

PulsePoint AI

Overview: PulsePoint AI, a veteran-led, Missouri S&T-anchored initiative, pioneers a quantum-safe AI ecosystem for U.S. DoD and commercial sectors. PulsePoint leverages NVIDIA, Qryptonic, and Oracle to seize the \$18B quantum-AI market by 2028 [McKinsey, 2024].

Seeking: VP Sales and Marketing; skills-marketing, sales, product development, financial

The Team:

- Major General Samuel C. Mahaney (Ret.), CEO: A 36-year Air Force veteran, former Chief of Staff of Air Mobility Command, and Director, Missouri S&T Policy and Armed Forces R&D Institute, driving national security innovation.
- Dr. Donald Wunsch, CTO: As the Kummer Endowed Chair at Missouri S&T, he is a world-renowned AI expert, advancing neural networks and quantum algorithms. He is also the director of the Kummer AI Center, fostering biotech and defense AI breakthroughs. He guides PulsePoint AI's technical vision, integrating secure, scalable AI solutions.
- Dr. Jay Park, COO: As the Kummer Endowed Chair of Computer Science at Missouri S&T, he is a leader in Generative AI and defense applications. He is Co-sponsor, MinerAI Data Center, and drives PulsePoint's operational excellence, deploying IaaS, MSS, and DaaS by Q4 2026.

The Problem: Foreign platforms (50% commercial, 60% DoD workloads) risk espionage and disruptions [CSIS, 2024]. Quantum decryption threatens \$1T in assets, with no scalable NIST-compliant PQC solutions [NSA, 2022]. China's \$15B quantum-AI lead outpaces U.S. innovation, and a 50% workforce gap stifles progress [Quantum Zeitgeist, 2024; DARPA, 2024].

The Solution: PulsePoint delivers a sovereign, quantum-safe AI data center by Q4 2027, integrating:

- Secure Platform: NVIDIA's compute, Qryptonic's NIST-compliant PQC, and Oracle's zero-trust clouds.
- Fortified AI: DoD-validated, zero-trust platforms by Q2 2027.
- Global Leadership: \$5B DoD/DHS funding via Missouri S&T/SPARDI to counter China's lead.
- Workforce Surge: Train 2000+ quantum-AI experts, capturing \$18B market share.

Market Opportunity: The \$157.3B AI data center market (2034, 27.1% CAGR) demands quantum-safe solutions [market.us, 2025]. With 9% of global power consumption by 2030 and no competitors offering scalable PQC, PulsePoint is uniquely positioned [Goldman Sachs, 2025].

Go-to-Market Strategy: Secure \$20M (\$10M VC, \$10M Kummer match) to launch the PulsePoint AI Data Center at the Missouri Protoplex on Missouri S&T's campus by Q4 2026. Deploy IaaS, MSS, and DaaS, achieving \$5M+ revenue by 2029 and \$39.4M by 2032. DoD pilots and commercial expansion ensure rapid market capture.

Contact: Major General Samuel C. Mahaney (Ret.), smn2w@mst.edu

LF Printech

Overview:

BurnHeal is a next-generation bioactive dressing for second-degree burns treatment at home and clinics, developed by LF Printech, a Missouri S&T-anchored biotech startup. Designed to relieve pain, prevent infection, and reduce scarring, BurnHeal provides up to 10-day moisture retention, painless reapplication, and enhanced aesthetic outcomes. It targets a \$650M underserved burn wound market with a novel IP-protected hydrogel formulation that bridges engineering and clinical needs.

Seeking:

Seed round investment to complete FDA 510(k) submission, initiate manufacturing design and scaleup, and company runway. Seeking strategic partners in regulatory, HR, reimbursement strategies, clinical trials, and go-to-market.

The Team:

Dr. Fateme Fayyazbakhsh, Co-Founder & VP: Biomedical engineer and translational innovator. Leads product development, IP strategy, and regulatory roadmap. BioKansas 2024 Awardee, 2025 Equalize People's Choice Winner.

Dr. Ming Leu, Co-Founder & President:

World-renowned expert in additive manufacturing. Co-inventor on patent, leads R&D design and prototyping, manufacturing scaleup.

