Rahul Devathu

MD Student · Stanford University School of Medicine

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Education

Stanford University *Stanford, CA*

MD (PSTP) *2023-2028 (expected)*

Northwestern University *Evanston, IL*

B.A. in Data Science and Neuroscience *2020-2023*

Research Experience

Stanford University School of Medicine - Department of Anesthesiology *Palo Alto, CA*

Research Assistant
Advisor: Dr. Kirsten Steffner & Dr. David Ouyang *Dec. 2023 - Present*

- Develops foundation machine learning models for use with medical image, video, and waveform data sets to predict postoperative outcomes for cardiac surgery patients
- Builds multimodal data fusion models to elucidate perioperative status using high-throughput hemodynamic data and perioperative transesophageal echocardiographs
- Crafts pipelines and machine learning research infrastructure for terabyte-scale datasets utilizing cluster computing, Google Cloud SDK, and Weights and Biases

Thomas Lab Group - Northwestern Medicine *Chicago, IL*

Research Assistant
Advisor: Dr. James Thomas *Jan. 2021 - Jun. 2023*

- Independently conducted in-depth literature analysis, engineering, and research to build computational models for diagnosing and phenotyping heart failure in high-risk populations
- Constructed and fine-tuned supervised and unsupervised machine learning models to predict heart failure outcomes and sub-phenotype heart failure patients
- Developed a comprehensive platform for analyzing and reconstructing echocardiographic strain imaging
- Established and nurtured research relationships with leading commercial partners, including Eko Health, GE Healthcare, and Philips Healthcare, to facilitate collaborative projects

Presentations

- Devathu, R. (2021, November). Temporal Strain Data Reconstruction from Echocardiographic Strain Graphs. Poster presented at American Heart Association Sessions, Boston, MA.
- Devathu, R. (2020, October). Exploiting Generative Adversarial Networks (GANs) to explore representational distance along high-level visual features. Poster presented at Vanderbilt University, Nashville, TN.

Publications & Patents

- Devathu, R. A., Wehbe, R. M., Nelson, L., Shah, S. J., & Thomas, J. D. (2021). Temporal Strain Data Reconstruction from echocardiographic strain graphs. Circulation, 144(Suppl_1). https://doi.org/10.1161/circ.144.suppl_1.12548
- Devathu, R. A., Wehbe, R. M., & Thomas, J. D. (2021). Method and System for Data Extraction from Echocardiographic Strain Graphs US20230153997A1. U.S. Patent and Trademark Office. Provisional Patent
- Gilge, J. L., Ahmed, A., Clark, B. A., Slaten, A., Devathu, R., Olson, J. A., Padanilam, B. J., Nair, G. V., Joshi, S. A., Ravichandran, A. K., & Patel, P. J. (2020). Left atrial hypertension and the risk of early incident heart failure after atrial fibrillation ablation. Journal of Cardiovascular Electrophysiology, 32(2), 325–332. https://doi.org/10.1111/jce.14829

Skills

Computer Science Python, PyTorch, SQL, C++, R, High-Performance Computing (HPC), Git
Engineering CAD (Fusion360, OnShape), Additive Manufacturing (3D Printing), IoT
Languages Proficient: Telugu, Hindi | Conversational: German, Tamil, Kannada
Coursework Foundation Models for Healthcare, Computational Biology, Computational Neuroscience, Biodesign