Lalith Bharadwaj Baru

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WORK EXPERIENCE

Jun '22–present Working on	**Research Fellow, IHub-Data, IIIT Hyderabad** Here at IHub-data, I comprehend how deep learning algorithms work when applied to various bio-medical data. Also, being a part of the Cognitive Science Lab, I am working on devising neural networks which comprehend like the human brain
Dec '21–Apr '22 *Worked on*	**Deep Learning Research Intern, Zebu Intelligent Systems.** Here at Zebu we develop a solution that generates human-readable CSS or JavaScript code from a pdf design. Here, my responsibility was to develop a deep learning model to extract the static web page's features to generate JavaScript code.
Aug '19–Jun '21 *Worked On*	**Research Assistant, VNRVJIET** *Designed real-time scalable neural networks for,* a) malaria thin blood smear detection and classification. b) plant leaf disease identification and classification. c) Arrhythmia detection and classification using PPG signals.
Apr '19–Jun '19 *Worked on*	**Research Intern, AI Analytics Hub.** *Designed a chatbot for a restaurant startup.*

SKILLS

Language(s)	Python, MATLAB.
Frameworks	NumPy, Pandas, Scikit-learn, TensorFlow, PyTorch.
Mathematics	Metric Spaces, Analysis, Topology, Manifolds, Kernels. Linear Algebra, Statistics and Probability distributions.
Research Area	Neural Networks, Deep Learning. Statistical Learning, Pattern Analysis.

EDUCATION

2017–2021	Bachelors in Technology, Information Technology VNRVJIET, Hyderabad, T.S, India	First Class with Distinction (GPA: 7.87/10.00)

ACHIEVEMENTS

1. Achieved 2nd position in hackathon conducted at JNTUCES on Dec'2019.

2. Secured 1nd and 2nd positions in the events carried at technical fest **Convergence** on Jan'2019.

PUBLICATIONS

Madhu, G., B.Lalith Bharadwaj, et al. (2019). "A Novel Algorithm for Missing Data Imputation on Machine Learning". In: *2019 International Conference on Smart Systems and Inventive Technology (ICSSIT)*, pp. 173–177. DOI: 10.1109/ICSSIT46314.2019.8987895.

Dammavalam, Srinivasa Rao, Ramesh Babu Ch, V Sravan Kiran, N Rajasekhar, and Bharadwaj B Lalith (2020). "Method for detecting health condition in plants using an aerial device based on deep learning approach". In: *Patent 202041043102. Print.*

Dammavalam, Srinivasa Rao, Ramesh Babu Ch, V Sravan Kiran, N Rajasekhar, Bharadwaj B Lalith, et al. (2020). "Leaf image classification with the aid of transfer learning: a deep learning approach". In: *Curr. Chin Comput. Sci* 1, pp. 61–76.

Madhu, G, B Lalith Bharadwaj, et al. (2020). "A normalized mean algorithm for imputation of missing data values in medical databases". In: *Innovations in Electronics and Communication Engineering*. Springer, pp. 773–781.

Madhu, G., A. Govardhan, et al. (2020). "Capsule Networks for Malaria Parasite Classification: An Application Oriented Model". In: *2020 IEEE International Conference for Innovation in Technology (INOCON)*, pp. 1–5. DOI: 10.1109/INOCON50539.2020.9298425.

Mangathayaru, Nimmala, B Padmaja Rani, et al. (2020). "An Imperative Diagnostic Framework for PPG Signal Classification Using GRU". In: *International Conference on Advanced Informatics for Computing Research*. Springer, pp. 606–621.

Mangathayaru, Nimmala, B.Padmaja Rani, et al. (2020). "An Imperative Diagnostic Model for Predicting CHD using Deep Learning". In: *2020 IEEE International Conference for Innovation in Technology (INOCON)*, pp. 1–5. DOI: 10.1109/INOCON50539.2020.9298423.

Ramesh Babu, Ch et al. (2020). "Deep Bi-linear Convolution Neural Network for Plant Disease Identification and Classification". In: *International Conference on Advanced Informatics for Computing Research*. Springer, pp. 293–305.

