Srivathsan (Sri) Badrinarayanan
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Developing physics-informed AI that unifies molecular language, graph, and 3D representations for therapeutic and materials discovery in data-limited settings.

EDUCATION

Carnegie Mellon University, Pittsburgh, PA — August 2026 – Present
Ph.D. in Mechanical Engineering, MAIL Lab

Carnegie Mellon University, Pittsburgh, PA — August 2023 – December 2024
M.S. Artificial Intelligence Engineering – Chemical Engineering — GPA: 4.0/4.0

Indian Institute of Technology Madras, Chennai, India — July 2019 – July 2023
B.Tech Chemical Engineering (Minor: Bioprocess Engineering)

PUBLICATIONS

Peer-Reviewed Journal Articles

- J. Ock, **S. Badrinarayanan**, R. Magar, A. Antony, A.B. Farimani. Multimodal Language and Graph Learning of Adsorption Configuration in Catalysis. *Nature Machine Intelligence*, 2024.
- **S. Badrinarayanan**, C. Guntuboina, P. Mollaei, A.B. Farimani. Multi-Peptide: Multimodality Leveraged Language-Graph Learning of Peptide Properties. *ACS JCIM*, 2024.
- **S. Badrinarayanan**, R. Magar, A. Antony, R.S. Meda, A.B. Farimani. MOFGPT: Generative Design of Metal-Organic Frameworks using Language Models. *ACS JCIM*, 2025.
- T. Zeng, **S. Badrinarayanan**, J. Ock, C.K. Lai, A.B. Farimani. LLM-guided Chemical Process Optimization with a Multi-Agent Approach. *ML: Science & Technology*, 2025.
- J. Ock, R.S. Meda, **S. Badrinarayanan**, N.S. Aluru, A. Chandrasekhar, A.B. Farimani. Large Language Model Agent for Modular Task Execution in Drug Discovery. *ACS JCIM*, 2026.

Preprints & Under Review

- **S. Badrinarayanan**, Y. Su, J. Ock, A. Pham, S. Ahuja, A.B. Farimani. Meta-Learning for Cross-Task Generalization in Protein Mutation Property Prediction. *arXiv*, 2025. Under review, ACS JCIM.
- O. Issakah, **S. Badrinarayanan**, R.F. Saraf, J. Ock. Graph-Based Kirchhoff Modeling of Non-Ohmic Electron Transport in Self-Assembled Nanonecklace Networks. *arXiv*, 2026.

ACADEMIC RESEARCH EXPERIENCE

Carnegie Mellon University, MAIL Lab — May 2024 – June 2025
Graduate Researcher — Advisor: Dr. Amir Barati Farimani

- Multimodal and generative AI for peptides, catalysts, MOFs, and agentic drug discovery; five peer-reviewed publications.
- Multi-Peptide (JCIM 2024), Multimodal Catalysis (Nature MI 2024), MOFGPT (JCIM 2025), Drug Discovery Agent (JCIM 2026).
- Meta-learning preprint for protein mutation prediction. Mentored junior researchers; founded DreamPods.

University of Alberta — May 2022 – August 2022
MITACS Globalink Research Intern — Advisor: Dr. Zukui Li

- LSTM and Neural CDE surrogates for refinery flow-rate optimization. 3MT talk.

IIT Madras — June 2021 – May 2022
Research Fellow (Young Research Fellowship)

- ML surrogates for stiff chemical kinetics; reduced CFD simulation time by 90%.

INDUSTRY EXPERIENCE

Aikium Inc., Berkeley, CA — June 2025 – August 2025
Machine Learning Engineer

- Multi-agent protein engineering pipelines (ESM, ProteinMPNN, AlphaFold, RFdiffusion) and LangChain interface for wet-lab scientists.

Stealth Startup, San Francisco Bay Area — November 2025 – June 2026
Founding Engineer

- End-to-end ML, systems, and deployment across multiple 0→1 product pivots.

LEADERSHIP & RECOGNITION

- Founder, Generative AI Initiatives at CMU (DreamPods podcast, GenAI education platform).
- Peer Reviewer, *ACS JCIM* (2025–present).
- MITACS Globalink Scholar (2022); Young Research Fellowship, IIT Madras (2021).
- Best Poster Award, Generative AI Course, CMU (2024).

TECHNICAL SKILLS

PyTorch, Transformers, GNNs, Diffusion, LLMs, RAG, RL (PPO, RLHF), Multimodal Learning, AlphaFold, ESM, ProteinMPNN, RFdiffusion, RDKit, Python, C++, R, LangChain, HuggingFace, Docker, AWS, CUDA, PostgreSQL, W&B