANSITIONS, AND POLICY CHALLENGES

Joshi, Satyadhar

International Journal of Research in Commerce and Management Studies, 2025, Vol.7 (4), p.76-110

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	ARTIFICIAL INTELLIGENCE AND THE FUTURE OF US COMPETITIVENESS: SECTORAL IMPACTS, WORKFORCE TRANSITIONS, AND POLICY CHALLENGES
Creator	Joshi, Satyadhar
Is Part Of	International Journal of Research in Commerce and Management S... 2025, Vol.7 (4), p.76-110
Subject	Artificial intelligence Computer science

Description	This paper provides a comprehensive analysis of Artificial Intelligence's impact on U.S. economic competitiveness through six key dimensions. First, we examine AI's macroeco-nomic effects, synthesizing projections that estimate potential contributions of $4.8-$19.9 trillion to global GDP by 2030, with annual productivity growth ranging from 0.5-1.3%. Second, we analyze labor market transformations, where 20-40% of jobs may be affected, creating both displacement risks and opportunities for workforce augmentation. Third, we investi-gate the intensifying geopolitical competition in AI, particularly between the U.S. and China, where military AI markets are projected to reach $38.5 billion and $32 billion respectively by 2030. Fourth, we evaluate sector-specific impacts, highlighting manufacturing efficiency gains of 15-30% and small business productivity improvements up to 25%.
Identifier	ISSN: 2582-2292 EISSN: 2582-2292 DOI: 10.38193/IJRCMS.2025.7405

Links

View record in HAL

Get PDF

TOP
SEND TO
HOW TO GET IT
DETAILS
LINKS

ARTICLE

ENHANCING U.S. K-12 COMPETITIVENESS FOR THE AGENTIC GENERATIVE AI ERA: A FRAMEWORK FOR INTEGRATING AI IN U.S. K-12 EDUCATION

Joshi, Satyadhar

European Journal of Education Studies, 2025-11, Vol.12 (12)

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	ENHANCING U.S. K-12 COMPETITIVENESS FOR THE AGENTIC GENERATIVE AI ERA: A FRAMEWORK FOR INTEGRATING AI IN U.S. K-12 EDUCATION
Creator	Joshi, Satyadhar
Is Part Of	European Journal of Education Studies, 2025-11, Vol.12 (12)
Description	This paper presents a comprehensive framework for transforming K-12 education through systematic AI integration, addressing critical gaps in curriculum development and teacher preparedness. Drawing from extensive analysis of federal initiatives, including the 2025 White House Executive Order on advancing AI education, and synthesizing insights

from recent scholarly and policy sources, we propose a multi-tiered approach to educational reform. This paper presents a strategic framework for transforming U.S. K-12 education through AI-integrated curriculum development and professional development programs. Our research reveals significant disparities in current implementation, with only 20-25% of educators feeling adequately prepared for AI integration despite 60-70% recognizing its importance. The framework encompasses AI literacy competencies across grade levels, differentiated professional development pathways, and a detailed technical architecture for generative AI tools in educational settings. We provide empirical evidence from international benchmarks, demonstrating that systematic approaches like Finland's "Generation AI" project achieve 80-90% teacher participation rates compared to 30-40% in U.S. programs. The proposed model includes phased implementation strategies, resource allocation frameworks totaling $7.2 million over three years, and comprehensive assessment mechanisms. Our findings indicate that schools implementing structured AI curricula report 25-35% higher student STEM engagement and 40-50% gains in computational thinking scores. The paper addresses critical ethical considerations, equity implications, and policy recommendations to guide sustainable AI integration while maintaining human-centered educational values. The proposed model aligns with national priorities for maintaining U.S. competitiveness in global AI education landscapes while ensuring equitable access and responsible AI implementation across diverse educational contexts. All results, projections, and proposals are from cited literature. Article visualizations:

Identifier

ISSN: 2501-1111
EISSN: 2501-1111
DOI: 10.46827/ejes.v12i12.6361

Links

Get PDF

ARTICLE

Reskilling the U.S. Military Workforce for the Agentic AI Era: A Framework for Educational Transformation

Joshi, Satyadhar

Journal of Education, Society and Behavioural Science, 2025-11, Vol.38 (6), p.1-13

