



# **FUTURE READY**

## **AI's Influence on Higher Education and Career Development**

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# **WHAT IS AI?**

**Background and Definitions**

# A VERY BRIEF HISTORY OF AI

British mathematician Alan Turing (1912-1954) is widely regarded as the father of computer science and artificial intelligence

AI research formally began at Dartmouth College in 1956

Researchers at the time believed they would create machines as intelligent as humans within decades

- Leading researchers Simon and Newell predicted in 1958 that a computer would be the “world’s chess champion” within 10 years

Disappointing results and boom/bust cycle of progress and funding  
1970s-1990s

# **A VERY BRIEF HISTORY OF AI**

**By the mid 1990s, improvements in computer technology allowed researchers to solve longstanding problems**

- **Deep Blue beat world chess champion Garry Kasparov in 1997**

**Beginning around 2010, faster computer processing and “big data” opened a new era of innovation**

**Many experts argue that the early 2020s introduction of tools such as ChatGPT has begun an “AI revolution” that will transform the economy and society**

# HOW DOES AI WORK?

Artificial intelligence is an umbrella comprising different technologies, including:

- Machine learning: the use of statistical algorithms to generalize from large data sets to new situations
- Large language models (LLMs) are a type of machine learning that allow AI to understand and generate text by analyzing the statistical relationships in large bodies of text (training)
- LLMs have gained particular attention for their innovation, accessibility, and potential impact

LLMs like ChatGPT are trained using human-generated text

- Ethical and intellectual property issues
- Text that *sounds* true, not necessarily text that *is* true

# AI IS EVERYWHERE

LLMs like ChatGPT and Bing's AI-powered search

Smart devices like Roomba

Digital assistants like Alexa and Siri

Suggestions on platforms like Netflix and Spotify

Facial recognition

Online advertising and product suggestions

Social media algorithms, image analysis, and rule enforcement

Transportation technology like Google maps and self-driving cars

Propaganda and deepfakes

Factory and warehouse automation

Insurance and investing

Customer service chatbots

And many more!

# **WHY DOES IT MATTER?**

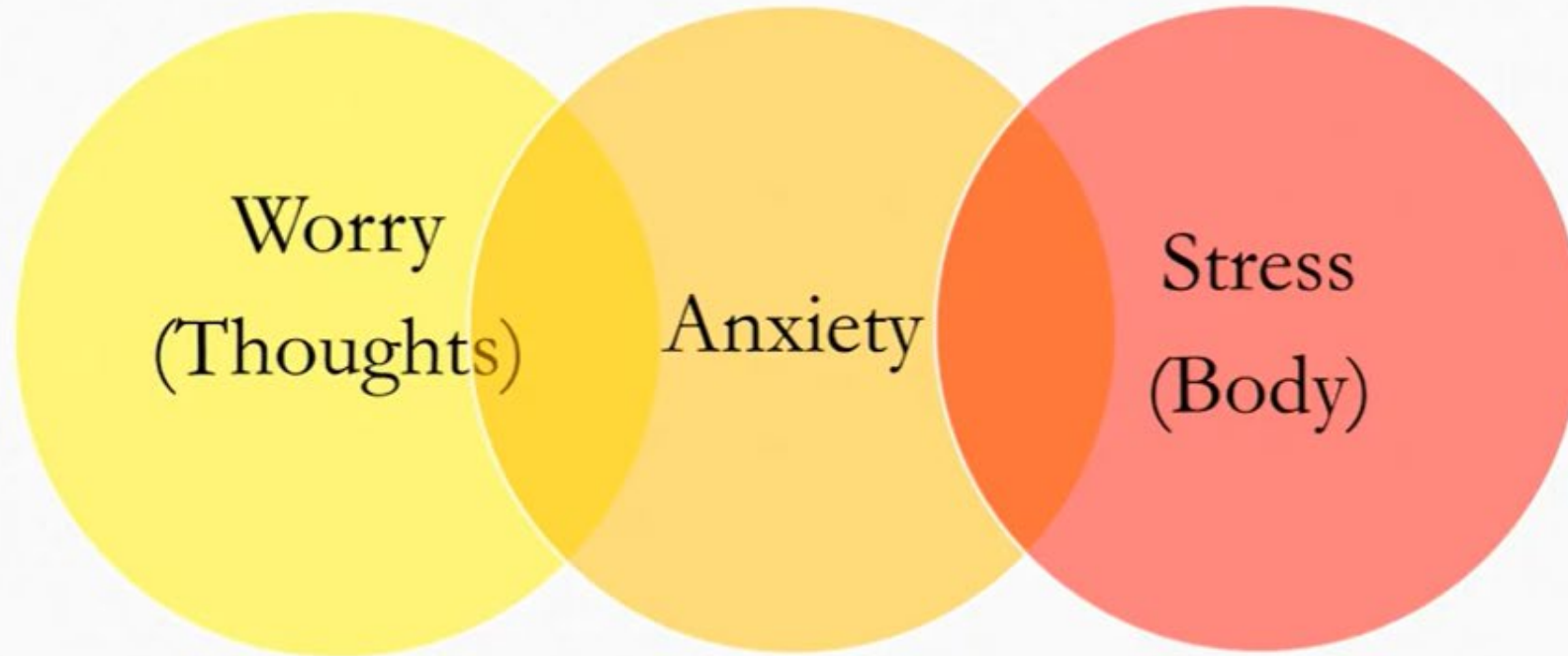
**Implications for Higher Education and the  
Workforce**

