

UCSF to Lead in Healthcare AI Revolution

The University of California-San Francisco (UCSF) is dedicated to health and life sciences, with 20 locations throughout San Francisco, including 3 renowned medical centers. UCSF has always focused on being at the forefront of leveraging technology to [advance its mission](#) in advancing health worldwide through preeminent biomedical research, graduate-level education in the life sciences and health professions, and excellence in patient care.

UCSF's Chancellor, Dr. Sam Hawgood, has an ambitious vision for the university - to transform UCSF into the leading AI-enabled academic life sciences university. In the UCSF 2023 State of the University Address, Dr. Hawgood stated,

"We have a tremendous opportunity to leverage and strengthen UCSF's expertise in clinical AI and to deploy it at scale safely, equitably, and efficiently in the service of making the care our patients receive at UCSF Health second to none."

The use of generative AI is critical to achieving UCSF's vision.

In 2023 Lantern, a Microsoft AI consultancy, and UCSF embarked on a journey to leverage the power of both human and artificial intelligence to solve some of the biggest challenges in patient care and medical research. By ensuring the [University's commitment to ethical and impactful use of AI](#), Lantern has positioned UCSF at the forefront of healthcare innovation.

Bringing UCSF's AI Vision to Life

In response to the chancellor's vision, a cross-functional internal IT Tiger Team was formed to create the Versatile AI Infrastructure Platform (VERSA), a generative AI platform for all of UCSF.

The University had established partnerships with tech giants, but prior to VERSA their footprint with Microsoft was minimal.

The Era of AI has changed that.

UCSF, with Lantern's guidance, recognizes Microsoft as the clear leader in Generative AI. They quickly understood the need to leverage technologies like Azure OpenAI, to make their vision a reality.

Azure AI Securely Powers VERSA

VERSA connects AI technologies with UCSF's data and systems, enabling seamless integration and utilization. The early VERSA pilot design was not scalable, and the IT Tiger Team needed help driving the solution forward and accelerating it.

UCSF partnered with Lantern to architect the complete AI ecosystem to support both chat and API interfaces to power information extraction, knowledge management, writing & coding assistance, and decision support.

Utilizing Azure OpenAI, OCR, AI Search, Document Intelligence, Azure Functions and SQL DBs along with Lantern Loader (Lantern IP that enables users to bring their own data and connect to other DBs), **the application is architected to enable Generative AI at scale.**

Data privacy, security and HIPPA compliance were the main concerns for the UCSF team, as they needed their prompts, data sources and responses to remain secure.

"VERSA allows our clinicians, administrators, and researchers to access large language models while keeping the model prompts, or the questions that we're asking, and the data itself in a secure enterprise cloud." - Dr. Hawgood

Revolutionizing Medical Research and Healthcare Analytics

VERSA's initial workloads aided in patient risk identification, workflow optimization and nurse-patient matching. One of the main use cases for VERSA moving forward is to support medical research, which is a large and growing market.

According to industry reports, the [global clinical trials market](#), anchored in medical research, was valued at \$80.7B USD in 2023 and is projected to grow at a compound annual growth rate (CAGR) of 6.49% from 2024 to 2030.

VERSA is a true healthcare analytics application. VERSA functions by leveraging internal and external data to improve patient outcomes, enhance operational efficiency, and optimize resource allocation.

The [global healthcare analytics market size](#) was valued at \$43.1B USD in 2023 and is expected to expand at a CAGR of 21.1% from 2024 to 2030.

Looking at the clinical trials and healthcare analytics markets with a combined TAM of \$123.8B, solutions like VERSA represent substantial opportunity for repeatability within the broader medical research landscape, as well as other industries that require secure access to large language models.

VERSA's Rapid Growth and Widespread Adoption

VERSA represents UCSF's commitment to leveraging AI for improved patient outcomes and streamlined clinical processes.

Many IT projects struggle with change management and adoption. The VERSA team had the opposite challenge. Users were clamoring to be part of the pilot program and the team had to "hold the gates closed" while they prepared VERSA for production.

The initial pilot launched to 50 daily active users, quickly grew to 500 daily users, and is now launching into production to serve 35,000 provisioned users with an estimated 5,000+ daily users.

“I’m confident, in 2024, we will see extensive use of generative AI across UCSF Health and we will have demonstrated benefit to both our patients and our providers.” - Dr. Hawgood

UCSF and Lantern are committed to working together throughout 2024 to expand Azure AI services across the entire organization.

- VERSA usage by the end of March 2024: 500 million tokens and \$20k/mo ACR. End of April (projected): \$40k/mo ACR and 1 Billion tokens. End of Oct (projected): \$60k/mo ACR and 5 Billion tokens.
- UCSF is in discussions to purchase a reserved capacity for Azure OpenAI (PTU)
- Across all GenAI resources, they are pushing 500+ million tokens/month today.

VERSA’s Alignment with Microsoft’s Responsible AI Principles

About a year ago UCSF launched their AI oversight committee to guide the health system in the use of trustworthy AI.

VERSA plays a pivotal role in the UCSF AI vision.

Here’s how VERSA directly aligns with Microsoft’s Responsible AI principles:

1. **Fairness and Inclusiveness:**

- The principle of fairness aligns with VERSA’s commitment to equitable AI deployment. Ensuring that AI tools benefit all patients and communities is crucial.
- Chancellor Hawgood emphasizes equitable AI use, ensuring that VERSA’s gen-AI tools address healthcare disparities and serve diverse patient populations.

2. **Reliability and Safety:**

- Reliable and safe AI systems resonate with VERSA’s goal of providing accurate and secure AI-driven insights to clinicians and researchers.
- VERSA’s infrastructure prioritizes safety, ensuring that AI tools enhance patient care without compromising well-being.

3. **Transparency and Accountability:**

- Transparent AI aligns with VERSA's commitment to explainable AI. Clinicians need to understand AI recommendations for informed decision-making.
- Chancellor Hawgood emphasizes responsible AI governance, holding UCSF accountable for VERSA's impact.

4. **Privacy and Security:**

- Privacy protection is at the core of VERSA.
- VERSA's design ensures patient data confidentiality, aligning with Microsoft's privacy principles and HIPPA-Compliance.

Potential to Revolutionize AI-Powered Healthcare and Research

UCSF, in partnership with Lantern, has embarked on a journey to leverage the power of AI to solve some of the biggest challenges in patient care and medical research. With the creation of VERSA, a generative AI platform powered by Azure, UCSF is positioned at the forefront of healthcare innovation.

VERSA is designed to be ethical, transparent, and impactful, aligning with both Microsoft's Responsible AI principles and Chancellor Hawgood's vision for the platform. With its commitment to advancing health through responsible AI, UCSF is poised to revolutionize AI-powered healthcare and research.

Looking ahead, the potential for VERSA to improve patient outcomes, enhance operational efficiency, and optimize resource allocation is immense. As VERSA continues to grow and evolve, the future of AI in healthcare looks bright.