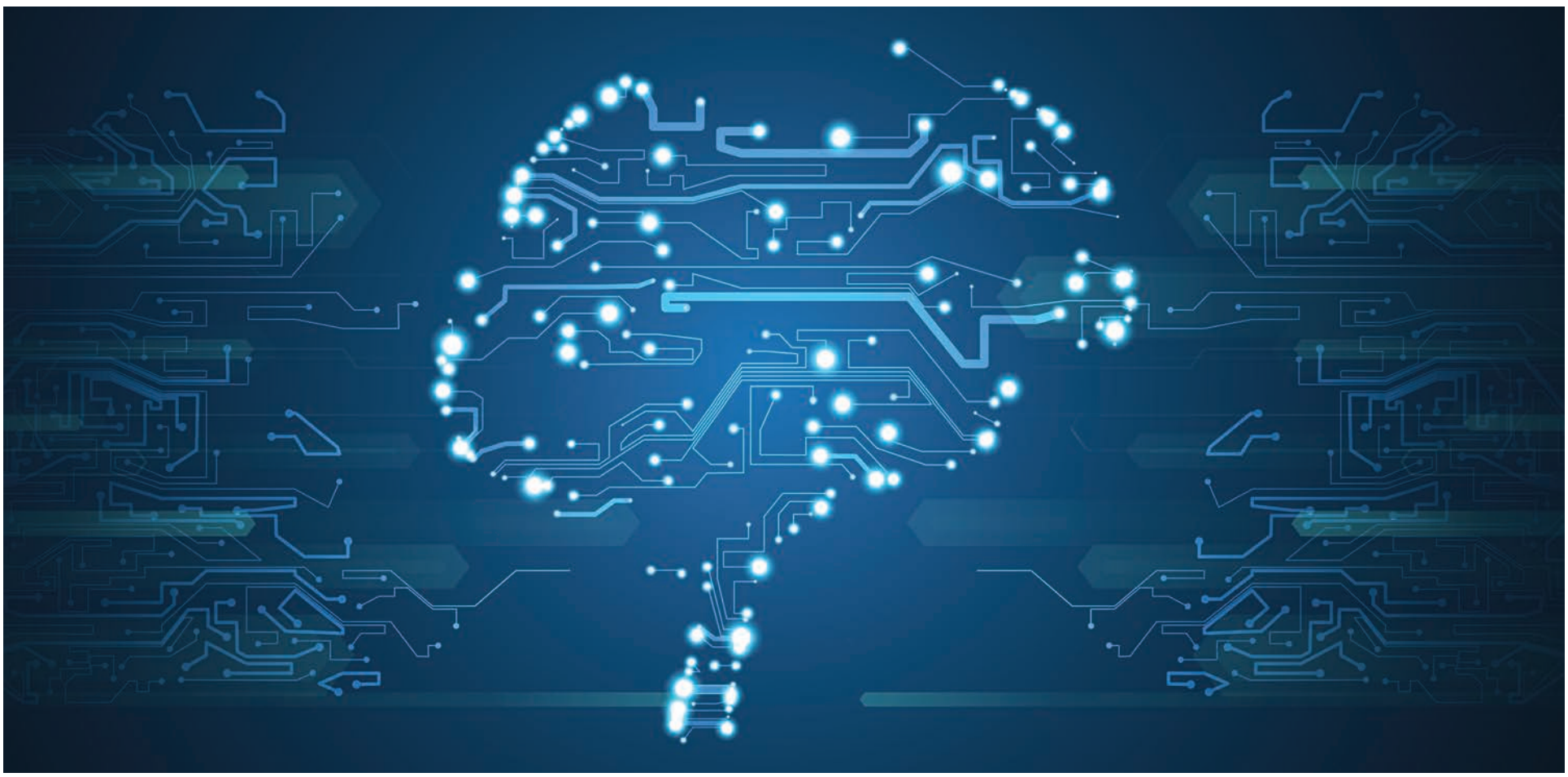

TABLE OF EXPERTS

AI and the Current State of Technology

Memphis Business Journal: AI is huge. Much like the internet did decades ago, AI is predicted to have a similar world-changing impact, which we're already starting to see. What excites you about AI?