# UNCERTAINTY



“Work in the 21<sup>st</sup> century leaves people feeling anxious and insecure.” - Mark Savickas





# PANDEMIC DISRUPTION

**25 million people lost their jobs or were displaced by June 2020. (US BLS, 2020.)**

**Women and BIPOC populations were disproportionately affected. (Georgetown University, 2022)**

**Job insecurity and economic instability.**

**Digital transformation.**

**Epidemic of loneliness.**



# AI STATS

Online Service	Launch Year	Time Taken to Reach 1 Million Users
Threads	2023	1 hour
ChatGPT	2022	5 days
Instagram	2010	2.5 months
Spotify	2008	5 months
Dropbox	2008	7 months
Facebook	2004	10 months
Foursquare	2009	13 months
Twitter	2006	2 years
Airbnb	2008	2.5 years
Kickstarter	2009	2.5 years
Netflix	1999	3.5 years



# **RISE OF AI IN HIGHER EDUCATION**

**Profound impact on standardized tests and academic integrity (Smolansky et al, 2023).**

**Education and utilization of ChatGPT for student use (Elbanna & Armstrong, 2024)**

**Bias, lack of experience, and errors in judgement (Boscardin et al, 2024).**

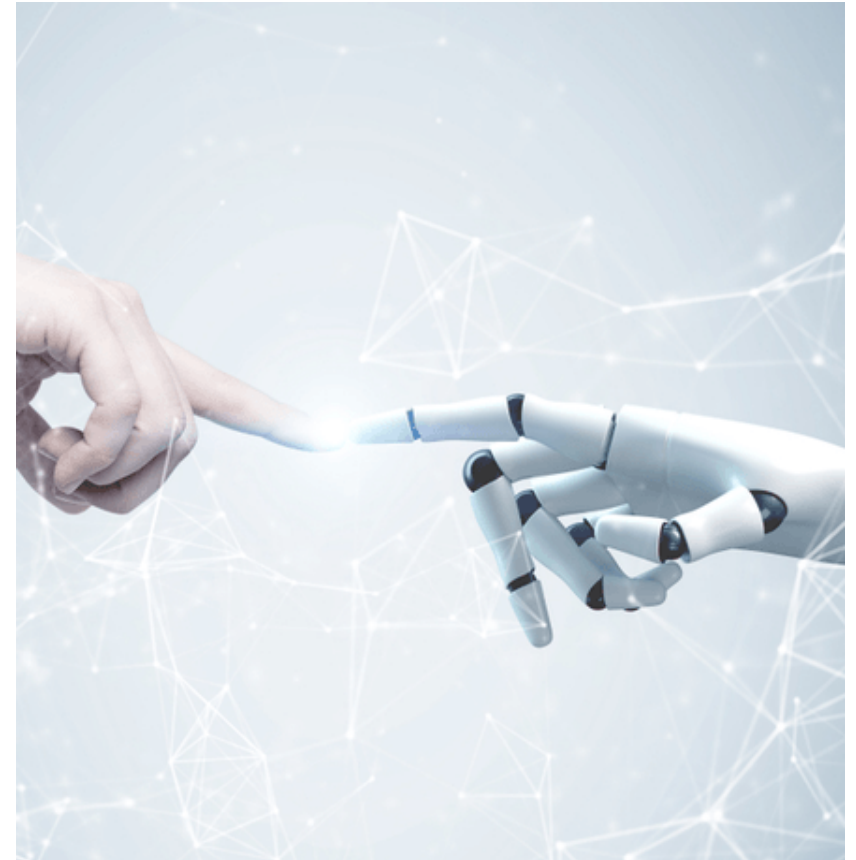
**“What winter of 2020 was for COVID-19, winter of 2023 is for ChatGPT, and higher education will never be the same.” (Weissman, 2023).**