Baru, Lalith Bharadwaj et al. (2021). "Improvising the Learning of Neural Networks on Hyperspherical Manifold". In: *LMRL Workshop at Neural Information Processing Systems*. URL: https://arxiv.org/pdf/2109.14746.pdf.

Madhu, G, B Lalith Bharadwaj, B Rohit, et al. (2021). "Convolutional Siamese networks for one-shot malaria parasite recognition in microscopic images". In: *Demystifying Big Data, Machine Learning, and Deep Learning for Healthcare Analytics*. Elsevier, pp. 277–306.

Mangathayaru, Nimmala, Padmaja Rani, et al. (2021). "An attention based neural architecture for arrhythmia detection and classification from ecg signals". In: *Comput. Mater. Continua* 69.2, pp. 2425–2443. URL: https://doi.org/10.32604/cmc.2021.016534.

Bangaru, Gnyanesh et al. (2022). "Interpreting Bias in the Neural Networks: A Peek Into Representational Similarity". In: *arXiv preprint arXiv:2211.07774*. URL: https://arxiv.org/pdf/2211.07774.pdf.

Baru, Lalith Bharadwaj and Rohit Boddeda (2022). "A Perspective to Productive Collaboration for Machine Learning Community". In: *pre-print*. URL: https://openreview.net/forum?id=x6_ArJYl36.

Baru, Lalith Bharadwaj, Shilhora Akshay Patel, et al. (2022). "Dual Metric Contrastive Learning for Self-Supervised Visual Recognition". In: *pre-print*. URL: https://openreview.net/pdf?id=ErHIs1Ib5p.

Lalith Bharadwaj, Baru et al. (2022). "Representational Structure of Neural Networks Trained on Biased and Out-Of-Distribution Data". In: *URCV Workshop at British Machine Vision Conference*. URL: https://openreview.net/forum?id=BBSg-Wbsxfq.

Madhu, G, B Lalith Bharadwaj, Rohit Boddeda, et al. (2022). "Deep stacked ensemble learning model for COVID-19 classification". In: *Computers, Materials and Continua*, pp. 5467–5486. URL: https://doi.org/10.32604/cmc.2022.020455.

Madhu, G et al. (2022). "A Simple Attention Block Embedded in Standard CNN for Image Classification". In: *2022 International Conference on Applied Artificial Intelligence and Computing (ICAAIC)*, pp. 279–284. DOI: 10.1109/ICAAIC53929.2022.9793110.

Rao, D Srinivasa et al. (2022). "Plant disease classification using deep bilinear cnn". In: *INTELLIGENT AUTOMATION AND SOFT COMPUTING* 31.1, pp. 161–176. URL: https://doi.org/10.32604/iasc.2022.017706.

SERVICE

I have Reviewer experience in reputed journals such as **IET Image Processing**, **Expert Systems with Applications**, **Personal Ubiquitous Computing**, I**ET Computer Vision** and **IEEE Access**. To check the detailed list of peer-review activity, please visit my publons profile (link). I'm also a certified reviewer for the Journal IET Computer Vision. I was a reviewer for the **LMRL Workshop at NeurIPS 2022**, **IEEE altVIZ Workshop**.

Journal	Peer-reviewed manuscripts
IET Image Processing	**1**
Expert Systems with Applications	**3**
Applied Intelligence	**2**
Personal & Ubiquitous Computing	**4**
IET Computer Vision	**5**
IEEE Access	**16**
Cumulative Reviews	**31**

TEACHING

- Conducted a Seminar for sophomore-year students on *"Introduction to Deep Learning"* at VN-RVJIET on 5th and 6th of November 2021. [In-person event]

- Invited speaker at VNRVJIET on topic,*"Strategies of conducting research"* on the occasion of IEEE Day, 4th October 2022. [Online event: link]

- Conducted a three-day series workshop for undergraduate students on *"Biological and Computer Vision"* from 31st of October to 2nd of November 2022. [In-person event]

OTHERS

With innate interest in solving math problems, I've decided to provide solution manual for the two books. To my knowledge, there is no solution manual available for both of the books till date.

1. Solution Manual for *Neural Networks for Pattern Recognition* by Christopher. M. Bishop (1994) with python snippets for specific problems.

2. Solution Manual for *Metric Spaces: Iteration and Application* by Victor Bryant (1984) with python code.