The Problem:

Second-degree burns affect 750,000+ Americans annually, especially children. Standard care (e.g., foam dressings, petrolatum gauze, topical ointment, and antibacterial creams) causes:

- Painful body movement and daily dressing changes
- Infection
- Stickiness
- Wound dehydration
- Scar

The Solution:

BurnHeal is a bioactive hydrogel dressing engineered for second-degree burns. Backed by our preclinical studies it features:

- Non-stick porous contact layer for painless removal
- 10-day moisture retention for fewer dressing changes
- FDA-approved ingredients (silver nanoparticles, BBG, alginate)
- Visible wound bed for easy assessment
- Reduced scar formation

Market Opportunity:

The global advanced wound care market is projected to grow from \$11.7B in 2023 to \$27.8B by 2032 at a CAGR of 9.9% [Fortune Business Insights, 2024]. BurnHeal targets a \$650M segment of burn wound care in the US, offering a differentiated product with unique features and strong reimbursement potential.

Go-to-Market Strategy:

- Raised \$0.5 M in non-dilutive funding to date
- Submitting class II FDA 510(k) at Q4 2026
- Initial partnerships with home-use distributors & local clinics and burn centers, targeting OTC and prescribed applications (Q1 2027)
- Manufacturing scaleup (Q3 2027)
- Product launch (Q1 2028)
- Phase I clinical trial (Q2 2028)
- Series A fund raising

Contact: Dr. Fateme Fayyazbakhsh f.fba@mst.edu www.lfprintech.com

SmarTreatMate

Overview:

SmarTreatMate is an AI-powered, privacy-preserving clinical decision support system designed to improve personalized treatment planning for cancer patients using advanced survival analysis techniques. Developed at Missouri S&T, SmarTreatMate utilizes federated learning to train predictive models across multiple cancer centers without transferring sensitive patient data. The system addresses real-world challenges such as data heterogeneity, institutional silos, and lack of personalized treatment guidance in oncology.

Seeking:

Co-founder or technical collaborator with expertise in machine learning (especially federated learning and survival models), cloud computing, data security, and healthcare systems integration (e.g., EHR interoperability). Experience with HIPAA/GDPR compliance and AI model deployment in clinical settings is a plus.

The Team:

- **Navid Seidi, Founder & Lead Researcher:**
Ph.D. student in Computer Science at Missouri University of Science and Technology under the supervision of Dr. Sajal Das. Navid brings over 12 years of experience in developing EHR/EMR systems and has led NSF I-Corps-funded research to validate the clinical and commercial need for SmarTreatMate. His work focuses on machine learning for smart health, with an emphasis on federated survival analysis.
- **Dr. Sajal K. Das, Faculty Advisor:**
ACM Fellow and Professor of Computer Science at Missouri S&T. He is internationally known for his pioneering work in pervasive and mobile computing, smart environments, cyber-physical systems, and smart health. With over 450 peer-reviewed publications and multiple patents to his name, Dr. Das is one of the most influential researchers in the field of distributed computing and AI-enabled healthcare technologies. He has served as the founding director of the Center for Smart Living and was instrumental in establishing Missouri S&T's strategic research initiatives in health and computing. He has led research projects funding from agencies like NSF, NIH, DoD, and industry. For SmarTreatMate, Dr. Das offers thought leadership, strategic research vision, and hands-on mentorship, ensuring alignment with national healthcare innovation priorities and academic excellence.
- **Dr. Satyaki Roy:**
Assistant Professor in the Department of Mathematical Sciences at the University of Alabama in Huntsville, with expertise in federated learning, optimization, and privacy-preserving AI. His research focuses on distributed systems and communication-efficient machine learning algorithms, making him a key contributor to both the theoretical and applied components of SmarTreatMate.

Dr. Roy guides the development of the federated learning framework, ensuring that the model architecture, training procedures, and communication protocols are robust, scalable, and aligned with real-world deployment constraints in healthcare environments.

- Dr. Rathindra “Babu” DasGupta, Mentor:
Senior Program Director at the National Science Foundation and former Program Director for the Partnerships for Innovation (PFI) program. With decades of experience in academic entrepreneurship, technology transfer, and research commercialization, Dr. DasGupta brings invaluable expertise in shaping the translational strategy for SmarTreatMate. He has been instrumental in guiding the team through NSF programs, identifying funding pathways, and preparing the project for broader impact in both academic and clinical markets. His mentorship bridges the gap between research and real-world application, ensuring that SmarTreatMate is positioned for long-term success.

The Problem:

Oncology care lacks timely, personalized treatment recommendations due to isolated data systems, concerns over patient data privacy, and limitations in existing decision tools. Cancer centers are often unable to collaborate effectively because of regulatory and technical barriers, resulting in underutilized data and generalized treatment approaches.