Frederick Azar, MD, Campbell Clinic chief of staff: The integration of AI in orthopedics has the potential to improve precision in diagnostics and surgical procedures. There exists the potential to analyze complex imaging faster and with more accuracy than traditional methods, enabling early and more precise diagnoses. AI-driven predictive models could enhance our ability to personalize treatment plans, forecast surgical outcomes, and improve overall patient care. This technology is not just a tool; it's a future partner in health care.

Bill Hardgrave, University of Memphis president: Although the hype surrounding AI has escalated in the past few years, AI is not new. With my background in computer science, I was creating genetic algorithms and neural networks (i.e., deep learning aspects of AI) and publishing papers on the topic in the early 1990s. We have researchers at the University of Memphis who have been working on it since the mid-1980s (when they were called intelligent or expert systems). Our Institute for Intelligent Systems has been a research thought leader in this space for decades. We are excited that AI's time has come with the potential for broad-based application of generative AI models. We are especially excited about its transformative influence on the dissemination of knowledge and the creation of new knowledge — both being key roles of universities.

Sridhar Sunkara, CEO, eBiz Solutions: What excites me most about AI is its transformative potential in business and technology. Generative AI, in particular, is a game-changer. It can create new content, designs, videos, audio, and even software, revolutionizing how businesses operate. This capability not only drives efficiency and innovation but also opens up new avenues for creativity and problem-solving. The integration of

THE EXPERTS:

BILL HARDGRAVE
President
University of Memphis

Dr. Bill Hardgrave serves as the President of the University of Memphis. He is considered a thought leader in the field of Radio Frequency Identification (RFID) and has worked with numerous companies including Walmart, Amazon, Macy's, Nike, Intel, and Microsoft, among others, on the development and implementation of RFID.

SRIDHAR SUNKARA
CEO
eBiz Solutions

Sridhar Sunkara is a technology strategist and CEO of eBiz Solutions, pioneering in the space of AI, IoT and digital transformation strategies. With degrees in Architecture, City Planning, and Computer Programming, and certifications from MIT, he's a sought-after thought leader and speaker, actively contributing to numerous nonprofits.

FREDERICK AZAR
Chief of Staff
Campbell Clinic

Frederick M. Azar, MD, is an orthopaedic surgeon specializing in sports medicine. He is Chief of Staff at the Campbell Clinic, as well as Professor and Director of the Sports Medicine Fellowship program in the University of Tennessee-Campbell Clinic Department of Orthopaedic Surgery & Biomedical Engineering.

AI into business processes can lead to unprecedented growth and competitive advantage, enabling companies to better serve their customers and stay ahead in a rapidly evolving market.

There are three main types of AI technology: artificial intelligence, machine learning, and deep learning. What are some real-world AI applications of any of those for your companies?

Hardgrave: It is imperative that students across all disciplines and majors understand all the diverse streams of modern artificial intelligence applications. Our faculty is going to make sure our students appreciate what these new applications can and cannot do. We want our students to be leaders in the sensible application of these new technologies, so that our region does not get left behind in a competitive sense.

We see a lot of overlap between generative AI based on large language models and more traditional streams such as machine learning, deep learning, explainable AI, and the knowledge-based modeling approach that tries to replicate how the human brain works. In higher education settings, we believe AI can be used to create personalized learning environments based on how a student best learns, offer advice on course selection, and guide students to the resources necessary to help them be successful, among other things. We believe AI can help us create a better learning environment for our students.

Sunkara: AI technologies, from artificial intelligence and machine learning to deep learning, offer unique advantages for enhancing business applications across industries. At eBiz Solutions, we've leveraged these technologies to deliver impactful results for our clients. Here's how we apply these innovations.

Artificial intelligence: We deploy AI-powered chatbots to transform customer service experiences. These chatbots efficiently handle routine inquiries, provide instant responses, and deliver personalized recommendations. This not only elevates customer satisfaction but also allows human agents to focus on resolving more complex issues, enhancing overall service efficiency.

Machine learning: Central to our data analytics initiatives, machine learning models process and analyze vast datasets to unearth critical insights and emerging trends. This capability enables data-driven decision-making that's essential for strategic planning. For example, we collaborate with health care providers to analyze patient data using machine learning, significantly improving our ability to predict disease risks and enhance early diagnosis, thus revolutionizing patient care.

Deep learning: Known for its robust data processing capabilities, deep learning is a cornerstone of our product development. We utilize this technology for advanced image and voice recognition features.

