# Six seed grants fund AI and machine learning projects in public health

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The Celia Scott Weatherhead School of Public Health and Tropical Medicine is continuing to gain traction in the AI space with recent seed grants. (iStock)

The Celia Scott Weatherhead School of Public Health and Tropical Medicine and the Connolly Alexander Institute for Data Science recently announced the recipients of an inaugural seed grant program designed to apply artificial intelligence and

machine learning in public health research.

The grants, which were available through a competitive proposal process, support interdisciplinary faculty teams working at the intersection of advanced computational methods and population health, with the dual goals of addressing pressing health challenges in Louisiana and beyond, while building capacity for external funding.

The funded projects span a remarkable range of applications — from cardiovascular disease prevention and cognitive screening to NICU family support and misinformation detection — all united by their commitment to advancing health equity through innovative technology.

“Each project represents true collaboration across Tulane's schools, bringing together expertise in public health, medicine, computer science, and engineering to tackle problems that disproportionately affect underserved communities,” said Dr. Paul Hutchinson, who leads the AI strategic initiative at the Celia Scott Weatherhead School. “These investments in early-stage research reflect Tulane's strategic commitment to positioning faculty teams for sustained impact in the rapidly evolving landscape of AI-driven health solutions.”

A total of six grants were awarded to the following projects:

**Heartline: Hybrid AI-CHW Coaching for Cardiovascular Health**: Co-led by Dr. Farah Allouch, assistant professor of epidemiology, and Dr. Nicholas Mattei, associate professor of computer science, this project integrates community input from members of predominantly Black churches in the design and testing of a generative artificial intelligence (AI) chatbot to facilitate lifestyle changes for cardiovascular and mental health equity in New Orleans. The main innovation in this project is the use of a Retrieval-Augmented Generation (RAG) framework to ground AI responses in evidence-based guidelines, reducing "hallucinations" while ensuring the model is culturally appropriate and acceptable through iterative community input. The initiative addresses the critical gap in sustained lifestyle counseling for marginalized communities, leveraging trusted church-based infrastructure to reduce health disparities. Schools represented: the Celia Scott Weatherhead School of Public Health and Tropical Medicine and the School of Science and Engineering.

**SMART-pred: Machine Learning for Population Health Surveillance**: SMART-pred is a cutting-edge research initiative using artificial intelligence to transform

how communities detect and track disease. The project is led by Principal Investigator Dr. Samuel Kakraba, assistant professor of biostatistics and data science. Building on recent breakthroughs in Alzheimer's detection using handwriting-based machine learning, this project is using a Scalable Multi-Algorithm Research Tool (SMART) prediction tool originally developed for early Alzheimer's prediction to determine how it can be extended to broader public health applications. The team is deploying more than 20 advanced machine learning algorithms — including deep learning and AutoML — to forecast and monitor outcomes in areas such as cancer, maternal health, and infectious diseases. The goal is to deliver a versatile, HIPAA-compliant surveillance platform that helps public health professionals detect disease earlier, identify emerging threats, and monitor health equity across diverse populations. School represented: the Celia Scott Weatherhead School of Public Health and Tropical Medicine.

**Identifying Predictors of Sex Trafficking in the Gulf South**: Directed by Dr. Anita Raj, executive director of the Newcomb Institute, and Dr. Xin Gu, a postdoctoral fellow with Newcomb Institute, this study applies Large Language Models (LLMs) like ChatGPT and LLaMA 3 to the Violence Experiences Survey (VEX 2025) dataset to identify patterns of sexual exploitation in Louisiana, Mississippi, and Texas. The technical innovation involves using LLMs for feature mining — the automated process of exploring complex datasets to identify relevant features — text  embeddings, which converts words to lists of numbers, to detect rare social phenomena that traditional statistics might miss. By providing population-based data on a historically clandestine issue, the project informs post-trafficking recovery programs and policy interventions. Schools represented: the Celia Scott Weatherhead School of Public Health and Tropical Medicine and the School of Science and Engineering.

**VocalAccessAI: Voice Biomarker Triage System**: Dr. Demetrius Maraganore, Dr. Kendra LeSar, and DrPH candidate Charon Flowers Maple lead the development of VocalAccessAI, a passive screening tool that analyzes voice biomarkers during healthcare call center interactions to detect early signs of cognitive impairment and mental distress. The innovation is a proprietary architecture and generates a triage score. This system addresses health equity by providing objective screening at the point of access, helping to expedite diagnosis for vulnerable populations who face long wait times for specialty care. Schools represented: the Celia Scott Weatherhead School of Public Health and Tropical Medicine, the School of Medicine, and the

School of Science and Engineering.

**Virtual Patient Advocate for NICU Families (VPA-NICU)**: Led by Dr. Yusuf Sermet, associate research professor in the School of Science and Engineering and the Department of Pediatrics, this project creates an interactive AI tool that allows families to explore complex NICU conditions and instructions at their own pace, equipping them with the specific knowledge and vocabulary they need to advocate for their babies from the NICU ward to the infant graduate clinic. The system features persona-aware adaptation, which enables AI systems to tailor their behavior, tone, and knowledge base to the specific preferences of an individual user or group, and uncertainty-informed coaching, which prompts AI to acknowledge limitations. This tool could be particularly significant for Louisiana's Medicaid-insured population, as it helps parents with lower health literacy or limited resources manage high-stakes infant care transitions. Units represented: the ByWater Institute, the Celia Scott Weatherhead School of Public Health and Tropical Medicine, the School of Medicine, and the School of Science and Engineering.

**LLMs for Qualitative Coding in Public Health Research**: This interdisciplinary project aims to develop a user-friendly tool that helps public health practitioners qualitatively analyze video-based social media content using artificial intelligence. By making advanced AI tools accessible and practical for non-technical users, this proposed tool could enables faster detection of misinformation, stronger evidence generation, and more timely public health responses, without the expense and complexity of existing social listening tools. Three global partner sites are included in the project to ensure the tool is designed with accessibility and global reach in mind. The sites will test the prototype using local data, languages, and infrastructure conditions, ensuring it works across diverse, real-world settings. The use case of this endeavor will target misinformation about the vaccine to prevent measles, mumps, and rubella (MMR). Schools represented: the Celia Scott Weatherhead School of Public Health and Tropical Medicine and the School of Science and Engineering.