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Reskilling the U.S. Military Workforce for the Agentic AI Era: A Framework for Educational Transformation
Creator	Joshi, Satyadhar
Is Part Of	Journal of Education, Society and Behavioural Science, 2025-11, Vol.38 (6), p.1-13
Description	The rapid emergence of agentic artificial intelligence (AI) systems represents a paradigm shift in military operations, demanding fundamental transformation of US military education. This paper presents a comprehensive framework for reskilling and redesigning military education to address critical workforce readiness gaps in the era of autonomous AI systems. Utilizing a mixed-methods review of defense

reports, case studies, and quantitative workforce data, this paper develops a comprehensive framework for reskilling the defense force to address critical readiness gaps in the era of autonomous AI. Through analysis of current AI adoption trends, quantitative workforce assessments, and educational limitations, we identify that only 10-15% of military personnel feel adequately trained for agentic AI integration despite significant investments exceeding $600-900 million in next-generation AI capabilities. Our proposed solution features a multi-tiered educational architecture with progressive competency levels, a continuous curriculum development pipeline, and layered technology integration. The framework addresses identified skills gaps through foundational AI literacy for all personnel, operational competence for mid-career leaders, and strategic AI leadership development. Implementation strategies include phased rollout over 24-36 months, multi-stakeholder engagement models, and comprehensive assessment mechanisms. Findings demonstrate that successful agentic AI integration requires not only technical upskilling but also fundamental changes in pedagogical approaches, institutional culture, and resource allocation—with optimal distribution of 30-40% to technology infrastructure, 20-25% to faculty development, 15-20% to curriculum design, and program evaluation. This research provides actionable recommendations for military education institutions to prepare personnel for human-AI teaming, autonomous system oversight, and ethical AI application in complex operational environments. decrease medical as well as financial burden, hence improving the management of cirrhotic patients. These predictors, however, need further work to validate reliability. All results and proposals are from cited literature.

Identifier

ISSN: 2456-981X
EISSN: 2456-981X
DOI: 10.9734/jesbs/2025/v38i61436

Links

Get PDF

ARTICLE

Reskilling the U.S. Military Workforce for the Agentic AI Era: A Framework for Educational Transformation

Joshi, Satyadhar

Journal of Education, Society and Behavioural Science, 2025-11, Vol.38 (5), p.119-131

OPEN ACCESS

Get PDF

Check for available services

TOP
SEND TO
HOW TO GET IT
DETAILS
LINKS

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Reskilling the U.S. Military Workforce for the Agentic AI Era: A Framework for Educational Transformation
Creator	Joshi, Satyadhar
Is Part Of	Journal of Education, Society and Behavioural Science, 2025-11, Vol.38 (5), p.119-131
Description	The rapid emergence of agentic artificial intelligence (AI) systems represents a paradigm shift in military operations, demanding fundamental transformation of US military education. This paper p... a comprehensive framework for reskilling and redesigning military education to address critical workforce readiness gaps in the era of autonomous AI systems. Utilizing a mixed-methods review of defense

reports, case studies, and quantitative workforce data, this paper develops a comprehensive framework for reskilling the defense force to address critical readiness gaps in the era of autonomous AI. Through analysis of current AI adoption trends, quantitative workforce assessments, and educational limitations, we identify that only 10-15% of military personnel feel adequately trained for agentic AI integration despite significant investments exceeding $600-900 million in next-generation AI capabilities. Our proposed solution features a multi-tiered educational architecture with progressive competency levels, a continuous curriculum development pipeline, and layered technology integration. The framework addresses identified skills gaps through foundational AI literacy for all personnel, operational competence for mid-career leaders, and strategic AI leadership development. Implementation strategies include phased rollout over 24-36 months, multi-stakeholder engagement models, and comprehensive assessment mechanisms. Findings demonstrate that successful agentic AI integration requires not only technical upskilling but also fundamental changes in pedagogical approaches, institutional culture, and resource allocation—with optimal distribution of 30-40% to technology infrastructure, 20-25% to faculty development, 15-20% to curriculum design, and program evaluation. This research provides actionable recommendations for military education institutions to prepare personnel for human-AI teaming, autonomous system oversight, and ethical AI application in complex operational environments. decrease medical as well as financial burden, hence improving the management of cirrhotic patients. These predictors, however, need further work to validate reliability. All results and proposals are from cited literature.