The Solution:

SmarTreatMate enables decentralized training of AI models across institutions using federated learning, allowing each cancer center to retain data locally while contributing to a shared model. Key features include:

- Dynamic peer selection and topology adaptation to handle non-IID data distributions.
- Advanced survival models tailored for treatment outcome prediction.
- A user-facing interface that integrates with existing EHRs to deliver real-time, actionable insights.

Market Opportunity:

The global market for clinical decision support systems is projected to exceed \$3.5B by 2028. With the rising emphasis on personalized cancer care and data privacy, SmarTreatMate is uniquely positioned to address gaps in current oncology workflows while remaining compliant with modern data protection regulations.

Go-to-Market Strategy:

Initial pilot deployments are targeted at research hospitals and NCI-designated cancer centers. The team is pursuing non-dilutive funding (e.g., NSF PFI-RP) and plans to build strategic partnerships with academic medical centers and health-tech accelerators.

Future phases include integrating with cloud-based EHR platforms and validating the model through clinical trials and physician feedback.

Contact:

Navid Seidi

nseidi@mst.edu

Missouri University of Science and Technology

Department of Computer Science

FarmVates

Overview:

FarmVates is a Missouri S&T spun Agentic-AI Agtech venture to serve perishable (specialty) crop growers and stakeholders across the agri-food tech value chain. With AI-powered multi-stakeholders operating SaaS, our family of intelligent assistants manages pests & diseases, generates compliance reports, forecasts yield, and helps growers access inputs, finances, and premium buyers, all from one dashboard.

Seeking:

AI Product Engineer; Embedded System Engineer; Sales & Customer Development Lead; Agri-Food Market/Partnership Expert; Finance & Operations Strategist.

Team:

- Dr. Vishesh K. Tanwar (Ph.D.), CEO: 7+ years of expertise in AI/ML and data privacy with AgTech applications and conducted 100+ customer interviews. Secured various research grants and strategic partnerships with Bayer, Microsoft, Missouri Organic Associations, and Regional Banks, with a vision for the exponential growth of FarmVates.

- Amit N. Jha, CTO: Brings 20+ years of software and product development and consulting experience. He has consulted Bayer Crop Science, AT&T, Ring, and Southwest Airlines. He is pursuing a Ph.D. in AI/ML with Agtech applications at Missouri S&T. Also, he conducted customer interviews with the CEO.

- Dr. Sajal Das, Advisor: As the Daniel St. Clair Endowed Chair in computer science at Missouri S&T, he brings expertise in cloud computing, big data analytics, and IoT. He has published 650+ research articles, holds 5 US patents, and has 4 books.

- Dr. Ian Kaplan, Subject Expert: Entomology Professor at Purdue University and a leading expert in specialty crop pest management, pest control with pollinators, and bringing science-driven resilience to FarmVates.

Problem:

Most small and mid-sized crop growers still rely on paper logs and personal judgments for pest management, managing inputs, and making other financial decisions. Due to limited technology developed for such growers, it costs them thousands of dollars in missed efficiency, finance, and market access opportunities.

Solution:

Our multi-agentic AI-powered one-stop solution automatically collects data from off-the-shelf deployed hardware, processes the information to provide growers with insights, enabling faster decision-making, automating paperwork, and unlocking the multi-billion dollar untapped and disconnected market opportunities across across Agri-FoodTech ecosystem.

Market Opportunities:

With a bottom-up approach, we estimated a conservative ~\$15B annual opportunity loss to growers that FarmVates will address through automation and an AI-powered multi-stakeholder operating ecosystem.

Traction:

- \$1.5M+ R&D grants from NSF.
- Secured collaborations with Bayer Crop Science, Microsoft, and commitment letters from the lending institutions and agricultural organizations.
- Developed MVP and initiating pilots.
- Soft commitments from early adopters

Go-to-Market Strategy:

Raising Seed (~\$3M) for team expansion, MVP refinement and product development, complete pilots with 100+ farms, and on-board strategic Agri-Food Tech partners.

Contact:

Vishesh Tanwar
vishesh.tanwar@mst.edu
Missouri University of Science and Technology
Department of Computer Science

NeuroTech Sense

Overview:

NeuroTech Sense, Missouri S&T-anchored initiative, pioneers design and development of non-enzymatic biosensors for detecting neurochemicals in peripheral body fluids such as tear, sweat, and saliva.

Seeking:

Sales and Marketing team members; skills-marketing, know-how of medical devices, product development.