Azar: In the field of orthopedic surgery, real-world AI applications could be particularly influential in the following areas:

Preoperative planning: diagnostic imaging algorithms could help interpret X-rays, MRIs, and other advanced imaging with greater accuracy, speeding up diagnosis and reducing human error. AI algorithms could assist in creating detailed surgical plans by analyzing patient-specific data. This could help in choosing the optimal approach and implants, thus reducing surgery time and improving outcomes.

Surgical assistance: Robotic systems, powered by AI, could aid in surgeries such as joint replacements and spine surgeries. These systems could allow for meticulous accuracy in bone cuts and implant placements, minimizing complications, and enabling more consistent outcomes.

Postoperative care: Through remote patient monitoring, AI applications could monitor rehabilitation and recovery by analyzing data from wearable devices, helping tailor recovery programs to individual needs and predicting potential complications before they become critical.

How can businesses best use AI to their benefit?

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>
> **FREDERICK AZAR, MD**
> **Campbell Clinic**

Sunkara: Every business today can leverage AI to its benefit in several key ways. Here are a few examples:

Automating routine tasks: AI can handle repetitive tasks, such as customer inquiries and order processing, freeing up human resources for strategic activities.

Enhancing decision-making: AI-driven analytics provide valuable insights from large datasets, enabling better-informed decisions and proactive strategies.

Personalizing customer experiences: AI algorithms analyze customer data to deliver tailored recommendations, increasing satisfaction and loyalty.

Optimizing operations: AI optimizes supply chain management, inventory control, and predictive maintenance, improving efficiency and reducing costs.

Driving innovation: Generative AI fosters creativity and innovation, helping businesses develop unique products and services.

Improving security: AI enhances cybersecurity by detecting and responding to threats in real time, protecting sensitive data.

Azar: In one word, "efficiency." Businesses, especially in health care, can leverage AI to streamline operations, reduce costs, and enhance customer service. Implementing AI for administrative tasks, like scheduling and billing, can free up valuable resources. AI can automate routine tasks, manage patient data efficiently,

and provide predictive insights to optimize resource allocation. This means more time can be devoted to patient care rather than administrative duties, improving both patient satisfaction and treatment outcomes.

Hardgrave: Businesses should take a thoughtful and systematic approach, instead of rushing in too quickly, given all the current hype. Our faculty and students are available to help them understand the new possibilities, starting with training staff to make sure they have pertinent AI competencies.

We have an active and growing cluster of researchers, coordinated by our FedEx Institute of Technology, working on all kinds of AI applications. Some examples include helping the Department of Homeland Security use generative AI models to generate test cases for speeding up systems development and collaborating with FedEx on studying the impact of AI investments on supply chain resilience and data security. It is important for businesses to work with neutral experts who are not selling a product or system, given that the current AI application landscape is still evolving and changing.

A while ago, several high-profile tech giants testified before Congress, warning about the dangers that AI could create. Do you have concerns about AI?

Hardgrave: While important, we believe such concerns are a long way off. The first generation of AI in the 1980s and '90s cooled off after similar hype, because it could not replicate common sense and human judgment, which are essential components of human intelligence. We should focus on exploring AI applications rather than trying to limit its potential too early.

While our humanities and social science faculty are certainly studying potential negative influences and AI regulation, we're simultaneously challenging our students and faculty to take the lead in developing applications that make sense for our community and companies. Several years ago, the university pioneered a Technology Serving Humanity speaker series that has brought in international thought leaders to Memphis to stimulate this essential dialogue.

"We want our students to be leaders in the sensible application of these new technologies, so that our region does not get left behind in a competitive sense."

BILL HARDGRAVE
University of Memphis

Sunkara: Like all groundbreaking technological disruptions, AI brings with it immense potential alongside significant risks. Currently, the realm of AI is marked by considerable uncertainty, making it challenging to fully comprehend how to manage and integrate these technologies effectively. This uncertainty undoubtedly raises concerns, but it's crucial to consider the overarching benefits AI promises. The potential net gains from AI — enhancing our personal lives, revolutionizing business models, and broadly benefiting society — are too substantial to overlook.

However, to harness AI's full potential responsibly, we must proactively address several critical concerns and ensure robust planning:

Ethical considerations: We need to design AI systems that are inherently fair and equitable. This involves eliminating biases in AI algorithms and fostering a culture of transparency and accountability within AI development.

Privacy and Security: As AI systems process vast amounts of data — safeguarding sensitive information and adhering to strict data protection regulations is imperative. This is essential not only for user trust but also for maintaining privacy and security standards.

