MITHUNJHA ANANDAKUMAR

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RESEARCH INTERESTS

AI for healthcare	Machine learning and deep learning	Biosignal processing
Medical imaging	Interpretable ML	Computational medicine

EDUCATION

BSc. Engineering (Honours) in Biomedical Engineering *Aug 2017 - July 2022*
Department of Electronic and Telecommunication Engineering,
University of Moratuwa, Sri Lanka.
Cumulative GPA : **3.98/4.2 (First Class Honours)**

RESEARCH EXPERIENCE

Faculty of Arts and Sciences, Harvard University *July 2022 - June 2023*
Post baccalaureate fellow

The Center for Advanced Imaging, Harvard University *Sept 2021 - June 2022*
Remote undergraduate researcher

Biomedical Research Group, University of Moratuwa, Sri Lanka *June 2021 - July 2022*
Undergraduate thesis research student

Zone 24x7 (Pvt) Ltd, Sri Lanka *Oct 2020 - Mar 2021*
Trainee associate research engineer

Centre for Biomedical Innovation, University of Moratuwa, Sri Lanka *July 2019*
Research assistant intern

PUBLICATIONS

Preprints

- **M. Anandakumar*** , J. Pradeepkumar*, S. L. Kappel, C. U. S. Edussooriya, and A. C. De Silva. (2022) "A knowledge distillation framework for enhancing ear-EEG based sleep staging with scalp-EEG data", arXiv. *Accepted for presentation at IEEE Conference on Systems, Man, and Cybernetics (IEEE SMC 2023).* [Paper] [Code]
- J. Pradeepkumar*, **M. Anandakumar***, V. Kugathasan, D. Suntharalingham, S. L. Kappel, A. C. De Silva and C. U. S. Edussooriya. (2022) "Towards interpretable sleep stage classification using cross-modal transformers.", arXiv. *Under Review.* [Paper] [Code]
- N. Wijethilake*, **M. Anandakumar***, C. Zheng, P. T. C. So, M. Yildirim and D. N. Wadduwage, (2022) "DEEP-squared: deep learning powered de-scattering with excitation patterning" arXiv. *Under Review.* [Paper] [Code]
- J. Pradeepkumar*, **M. Anandakumar***, V. Kugathasan*, A. Seeber and D. N. Wadduwage. (2021) "Physics augmented U-Net : a high frequency aware generative prior for microscopy", bioRxiv. (Manuscript under preparation for extension of this work). [Paper]

Peer reviewed conference papers

- M. Afham*, U. Haputhanthri*, J. pradeepkumar*, **M. Anandakumar**, A. De Silva and C. U. S. Edussooriya (2022) "Toward accurate cross-domain in-bed Human pose estimation", In IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (pp. 2664-2668). [Paper]
- J. Pradeepkumar, **M. Anandakumar**, V. Kugathasan, T. D. Lalitharatne, A. C. De Silva and S. L. Kappel (2021) "Decoding of hand gestures from electrocorticography with LSTM based deep neural network", *In Proceedings of International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC).* [Paper]

Theses

- **M. Anandakumar** , J. Pradeepkumar, D. Suntharalingham, V. Kugathasan, S. L. Kappel, C. U. S. Edussooriya, and A. C. De Silva. (2022) "Interpretable multi-modal sleep monitoring system using ear-EEG and EOG". [Thesis]

* denotes joint lead authors.

HONORS AND AWARDS

- Dean's list for 7 semesters.
- Second runner-up at video and image processing cup (2021) at IEEE international conference on image processing (ICIP) conference.
- IEEE SMC winners at BR41N.IO hackathon (2020) at IEEE system, man, cybernetics (SMC) conference.
- Second runners-up of Data storm v2.0 (2021) Sri Lanka's premier advanced analytics competition.
- Champions of Brainstorm (2019), Sri Lanka's premier biomedical engineering design competition.
- Champions of Mora ventures 5.0 (2019), organized by University of Moratuwa, Sri Lanka.
- Champions of SLIoT hackathon (2019), Sri Lanka's premier IoT design competition.
- Runners-up of HackX start-up competition (2019) organized by the University of Kelaniya, Sri Lanka.
- Runners-up of IEEE innovation nation (2019) organized by IEEE Sri Lankan section.
- Mahapola Merit Scholarship (2017) for best performance in the nationwide university entrance examination.

TECHNICAL STRENGTHS

Programming	Python, MATLAB, Verilog
Software tools	ImageJ, Slicer, LaTeX, Git
Libraries	Tensorflow, Keras, Pytorch, NumPy, ITK/VTK, OpenCV, Scikit-Learn

PROFESSIONAL SERVICES AND VOLUNTEERING

Served as a peer reviewer
IEEE Journal of Biomedical and Health Informatics - 2023
ECCV 2022 - L2ID workshop

Teaching experience as teaching assistant
2022 Spring: EN2550 Fundamentals of image processing and machine vision
2022 Spring: EN3900 Seminar

IEEE Engineering in Medicine and Biology Student Chapter at University of Moratuwa
Council member 2021/22
Editor 2020/21
Education director 2019/2020

Invited talk at center for ear-EEG group, Aarhus University, Denmark on the undergraduate thesis project.