The Team:

- Prof. Manashi Nath: Professor at the Chemistry department, Missouri University of Science and Technology for the last 17 years. Leads and manages federally funded projects in the areas of electrochemical energy conversion and storage.
- Amitav Sen: Graduate student of chemistry and Missouri University of Science and Technology.

The Problem:

The catecholamines produced within the cranial cavity, generically referred to as neurotransmitters are directly related to the mental health including PTSD, Parkinsons and Alzheimer's. The abnormal production and fluctuating levels of these neurotransmitters are related to progressive development of neurodegenerative disorders. A continuous monitoring platform is necessary to detect their concentrations in real time which can be indicative of asymptomatic mental health deterioration. However, their levels in the blood and other body fluids are extremely low for point-of-care diagnosis.

The Solution:

NeuroTech Sense designs non-enzymatic biosensors that can detect the quantity of the core neurotransmitters in tear samples within a time period of few minutes. These sensors are reusable and can be integrated into continuous health monitoring devices.

Market Opportunity:

Continuous health monitoring systems, especially targeted towards mental health, are a growing market. Our technology will increase the capability of the sensing platform.

Go-to-Market Strategy:

Initial deployment will be targeted at care facilities for employees of high stress jobs including army base, frontline workers, and assisted living facilities, where the caregivers can administer sample collection and point-of-care detection for these neurotransmitters.

Contact:

Manashi Nath, nathm@mst.edu

MagnA Cement

Overview:

MagnA Cement is a Missouri S&T–anchored cleantech venture developing a **carbon-negative magnesium-based alternative cement** with a verified carbon footprint of **at least –0.22 metric tons of CO₂ per ton of cement**. Designed as a direct, drop-in replacement for Portland cement, MagnA Cement maintains full compatibility with existing construction practices, enabling builders to decarbonize without costly retooling or retraining. By transforming abundant magnesium-rich feedstocks (e.g., serpentine and olivine-rich tailings) and industrial byproducts into high-performance binders, MagnA Cement delivers structural performance equal to or exceeding Portland cement while permanently storing CO₂ in concrete infrastructure and buildings.

Seeking:

(1) CEO and marketing team member(s).

The Team:

- Dr. Hongyan Ma, Founder & Chief Science Officer – Civil engineering professor and Kummer Impact Professor at Missouri S&T, internationally recognized for research in cement chemistry, concrete technologies, and large-scale CO₂ mineralization. He has led multiple federal and industrial projects on sustainable construction materials and spun off two startup companies in the field of climate tech.
- Dr. Jihui Qin, Technology Lead – A senior research fellow at Missouri S&T who co-developed the MagnA Cement technology.
- Ms. Jie Shi, Technology Lead – Kummer Innovation and Entrepreneurship Doctoral Fellow at Missouri S&T who co-developed the MagnA Cement technology.

The Problem:

The Portland cement industry emits ~0.9 metric tons of CO₂ per ton of cement, contributing over 7% of global anthropogenic CO₂ emissions. Despite advances in efficiency, the industry's heavy reliance on limestone calcination makes deep decarbonization challenging. Existing low-carbon cement options often simply replace up to 50% of the cement clinker, limiting the level of decarbonization, or require changes to concrete mix designs, curing processes, or construction methods, creating barriers to adoption.

The Solution:

MagnA Cement's proprietary magnesium-based binder technology:

- Delivers **net carbon removal** through enhanced CO₂ mineralization during cement production, before concrete making, thus maximizing CO₂ uptake in concrete.
- Uses abundant, non-carbonaceous feedstocks and industrial waste streams.
- Matches or exceeds Portland cement's workability, strength, and durability.
- Requires **no change** to existing batching, mixing, or curing practices.
- Offers verifiable carbon credits through third-party certification.

Market Opportunity:

The \$400B global cement and concrete market is under intense regulatory and market pressure to decarbonize, with a projected \$60B+ annual market for low-carbon cements by 2035. MagnA Cement's drop-in compatibility and net-negative carbon profile position it uniquely to capture both traditional cement market share and emerging demand for carbon-removal credits.

Go-to-Market Strategy:

- Scale from lab prototype to a 1–5 ton/day pilot production within 18 months.
- Partner with ready-mix producers and precast manufacturers for field trials.
- Pursue ASTM C1157 performance certifications.
- Target initial applications in infrastructure projects seeking compliance with codes, specifications, and policies.
- Monetize carbon removal through potential domestic or international carbon removal or trade marketplaces.

Contact:

Dr. Hongyan Ma

mahon@mst.edu; 573-612-9568

Department of Civil, Architectural and Environmental Engineering
Missouri University of Science and Technology