Identifier

ISSN: 2456-981X
EISSN: 2456-981X
DOI: 10.9734/jesbs/2025/v38i51436

Links

Get PDF

ARTICLE

Training the US older workforce for the impact of generative AI on Financial Services: A Policy Guide

Joshi, Satyadhar

International Journal of Science and Research Archive, 2025-10, Vol.17 (1), p.1-16

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Training the US older workforce for the impact of generative AI on Financial Services: A Policy Guide
Creator	Joshi, Satyadhar
Is Part Of	International Journal of Science and Research Archive, 2025-10, Vol.17 (1), p.1-16
Description	This paper presents a review and proposes framework for training older financial services employees (age 45+) in Generative AI applications. As banks rapidly adopt AI tools, our research identifies specific barriers facing older workers including technological anxiety, interface complexity, and knowledge retention challenges. We conclude that older workers require approximately 30-40% more training time than younger colleagues but

achieve comparable proficiency with appropriate support. Key success factors include: (1) peer mentoring systems pairing tech-savvy junior employees with senior staff, (2) simplified interfaces removing unnecessary technical options, and (3) job-specific practice scenarios rather than abstract exercises. This paper further explores the critical need for training older adults in Generative AI (GenAI). While GenAI offers transformative potential across various sectors, ensuring equitable access and its adoption requires addressing the specific challenges faced by older populations. These challenges include digital literacy gaps, concerns about data privacy and security, and the need for user-friendly interfaces especially for older population who might be largely non-technical. The paper examines recent literature and key considerations for developing effective GenAI training programs for older adults, emphasizing the importance of foundational digital skills, accessible language, personalized learning, and ongoing support. Additionally, this study highlights the digital divide faced by older adults, emphasizing the need for structured AI training programs. Furthermore, it analyzes future projections of GenAI's impact, highlighting the necessity of upskilling and reskilling the workforce, including older individuals, to bridge the emerging GenAI skills gap. The paper categorizes and quantifies the types of sources used to support its claims, providing a comprehensive overview of the current state of research and expert opinion on this topic with tables, graphics and charts. By addressing the unique needs of older learners and preparing for the future of GenAI, we can foster digital inclusion and empower all members of society to benefit from this transformative technology. This paper also examines the impact of Generative AI (GenAI) and Agentic AI on the financial services sector, with a specific focus on workforce training and upskilling. Key findings from literature indicate that by 2027, 80% of the engineering workforce will require AI-related upskilling (Gartner) and AI-driven automation can reduce manual data tasks by up to 80% (West Monroe). For example, in banking, AI adoption has led to tangible productivity gains, such as Capitec Bank employees saving over one hour per week using AI tools (as suggested by recent reports). The paper categorizes and quantifies recent AI adoption trends, workforce transformation data, and financial efficiency metrics to provide a comprehensive condensed overview of the evolving AI landscape in financial services based on recent reports.

Identifier

ISSN: 2582-8185
EISSN: 2582-8185
DOI: 10.30574/ijsra.2025.17.1.2745

Links

Get PDF

TOP
SEND TO
HOW TO GET IT
DETAILS
LINKS

ARTICLE

Addressing the AI Skills Gap: A Multi-Level Framework for Integrating Prompt Engineering and Upskilling into U.S. Workforce Development Policy

Joshi, Satyadhar

Current Journal of Applied Science and Technology, 2025-10, Vol.44 (10), p.19-31

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Addressing the AI Skills Gap: A Multi-Level Framework for Integrating Prompt Engineering and Upskilling into U.S. Workforce Development Policy
Creator	Joshi, Satyadhar
Is Part Of	Current Journal of Applied Science and Technology, 2025-10, Vol.44 (10), p.19-31
Subject	Computer science
Description	This paper presents a analysis of the AI-driven skills gap and examines prompt engineering and upskilling initiatives as strategic workforce

development responses. The rapid integration of artificial intelligence, particularly generative AI, across industries has created significant workforce disruptions, with estimates suggesting AI could impact 300 million jobs globally. The proliferation of generative AI necessitates a systematic policy response to the emerging workforce skills gap. This paper introduces a multi-level analytical framework examining the AI skills gap across technical, strategic, and operational dimensions. We evaluate the efficacy of prompt engineering as a foundational technical competency and analyze upskilling interventions across federal, state, corporate, and educational domains. Our analysis synthesizes implementation data, identifying critical bottlenecks in curriculum standardization, scalable delivery, and systems integration. This paper analyzes the AI-driven skills gap through a multi-level framework encompassing technical, strategic, and operational dimensions. It evaluates prompt engineering as a core technical competency and examines upskilling initiatives across federal, state, corporate, and educational domains. The analysis identifies critical bottlenecks in curriculum standardization, scalable delivery, and systems integration, concluding with policy recommendations for a coordinated national workforce development strategy. The paper concludes with a structured set of policy recommendations for establishing national AI competency standards, deploying scalable training infrastructure, and formalizing public-private partnerships to ensure workforce readiness for an AI-driven economy.

