Kasthuri Kannan, PhD

Professor of Data Science, US Army War College (USAWC)

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PROFILE

Data scientist with nearly two decades of experience driving impactful insights through advanced data analysis and modeling. Proven ability to lead complex, large-scale projects, demonstrated by quality publications and successful biomarker discoveries. Expertise in integrating data, spatial modeling, and leveraging graph databases (RDFs and LPGs) and Graph Neural Networks for network-based directed insights. Passionate about applying data science to solve critical problems and translating findings into actionable recommendations.

EDUCATION

Doctor of Philosophy (PhD), Computer Science 2002 – 2008 | College Station, Texas
Texas A&M University

Master of Science (MS), Mathematics 2000 – 2002 | College Station, Texas
Texas A&M University

Master of Science (MSc), Mathematics 1998 – 2000 | Chennai, India
Indian Institute of Technology, Madras

Bachelor of Science (BSc), Mathematics 1995 – 1998 | Chennai, India
University of Madras

PROFESSIONAL EXPERIENCE

US Army War College 07/2025 – Present | Carlisle, PA
Professor of Data Science

- Responsibilities include assisting faculty in integrating data science into curricula, developing faculty skills through targeted training, and enhancing student data literacy to support senior-level decision-making, while serving as an expert in data analytics, AI, and business intelligence.

MD Anderson Cancer Center 02/2020 – 07/2025 | Houston, TX
Associate Professor

- Graph database development (Neo4j) for multi-omics data integration & identifying critical biomarkers.
- Established spatial modeling in pathology - lead to several publications and deeper understanding of the spatial architecture of tumor tissues. Spearheaded spatial transcriptomics efforts in glioblastoma.

New York University 11/2013 – 08/2019 | New York, NY
Assistant Professor

- Implemented bioinformatics pipelines, streamlining data processing and analysis workflows, cutting down the time from data collection to actionable insights. Made significant cancer genomics discoveries.
- Directed data science courses, cultivating a talent pool equipped with cutting-edge skills in data science and quantitative biology - enhancing NYU's capabilities in data-driven decision-making and innovation.

Memorial Sloan-Kettering Cancer Center 04/2011 – 10/2013 | New York, NY
Research Fellow/Associate
- Established mutation pipeline for Brain, Head & Neck cancers resulting in improved understanding of cancer genetics and tumor heterogeneity. Provided directed insights in various cancer studies.
- Discovered ATRX mutations in lower grade gliomas, establishing clinical diagnosis of astrocytoma and contributing to a better understanding of glioma biology. Resulted in subsequent cutting-edge findings.

Pennsylvania State University 10/2010 – 03/2011 | State College, PA
Research Associate
- Offered bioinformatics consultation to researchers, resulting in the appropriate use of computational tools and statistics to inform actionable insights and managed NGS sequencing tasks.

Stowers Institute for Medical Research 01/2008 – 09/2010 | Kansas City, MO
Research Specialist
- Developed image processing methods for worm/fly tracking leading to publications (*Cell, PLoS Genetics)*.
- Implemented an automated workflow to process cell images, reducing image acquisition times five-fold.

Knowledge Based Systems, Inc 01/2007 – 12/2008 | College Station, TX
Internship
- Delivered data-driven insights for aircraft movement operations - improved the efficiency and effectiveness of land based air traffic control management at the Tinker Air Force Base, OK.
- Proposed cost and time-saving measures for managing Air Force logistics and identified opportunities to optimize logistics operations. This resulted in significant cost savings and improved resource utilization.

SKILLS

Leadership ● ● ● ● ●
Managing data science and bioinformatics projects

Software (Representative) ● ● ● ● ○
Python, R, Java, Cypher, SQL, Bioinformatics tools, Unix/HPC/Bash, Neo4j, MySQL, PostgreSQL, HTML, Javascript, Pytorch, Tensorflow, LangChain

Data Science/Machine Learning/AI ● ● ● ● ●
Math, CS, Statistics, Programming, GenAI, LLMs, Embeddings, RAG/GraphRAG, Ethical hacking

Bioinformatics & Image Processing ● ● ● ● ●
Pipeline development and data engineering
Geospatial analysis

PROJECT HIGHLIGHT

Graph RAG modeling with LLM integration — Built a ChatBot based on graph RAG utilizing Neo4j and Graph Data Science library using Python packages.

TEACHING

Developed and taught Programming for Data Analysis, Machine Learning & AI, and Methods in Quantitative Biology courses. Please refer https://kannan-kasthuri.github.io/#about for details.

INVITED TALKS (REPRESENTATIVE)

US Army War College (2024), Mayo Clinic (2023), National University of Singapore (2022), Texas A&M University (2021), Courant Institute of Mathematical Sciences (2019)

PUBLICATIONS

Authored/co-authored 36 peer reviewed articles, that includes very high-impact journals.
Please refer https://kannan-kasthuri.github.io/publications/publications.html

CERTIFICATIONS

Introduction to Foundry & AIP for Enterprise Organizations
Foundry & AIP Builder Foundations