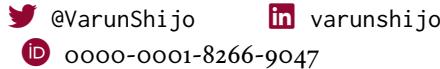


Varun Shijo

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 braininahat.github.io



Education

- 2022 – ...  **Ph.D. Computer Science and Engineering, University at Buffalo** Deep Learning for Biomedical Applications

2017 – 2019  **M.Sc. Computer Science and Engineering, University at Buffalo** in Artificial Intelligence.

2013 – 2017  **B.Engg. Information Technology, University of Mumbai**

Research Interests

Research Publications

Journal Articles

- 1 W. Zheng, H. Zhang, C. Huang, **V. Shijo**, C. Xu, W. Xu, and J. Xia, "Deep Learning Enhanced Volumetric Photoacoustic Imaging of Vasculature in Human," en, *Advanced Science*, vol. 10, no. 29, p. 2301277, 2023, _eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/advs.202301277>, ISSN: 2198-3844. DOI: [10.1002/advs.202301277](https://doi.org/10.1002/advs.202301277).

Conference Proceedings

- 1 R. W. Bing, **V. Shijo**, E. Zheng, W. Zheng, C. Huang, and J. Xia, "Wearable Photoacoustic/Ultrasound Imaging with a Curved Linear Array," in *2023 IEEE International Ultrasonics Symposium (IUS)*, ISSN: 1948-5727, Sep. 2023, pp. 1–5.  DOI: [10.1109/IUS51837.2023.10307045](https://doi.org/10.1109/IUS51837.2023.10307045).
 - 2 **V. Shijo**, T. Vu, J. Yao, W. Xu, and J. Xia, "SwinIR for Photoacoustic Computed Tomography Artifact Reduction," in *2023 IEEE International Ultrasonics Symposium (IUS)*, ISSN: 1948-5727, Sep. 2023, pp. 1–4.  DOI: [10.1109/IUS51837.2023.10307937](https://doi.org/10.1109/IUS51837.2023.10307937).

Ongoing Projects

- 2024 – …  Wireless Self-directed 3D Freehand Breast Ultrasound

2023 – …  3D Structure-Aware PACT Breast Tumor Classification - OneTouch PAT System

2023 – …  2D Dual Modal Breast Tumor Classification - OneTouch PAT System (Planned for RSNA Radiology)

Teaching Experience

- | | |
|------|--|
| 2024 | ■ CSE573: Intro. to Computer Vision and Image Processing (Graduate Student Instructor) |
| | ■ CSE560: Data Models and Query Languages, Dr. Sreyasee Das Bhattacharjee (Teaching Assistant) |
| 2023 | ■ CSE666: Biometrics Image Analysis, Dr. Nalini Ratha (Teaching Assistant) |

Industry Experience

- 2021 – 2022  **Software Engineer, Innovations Lab TATA AIG, Mumbai, India**
Scene Text Recognition - Trained Custom Recognition Model Pipeline
Added support for model training and inference in PyTorch, and replaced existing classifier with MobileNetv3 classifier resulting in 5.4x speedup with ~1% accuracy drop
- 2019 – 2020  **Software Developer II, LABS CentralSquare Technologies, Greensboro, NC, USA**
XGBoost Model improvements - Added focal loss for imbalanced dataset
Built synthetic data generator in golang capable of streaming millions of GPS coordinates in realtime

Mentoring Experience

- 2024 -  Nihar Asare (Masters Student, Robotics Engineering @ UB, project: Wireless Self-directed 3D Freehand Breast Ultrasound*)
- 2023 - 2024  Arianna Dougherty (Masters Student, Biomedical Engineering @ UB, project: OneTouch PAT system for Breast Imaging)
- 2023  Michelle Lin (High School Student, Williamsville North High School, project: Camera-based PPG for pulsatile signal estimation)
-  Emma Zhang (High School Student, Williamsville North High School, project: SWIR for moisture quantification)
-  Emma Durham (Senior Undergraduate BE@UB, project: Robotic Arm-based position tracking for Self-Directed Ultrasound Scanning)
-  Hannah Pham (Senior Undergraduate BE@UB, project: Face Spoofing Detection using SWIR Imaging)

Skills

- Coding  Python, MATLAB, Go...
- Frameworks  PyTorch, Keras, OpenCV, NumPy, Pandas, k-Wave...
- Misc  Git, wandb, Linux, Docker, Raspberry Pi...

Peer Review

- 2024  IEEE Body Sensor Networks - Reviewer
 Elsevier Smart Health - Reviewer
- 2023  IEEE Body Sensor Networks - TPC Member
 Journal of Innovative Optical Health Sciences - Reviewer

Certifications

- 2020  **Computer Vision Nanodegree.** Awarded by Udacity.