



Jesse Spencer-Smith, Ph.D.

CO-FOUNDER, CARTULARY

Dr. Jesse Spencer-Smith is the Director of the Data Science Institute and Program Director of the Master of Science in Artificial Intelligence at Vanderbilt University in Nashville, Tennessee. He also serves as Associate Dean for Partnerships and Innovation in the College of Connected Computing and as Professor of the Practice of Computer Science. As Director and Chief Data Scientist, he sets the scientific direction of the Institute and leads interdisciplinary teams of data scientists and postdoctoral fellows who apply artificial intelligence (AI) to problems across medicine and public health, the physical and biological sciences, and national security.

Dr. Spencer-Smith joined Vanderbilt University in 2019, following nearly a decade leading data science in the health care sector. At HCA Healthcare, one of the nation's largest health systems, he served as Director of Clinical Analytics and then led the system's data science as Director of Data Science, building analytic capability for clinical quality, patient safety, and operations across a national network of hospitals. His areas of expertise include generative and foundation models, applied machine learning, healthcare and clinical analytics, and quantitative and statistical methods, and his applied health work includes voice-based AI to support rural heart-failure care.

His research applies AI across the sciences. He has applied generative and foundation models to chemistry and structural biology, predicting water-molecule and metal-ion positions on protein surfaces; to astrophysics, adapting audio transformer models to gravitational-wave signal analysis; to neuroscience, modeling predictive processing in sensory cortex; and to education, developing AI-enabled curricular intelligence for medical training. This research appears in peer-reviewed venues including *eLife*, *Communications Chemistry* (Nature Portfolio), the *Journal of Cheminformatics*, and the proceedings of the Association for Computing Machinery's SIGKDD conference.

Dr. Spencer-Smith works closely with government and industry to put AI into responsible practice. He has designed and delivered AI instruction and briefings for the United States Army Senior Executive Service, the United States Army Corps of Engineers, United States Cyber Command and the National Security Agency, and Congressional staff. He serves on the Institute of National Security Faculty Advisory Board and is a member of the Tennessee Artificial Intelligence Advisory Council, where he chairs the Education Subcommittee. He founded the Institute's AI Factory Industry Affiliates Program, which partners with industry to translate AI research into practice, and he designs and leads intensive AI workshops for technical and leadership audiences.

He developed and teaches one of Vanderbilt's first graduate courses on transformers and generative AI and led the creation of the university's Generative AI Graduate Certificate and its Master of Science in Artificial Intelligence. In 2026 he received the Faculty Excellence Award from the Vanderbilt Office of Undergraduate Education.

EDUCATION

- 1995** Bachelor of Science, Computer Science, University of Florida, Gainesville
- 2001** Doctor of Philosophy, Cognitive Science and Cognitive Psychology (minor, Mathematical Psychology), Indiana University, Bloomington