# RISE OF AI

**Currently 14% of workers have experienced job displacement. (Forbes, 2024)**

**Jobs impacted: Graphic Designers, Writers, Proofreaders, Photographers, Market Research Analysts, Customer Service Representatives, Receptionists, Retail Workers, Tech Industry, etc.**

**Projected 85 million jobs replaced by 2025; 300 million+ jobs replaced by 2030. (SEO.AI, 2024)**



# ASKING AI...

## Rejection of AI

**Scenario:** Widespread fear and skepticism lead to a societal rejection of AI. Concerns about job displacement, privacy breaches, and ethical implications hinder the integration of AI technologies.

**Attainment:** Achieving this negative scenario might involve limited investment in AI research and development, stringent regulations that stifle innovation, and a lack of public education on the benefits of responsible AI use. Other nations embracing AI may gain a competitive advantage.

# ASKING AI...

## Acceptance of AI

**Scenario:** Society cautiously accepts AI integration, balancing the benefits with ethical considerations. There is a moderate adoption of AI in various sectors, with ongoing discussions about regulation and responsible AI use.

**Attainment:** This scenario might be achieved through the implementation of balanced regulations, public awareness campaigns highlighting the positive impact of AI, and ongoing collaboration between industry, government, and academia to address ethical concerns.

# ASKING AI...

## Thriving with AI

**Scenario:** Society fully embraces AI as a transformative force, leveraging its potential to address complex challenges in healthcare, education, and other sectors. Ethical considerations are carefully managed, and humans collaborate seamlessly with AI to achieve societal advancements.

**Attainment:** Achieving this positive scenario involves fostering a culture of innovation through robust investment in AI research, clear ethical guidelines and regulations, comprehensive education programs to upskill the workforce, and ongoing public dialogue to build trust in AI technologies.