Job displacement: The automation capabilities of AI are transforming the workforce. To mitigate the impact on jobs, it is essential to implement comprehensive reskilling and upskilling programs that prepare employees for new roles that AI technologies will create.

Decision-making transparency: Building trust in AI systems requires enhancing their transparency and explainability. Stakeholders should be able to understand and audit AI decision-making processes to ensure fairness and effectiveness.

Security risks: As AI becomes increasingly integrated into critical systems, strengthening AI security measures to prevent its misuse — whether for cyberattacks or spreading misinformation — is crucial.
By addressing these concerns thoughtfully and systematically, we can guide AI development in a direction that maximizes its benefits while minimizing its risks, ensuring it contributes positively to our future.

Azar: As history has revealed to us, discoveries like fire, gravity, and the internet have provided many unintended consequences. The adaptation of AI will be no exception. My primary concern with AI in medicine revolves around the ethical implications and the potential for overreliance on technology. Ensuring that AI supports rather than replaces the surgeon's judgment is crucial. Additionally, safeguarding patient data and maintaining transparency in AI-decision making are significant issues that need continuous attention. It is crucial that we establish robust ethical guidelines and maintain an integral role for human judgment in health care.

Do you think AI will take over jobs in certain industries and how quickly?

Sunkara: AI will undoubtedly impact jobs in certain industries very quickly, particularly those involving routine, repetitive tasks. It will automate mundane tasks, allowing employees to focus on higher-value work requiring creativity and problem-solving.

The pace of change will vary, with some sectors seeing significant shifts in the next five to 10 years. To balance this, it's crucial to invest in reskilling and upskilling programs. This ensures AI enhances human potential rather than replacing it, preparing employees for a changing job landscape.

Azar: AI will likely automate certain tasks, particularly in administrative and preliminary diagnostic processes, which could displace some jobs. However, in orthopedics, the intricate nature of surgeries and patient care requires a human touch, suggesting AI will more likely augment jobs rather than replace them entirely. AI is unlikely to replace surgeons but will rather enhance our roles.

Hardgrave: Undoubtedly, some jobs will be impacted, especially jobs with repetitive tasks and procedures. Some aspects of accounting, marketing, manufacturing, and health care, among others, will utilize AI. Other jobs that are more manual may also be affected, such as truck drivers and forklift drivers (since both may use autonomous vehicles driven by AI). But, ultimately, AI is just the latest new modernizing tool for our society.
Although the thought of "job replacement" is scary, early studies have suggested AI will create more new jobs than those it makes redundant — like prior waves of technologies. The railroad did not lead to massive layoffs over decades and neither did laptops or the internet. Rather, they opened up economies and new opportunities for society. We are very optimistic.

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> **SRIDHAR SUNKARA**
> eBiz Solutions

Modern western universities have persisted since Greek times as efficient mechanisms for knowledge creation and dissemination to benefit society through economic and intellectual development. This won't change just because of AI, rather, it makes universities even more important for moving our city and communities forward. We have recently launched a "901 Artificial Intelligence" professional community to help us lead Memphis into the AI age and to keep our city at the cutting edge of AI developments.

If you had a crystal ball, what do you think people/companies will be saying about AI 10 years from now?

Azar: Looking ahead, I believe AI will be commonly viewed as an essential element of health care. The narrative will likely shift from AI as a novel tool to an indispensable one, integral to clinical workflows and patient management. The focus will increasingly be on ethical AI integration and ensuring equitable access to these technologies. We will need to manage the unintended consequences, but overall, AI will be an asset to the care of our patients.

Hardgrave: This is not the first wave of AI. Looking at the exciting things our faculty and students are researching now, I know there are going to be several more waves over the next 50 years. Our job at the university is to make sure Memphians and Tennesseans will be glad and thankful in 10 years about what we did now to prepare them for this and future waves of AI. Just like technological changes led to the birth of FedEx here 50 years ago, we want to see something similar now in this age of AI.

Sunkara: I believe that in 10 years, people and companies will view AI as essential to daily life and business. They'll marvel at AI's integration across sectors, driving innovation and efficiency. Companies will praise AI for transforming industries, improving decision-making, and creating new opportunities. People will appreciate AI for enhancing their lives through smart technologies, personalized experiences, and letting them do high value work rather than mundane tasks.