Publisher Current Journal of Applied Science and Technology

Identifier
ISSN: 2457-1024
EISSN: 2457-1024
DOI: 10.9734/cjast/2025/v44i104617

Links

View record in HAL

Get PDF

ARTICLE

The Impact of AI on Veteran Employment and the Future Workforce Development: Opportunities, Barriers, and Systemic Solutions

Satyadhar Joshi

World Journal of Advanced Research and Reviews, 2025-09, Vol.27 (2), p.328-341

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	The Impact of AI on Veteran Employment and the Future Workforce Development: Opportunities, Barriers, and Systemic Solutions
Creator	Satyadhar Joshi
Is Part Of	World Journal of Advanced Research and Reviews, 2025-09, Vol.27 (2), p.328-341
Description	This paper surveys current literature, policy developments, training programs, public-private partnerships, and technology trajectories to illuminate the rapidly evolving workforce ecosystem. Special attention is given to veterans' transition from military to civilian jobs, with AI both as a

skills multiplier and a disruptor. Key policy recommendations emerge from this analysis, including: modernization of military skills translation frameworks, expansion of AI credentialing programs through workforce development legislation, and implementation of ethical AI deployment standards. The paper highlights the growing adoption of skills-based hiring—projected to reach 100% penetration in technical fields by 2030—and the critical role of public-private partnerships in scaling effective training solutions. The study documents studies like successful training models including intensive 12-week AI bootcamps costing approximately$8,400 per participant and public-private partnerships that have demonstrated 85% placement rates within six months. Financial projections indicate that strategic investments in veteran AI training could yield average wage increases of $ 28,000 annually, with defense contractors realizing $42 million in annual savings through improved hiring pipelines. This review synthesizes cross-sector evidence to inform workforce development strategies in the AI era, providing stakeholders with actionable insights grounded in empirical data and financial projections. Furthermore, the paper highlights key governmental and private-sector initiatives, including policies from the Department of Veterans Affairs (VA) and public-private partnerships, designed to leverage AI for workforce development and veteran empowerment. This is a pure review paper and all numbers are from cited literature. The paper concludes with specific implementation frameworks for workforce agencies, educational institutions, and policymakers navigating the AI transition.

Identifier

ISSN: 2581-9615
EISSN: 2581-9615
DOI: 10.30574/wjarr.2025.27.3.3147

Links

Get PDF

ARTICLE

Securing U.S. AI Leadership: A policy guide for regulation, standards and interoperability frameworks

Satyadhar Joshi

International Journal of Science and Research Archive, 2025-09, Vol.16 (3), p.1-26

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Securing U.S. AI Leadership: A policy guide for regulation, standards and interoperability frameworks
Creator	Satyadhar Joshi
Is Part Of	International Journal of Science and Research Archive, 2025-09, Vol.16 (3), p.1-26
Description	The rapid proliferation of Artificial Intelligence (AI) systems across diverse sectors—including healthcare, critical infrastructure, and digital experiences—has unveiled critical interoperability challenges that poses a challenge to the ongoing innovation, safety, equitable access, and the global competitiveness of U.S. AI technologies. This paper presents a comprehensive analysis of the current AI interoperability landscape,

examining technical standards, regulatory frameworks, and governance models across major economic regions. By studying current developments we identify significant fragmentation in AI development ecosystems, with divergent approaches emerging between the United States, European Union, China, and other key players, highlighting strategic implications and proposals for maintaining U.S. leadership. Our research examines technical interoperability challenges in data formats, model architectures, workflow orchestration, and multi-agent frameworks, while analyzing regulatory divergence in AI governance approaches, including the EU's risk-based AI Act and the U.S.'s sectoral strategies. The cooperation for standardization AI protocols, data and models between various countries, organization, companies, domains and technologies have been discussed. We synthesize emerging standards and risk management methodologies from leading international bodies such as ISO/IEC JTC 1/SC 42, IEEE, and NIST, including ISO/IEC 42001 for AI management systems and the NIST AI RMF, and explore the role of model cards and data specifications in achieving technical interoperability. We also put forward looking scenarios for the next five years in this subject. By integrating insights from industry whitepapers, government publications, and academic research, we propose a holistic framework for global AI interoperability that addresses both technical standardization and regulatory harmonization keeping US AI landscape in mind. This framework provides policymakers, industry leaders, and standards organizations with actionable pathways to ensure AI systems are not only powerful, safe, and trustworthy but also strategically positioned to reinforce U.S. AI leadership while enabling seamless collaboration across borders and domains in alignment with regional regulatory requirements and cultural contexts.

