

Shashank Manjunath
Boston, MA
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EDUCATION

Northeastern University
Ph.D., Computer Science
Advisor:

Boston, MA
2022-Present
Dr. Aarti Sathyanarayana

Boston University
M.S., Electrical Engineering
Thesis:
Machine Learning Techniques for Reconstruction and Segmentation of Nanoparticle Interferometric Signatures
Advisor:

Boston, MA
2020-2022
Dr. M. Selim Ünlü

Vanderbilt University
B.Eng, Biomedical Engineering & Mathematics

Nashville, TN
2014-2018

EXPERIENCE

Linus Health
Senior Data Scientist

Boston, MA
February 2022-August 2022

Developed novel signal processing and machine learning techniques to improve brain health assessment.

Charles River Analytics
Scientist - Signal Processing & Computer Vision

Cambridge, MA
May 2018-February 2022

Performed novel research into signal processing and computer vision techniques through funding provided by the Department of Defense. Acted as lead engineer and Principal Investigator on projects investigating real-time machine learning based image denoising techniques in the presence of complex noise sources. Acted as a supporting scientist on projects involving mobile health, connectome fingerprinting, and applications of machine learning techniques to information extraction from laser vibrometry data, among others. Lead GPU programming efforts across the Sensor Processing and Applied Robotics division. Designed, built, and administered GPU Compute Cluster for internal company use. Lead research, development and transition of R&D efforts to U.S. Navy Submarine force. Won funding for novel research from the DoD through various grant sources. Responsibilities include proposal writing and support, algorithm development, and professional as well as academic presentations.

LumaSil
Founder & Engineer

Nashville, TN
2018-2019

Founded a company focused on developing low level light therapy devices for diabetic foot wounds. Designed and implemented software on embedded platforms for device prototype. Performed novel research into light effects on methicillin-resistant *Staphylococcus aureus* (MRSA). Performed efficacy studies on therapy device for diabetic foot wounds.

Vanderbilt University Institute of Imaging Science
Undergraduate Research Assistant

Nashville, TN
2016-2018

Initiated a project investigating applications of machine learning techniques to segment magnetic resonance images. Implemented convolutional neural network based techniques to handle sciatic

nerve segmentation from MRI volumes. Investigated and designed novel signal processing techniques to account for inflammation in diffusion-weighted MR images. Validated techniques on *ex vivo* MRI data of rat sciatic nerve.

CONFERENCES

Manjunath, S., Perea, J. A., Sathyanarayana, A. “Topological Data Analysis of Electroencephalogram Signals for Pediatric Obstructive Sleep Apnea.” IEEE Engineering and Medicine in Biology Conference, July 2023 (Oral).

Manjunath, S., Bracken, B., German, S., Monnier, C., and Farry, M. “User Activity Context Recognition From Smartphone Data Using Deep Neural Networks.” Biomedical Engineering Society, October 2019 (Poster).

Manjunath, S., Thornton, W. “Deep Learning for Maritime Imagery.” Submarine Technology Symposium, May 2019 (Oral)

Grisham, C., **Manjunath, S.**, Perlin, B., Russo, A., Wigginton, N., Walker III, M. “Low-Level Light Therapy for Improvement of Diabetic Foot Ulcer Infection Outcomes.” Biomedical Engineering Society, October 2018 (Poster)

Manjunath, S., Manzanera-Esteve, I., Thayer, W., Does, M., Dortch, R. “Free-Water Elimination Diffusion Tensor Imaging to Assess Nerve Recovery in Excised Rat Nerve.” International Society of Magnetic Resonance in Medicine, June 2018 (Poster)

Hancock, M., **Manjunath, S.**, Dortch, R. “Sciatic Nerve Segmentation in MRI Volumes of the Upper Leg via 3D Convolutional Neural Networks.” International Society of Magnetic Resonance in Medicine, June 2018 (Poster)

Manjunath, S., Dortch, R., “Sciatic Nerve Segmentation in MR Images of the Upper Leg via Convolutional Neural Networks.” Biomedical Engineering Society, October 2017 (Poster)

PREPRINTS

Manjunath, S., Nathaniel, A., Druce, J., German, S. “ Improving the performance of fine-grain image classifiers via generative data augmentation.” arXiv preprint, arXiv:2008.05381, August 2020.

PATENTS

Manjunath, Shashank; Sathyanarayana, Aarti. Diagnosing Sleep Apnea from Awake EEGs. U.S. Patent Application No. 63/481,123, filed January 23, 2023. Provisional Patent.

Agaron, Shamay; Tobyne, Sean; **Manjunath, Shashank**. Contextual Awareness for Unsupervised Administration of Cognitive Assessments Remotely or in a Clinical Setting. U.S. Patent Application No. 63/377,435, filed September 28, 2022. Provisional Patent.

AWARDS AND HONORS

- Graduate Merit Scholarship (2020)
- Thomas Arnold Prize for Biomedical Systems Design (2018)
- Thomas J. Watson Scholarship (2014)

SKILLS

General Skills

Signal Processing, Computer Vision, Machine Learning, GPU Programming

Programming Languages

Python, C/C++, MATLAB, Java

DevOps and Libraries

LaTeX, Git, Numpy, Scipy, Pandas, Scikit-learn, OpenCV, PyTorch, TensorFlow, CUDA, CUDNN, SLURM, AWS

References provided upon request