# WORST CASE SCENARIO

**Autonomous Weapons**

**Cybersecurity Breaches**

**Social Manipulation**

**Economic Disruption**

**Biological Threats**

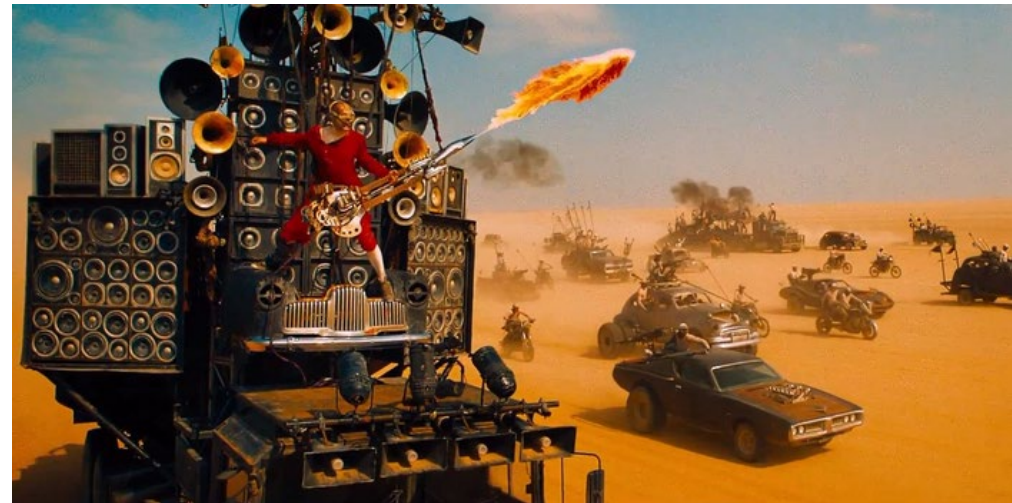
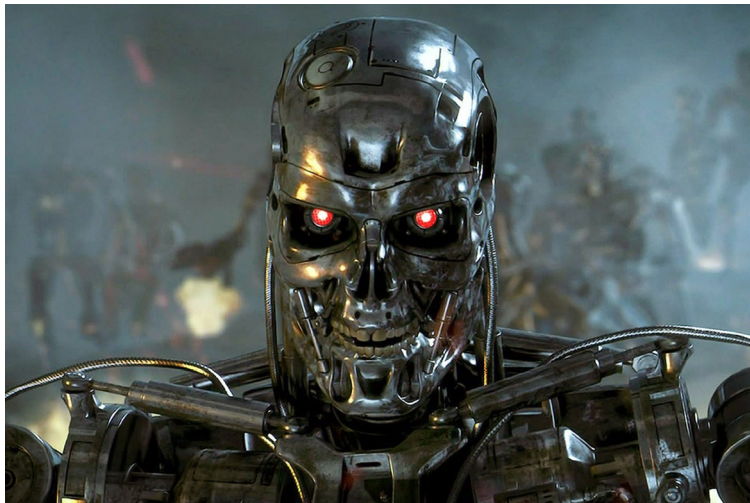
**Infrastructure Control**

**Surveillance and Privacy Invasion**

**Extortion and Blackmail**

**Creation of Malicious Software**

**Skynet**





**HMMM**

# AI CONTRIBUTORS PER BERKELEY SCHOOL OF INFORMATION

In 2017, just 12 percent of contributors in leading machine learning conferences were women. (WIRED)

Female AI professionals earn 66 percent of the salaries of their male counterparts. (AI Now Institute)

Among new AI Ph.D.s in 2019 who are U.S. residents, almost half were white, 22 percent were Asian, 3.2 percent were Hispanic, and 2.4 percent were Black. (Stanford)

The standard training dataset for facial recognition is reportedly 84 percent white faces and 70 percent male faces. (Jolt Digest)

# AI BIAS

## Healthcare

- Underrepresented data from women and minority groups in predictive AI algorithms (IBM Data and AI Team, 2023).
- Lower accuracy computer aided diagnosis for black patients.

## Applicant Tracking Systems

- Favor language more commonly found on male resumes (Reuters, 2018).
- Algorithms can reinforce job role gender bias.

## Predictive Policing Tools

- Rely on historical data and can reinforce racial profiling and targeting minority communities (MIT Technology Review, 2021).

# AI CAREER COACH CHATBOT

**Activity**



# **PRESIDENT BIDEN'S EXECUTIVE ORDER**

**New Standards for AI Safety and Security**

**Protecting Americans' Privacy**

**Advancing Equity and Civil Rights**

**Standing Up for Consumers, Patients, and Students**

**Supporting Workers**

**Promoting Innovation and Competition**

**Advancing American Leadership Abroad**

**Ensuring Responsible and Effective Government Use of AI**

# ETHICAL CONSIDERATIONS

## **NCDA Section F: Providing Career Services Online, Technology, and Social Media**

- “Career professionals strive to become knowledgeable about these resources, recognizing that periodic training is needed to develop necessary technical and professional competencies.”

## **ACA Section H: Distance Counseling, Technology, and Social Media**

- “Counselors actively attempt to understand the evolving nature of the profession with regard to distance counseling, technology, and social media and how such resources may be used to better serve clients.

**Broad definition of technology and different uses in client practice and privacy**



# ETHICAL SUGGESTIONS

Career professionals engaging with AI tools for career services must develop knowledge and skills related to technical, ethical, and legal considerations.

Career professionals inform clients about the benefits and limitations of using AI applications in career services, emphasizing the responsible use of technology, ensuring clients understand the purpose and operation of AI applications.

Career professionals should explicitly inform clients about the use of artificial intelligence, detailing the specific AI tools or algorithms involved, potential impacts on decision-making, and the measures in place to ensure data security and confidentiality.





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