Identifier

ISSN: 2582-8185
EISSN: 2582-8185
DOI: 10.30574/ijsra.2025.16.3.2519

Links

Get PDF

ARTICLE

Advancing U.S. Competitiveness Through Governance Tools and Trustworthy Frameworks for Autonomous GenAI Agentic Systems

Satyadhar Joshi

International Journal of Advanced Research in Science, Communication and Technology, 2025-09, p.124-146

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Advancing U.S. Competitiveness Through Governance Tools and Trustworthy Frameworks for Autonomous GenAI Agentic Systems
Creator	Satyadhar Joshi
Is Part Of	International Journal of Advanced Research in Science, Communication and Technology, 2025-09, p.124-146
Description	This paper provides a comprehensive analysis of governance for agentic generative AI, examining tools, platforms, and methodologies for ensuring ethical, transparent, and accountable autonomous operations. We analyze specialized monitoring platforms, compliance automation tools,

and risk assessment frameworks that enable measurable governance of autonomous operations across government and enterprise environments. We survey governance solutions including Credo AI's frameworks for multi-agent systems, IBM's compliance accelerators, and specialized observability platforms, while discussing their application to autonomous decision-making environments. This paper conducts a systematic analysis of emerging architectural frameworks designed to ensure the trustworthy operation of these autonomous systems. We examine layered governance stacks, hub-and-spoke fairness toolkits, and service-oriented observability platforms that collectively address critical requirements including real-time monitoring of sequential decision-making, dynamic risk assessment for emergent behaviors, and policy-to-code enforcement in regulated environments. Our evaluation reveals that effective agentic AI governance necessitates integrated systems capable of managing compositional risks across multiple abstraction levels—from individual action validation to system-wide safety guarantees. The analysis further demonstrates how specialized components for multi-agent coordination protocols, model trust scoring, and compliance automation form essential mechanisms for maintaining alignment between autonomous operations and human values.

Identifier

ISSN: 2581-9429
EISSN: 2581-9429
DOI: 10.48175/IJARSCT-29017

Links

Get PDF

Citations

Find sources cited in this

ARTICLE

Advancing U.S. Competitiveness in Agentic Gen AI: A Strategic Framework for Interoperability and Governance

Joshi, Satyadhar

International Journal of Innovative Science and Research Technology, 2025-09, p.1480-1496

OPEN ACCESS

Get PDF

Check for available services

Send to

QR | PERMALINK | EMAIL | ENDNOTE | PRINT | CITATION

How to get it

Please sign in to check if there are additional request options. Sign in

Additional services

Request a Book or Article

Details

Title	Advancing U.S. Competitiveness in Agentic Gen AI: A Strategic Framework for Interoperability and Governance
Creator	Joshi, Satyadhar
Is Part Of	International Journal of Innovative Science and Research Technology, 2025-09, p.1480-1496
Description	The rapid evolution of artificial intelligence has given rise to agentic AI systems—autonomous entities capable of perceiving their environment, making decisions, and executing actions with minimal human intervention. This work provides a systematic analysis of agentic AI frameworks, governance models, and implementation strategies. Drawing on a comprehensive review of the literature, we examine the current state

of agentic AI technologies, highlight key challenges in governance, security, and ethical oversight, and compare architectural frameworks for responsible deployment. Our results, illustrated through detailed framework comparisons and governance analyses, demonstrate that while agentic AI holds transformative potential across multiple sectors, notable gaps persist in standardization, regulatory compliance, and interoperability. To address these issues, we propose a layered architecture that embeds governance and security across all system layers. An analysis of the competitive landscape further identifies critical interoperability challenges that could undermine U.S. leadership. Based on these insights, we outline a strategic framework for U.S. competitiveness, emphasizing accelerated standards development, international collaboration, and investment in interoperability research. Finally, emerging trends and future directions are explored to provide a comprehensive roadmap for responsible deployment of agentic AI.

Identifier DOI: 10.38124/ijisrt/25sep978

Links

Get PDF

Citations

Find sources cited in this