SHREYA NARAYAN

shreyanarayan@gmail.com | LinkedIn Profile

EDUCATION

Stanford University

M.S. in Electrical Engineering — Conferred June 2023

Graduate Student Researcher in the Dahl Lab, Arbabian Lab — 2021 - 2023

- Focus in time-of-flight sensing systems and applied ML:
    - Designed flexible ultrasound array geometries for wearable imaging. Developed an optimization method for flexible array shape estimation using differentiable beamforming; work was highlighted at the 2023 International Ultrasonics Symposium
    - Achieved > 90% accuracy with an EKF tracking algorithm for adaptive perception in radar
    - Achieved 0.99 IOU in an ML model for segmentation of muscle fibers in ultrasound images
    - Reduced MRNet model training time by 84% using 33% of the training data with insignificant effect on accuracy for identification of ACL tears in MRIs
- Awarded "Best ADC Design" by panel of Apple engineers (EE 315 Design Contest)

Johns Hopkins University

B.S. in Biomedical Engineering; Focus: Imaging and Instrumentation — Conferred May 2021

Minors in Entrepreneurship & Management and Music — Clark Scholar

EXPERIENCE

Greeneridge Sciences, Inc. — Santa Barbara, CA

Acoustician — 2024 - Present

- Developed an end-to-end machine learning based pipeline for automatic detection, classification, and localization of bowhead whale calls. Enabled analysis for 2025 deployment season of 19 sensors deployed continuously over 2 months, for which manual analysis was not feasible.
- Developed a GUI for computation and visualization of underwater sound source bearings, enabling efficient contextualization of acoustic sources during data analysis
- Conducted field work for sensor calibration, testing; and deployment/retrievals from the Arctic Ocean
- Analyzed acoustic and environmental data for end of study report submitted to client

Hubbs Sea World Research Institute — San Diego, CA

Bioacoustics Research Engineer — 2024 - Present

- Developing supervised and unsupervised machine learning methods for acoustic feature extraction of odontocete vocalizations to demonstrate species level differences and vocal production learning using data science and ML visualization techniques (tSNE, UMAP, Topological Data Analysis, CAM)

University of California, San Diego — San Diego, CA

Researcher, Lead of Startup Efforts to Commercialize Wearable Ultrasound — 2023 - 2024

- Developed team's commercialization (regulatory, reimbursement, marketing, manufacturing) strategy through extensive market research, collaboration with physicians. Representative to NIH's C3i program.
- Prepared all materials for $2M STTR Phase II National Institutes of Health (NIH) grant.

Implantable Ultrasound for Early Detection of Recurrent Brain Tumors — Baltimore, MD

Project Manager and Engineering Team Lead — 2020 - 2022

- Directed user need analysis, ultrasound system design, prototyping, fundraising (won $78K grant)
- Managed a team of 7, cross functional collaboration with the Johns Hopkins Hospital/Whiting School

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SKILLS

Technical Expertise: Digital signal processing, machine learning and deep learning, computer vision, acoustics, bioacoustics, time-of-flight sensing and imaging (including underwater/ocean acoustics, radar, LiDAR, medical ultrasound), medical imaging, medical device development, oceanographic field work

Technical Languages/Programs: Python, PyTorch, MATLAB, C++, Raven Pro, Solidworks, GitHub

Business: Technical communication, cross functional collaboration, strategy development, fundraising, grant writing, project management, team management

AWARDS AND MEMBERSHIPS

Climate Change, Learning for Action Fellow (Terra.do)	2026
Joint Conference: Acoustical Society of America/Japan: Lecture Presentation	2025
Acoustical Society of America, Member	2025 - Present
Highlighted work: Flexible Array Shape Estimation (2023 International Ultrasonics Symposium)	2023
Best ADC Design, Stanford University (EE 315 Design Contest)	2022
Cohen Fund Grant Recipient (Project lead, award of $78,000), Johns Hopkins	2021
Johns Hopkins Residential Advisor Above and Beyond Award	2020
Johns Hopkins Biomedical Engineering Distinguished Service Award	2019
TCO Labs, Grant Recipient	2019
Clark Scholar Study Abroad Scholarship (Johns Hopkins University, Israel)	2019
Malinow Family Fund Grant	2018
Johns Hopkins Dean's List	2017 - 2021

VOLUNTEER AND LEADERSHIP EXPERIENCE

Acoustical Society of America San Francisco Chapter, Guest Lecturer	2025
California Coast Classic Rider, Arthritis Foundation	2025
Project Lead: Stanford's Beyond the Farm Service Days (Tree planting with Canopy)	2025, 2026
Climate Change Action Oriented Discussion Group Lead	2023 - 2025
Residential Advisor/CA, Stanford University	2022 - 2023
Residential Advisor, Johns Hopkins	2019 - 2021
Running Club Coach, Johns Hopkins	2019 - 2021
Clark Scholar, Johns Hopkins	2017 - 2021
Uganda: Biomedical Engineering Needs Finding and Analysis Program	2020
Israel: Innovation and Entrepreneurship Program	2019

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PUBLICATIONS

[1] * **Narayan, S.,** Bowles A., Ames A. [Manuscript In Progress] *Unsupervised Machine Learning Techniques for Quantitative Demonstration of Vocal Production Learning in Beluga Whales.* Hubbs Sea World Research Institute.

[2] * **Narayan, S.,** Kim, K., Blackwell, S. [Manuscript In Progress] *Results from the application of a machine learning based pipeline for detection, classification, and localization of bowhead whale calls from a 19 sensor DASAR array and comparison to manual methods.* Greeneridge Sciences.

[3] Kim, K.H., Blackwell, S.B., **Narayan S.V** (eds.). 2026. *Monitoring of industrial sounds and bowhead whales near Hilcorp's Northstar Oil Development, Alaskan Beaufort Sea, 2024: Summary Report.* GSI Rep. 557-1. Rep. from Greeneridge Sciences Inc. (Santa Barbara, CA) for Hilcorp Alaska LLC, Anchorage, AK.

[4] **Narayan, S**., Kim, K. *Machine learning based detection, classification, and localization of bowhead whale calls during their annual fall migration across the Beaufort Sea.* Sixth Joint Meeting, Acoustical Society of America and Acoustical Society of Japan. Acoustical Society of America, 2025 December 1 - 5. Honolulu, Hawaii.

[5] D. Hyun, **S. Narayan**, W. Simson, L. Zhuang and J. Dahl. *Flexible Array Shape Estimation Using Differentiable Beamforming*. 2023 IEEE International Ultrasonics Symposium (IUS), Montreal, Canada, 2023

[6] **Narayan, S.** *Evaluation of U-Net vs U-Net + VGG-16 Architecture Performance in Extracting Masks and Musculoskeletal Metrics from Ultrasound B-Mode Image Data* [Unpublished Manuscript]. 2022. CS230 Deep Learning, Department of Computer Science, Stanford University.

[7] Ojiaku CA, Chung E, Parikh V, Williams JK, Schwab A, Fuentes AL, Corpuz ML, Lui V, Paek S, Bexiga NM, **Narayan S**, Nunez FJ, Ahn K, Ostrom RS, An SS, Panettieri RA Jr. Transforming Growth Factor-β1 Decreases β2-Agonist-induced Relaxation in Human Airway Smooth Muscle. Am J Respir Cell Mol Biol. 2019 Aug;61(2):209-218. doi: 10.1165/rcmb.2018-0301OC. PMID: 30742476; PMCID: PMC6670035.

* In Progress