Pavan Kumar MP, Ph.D.

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Employment History

2023/09 – 2024/05 **ML Research Intern,** National Center for High Performance Computing, Tainan, Taiwan.

2016/10 – 2020/10 **PCB Design Engineer,** Sierra Circuits Ind Pvt Ltd, Bangalore, India.

2018/10 – 2019/04 **SoC Design Verification Engineer Intern,** Sion Semiconductors Pvt Ltd, Bangalore, India.

Education

2020/10 – 2024/09 **Ph.D., Computer Science Engineering,** National Sun Yat-Sen University, Kaohsiung, Taiwan. GPA: 3.71/4.3. Advisor: Prof. Kun-Chih Chen.
Thesis title: *Mitigating Negative Transfer Learning in Fine-Tuning based Source Free Unsupervised Domain Adaptation for Industrial Applications* .

2017/08 – 2019/08 **Master of Technology, VLSI Design,** BNM Institute of Technology, Bangalore, India. GPA: 8.9/10. Advisor: Prof. Subodh Kumar.
Thesis title: *Design and verification of DDR SDRAM memory controller for higher coverage*.

2012/08 – 2016/08 **Bachelor of Engineering, Electronics and Communication,** Visvesvaraya Technological University, India. GPA: 7.5/10.
Thesis title: *:Live human detecting robot for earthquake rescue operation*.

Research Publications

Journal Articles

1. P. K. MP and K.-C. Chen, "Mitigating negative transfer learning in source-free unsupervised domain adaptation for rotating machinery fault diagnosis," *IEEE Transactions on Instrumentation and Measurement (TIM)*, 2024, Accepted.
2. P. K. MP, J.-W. Liang, and K.-C. Chen, "Neural network-based anomaly detection architecture for industry motor system," *IEEE Transactions on Instrumentation and Measurement (TIM)*, 2024, Revision.
3. P. K. Mp, Z.-J. Gao, and K.-C. Chen, "Time series-based sensor selection and lightweight neural architecture search for rul estimation in future industry 4.0," *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, vol. 13, no. 2, pp. 514–523, 2023. DOI: 10.1109/JETCAS.2023.3248642.

Conference Proceedings

1. P. K. MP, Z.-X. Tu, and K.-C. Chen, "Fine-tuned based transfer learning with temporal attention and physics-informed loss," in *IEEE International Conference on Artificial Intelligence Circuits and Systems (IEEE AICAS'24)*, Apr. 2024, 2024.
2. P. K. MP and K.-C. Chen, "Mitigate the negative tl using adaptive thresholding for fault diagnosis," in *2023 IEEE International Conference on Omni-layer Intelligent Systems (COINS)*, Berlin, Germany, 2023, pp. 1–6. DOI: 10.1109/COINS57856.2023.10189313.

3 P. K. MP and K.-C. Chen, "Nn-based bearing fault diagnosis using exponential power entropy and a decision threshold," in *2023 IEEE International Conference on Omni-layer Intelligent Systems (COINS)*, Berlin, Germany, 2023, pp. 1–5. DOI: 10.1109/COINS57856.2023.10189273.

4 M. P. Kumar, C.-J. Tang, and K.-C. Chen, "Composite fault diagnosis of rotating machinery with collaborative learning," in *2022 International Symposium on VLSI Design, Automation and Test (VLSI-DAT)*, Hsinchu, Taiwan, 2022, pp. 1–4. DOI: 10.1109/VLSI-DAT54769.2022.9768050.

5 P. K. MP and K.-C. Chen, "Bearing fault diagnosis by using exponential power entropy and a decision threshold for artificial neural network," in *Proc. 2022 VLSI Design/CAD Symposium*, Aug. 2022, 2022.

6 P. K. M.P. and S. K. Panda, "Design and verification of ddr sdram memory controller using systemverilog for higher coverage," in *2019 International Conference on Intelligent Computing and Control Systems (ICCS)*, Madurai, India, 2019, pp. 689–694. DOI: 10.1109/ICCS45141.2019.9065407.

Skills

Research Interests	Machine Learning, Transfer Learning Algorithms, Unsupervised Domain Adaptation, SF-UDA, Predictive Maintenance, RTL Design and Verification.
Languages	Strong reading, Writing, and Speaking competencies in English.
Machine Learning	Supervised and Unsupervised Learning, Transfer Learning, Domain Adaptation, Neural Networks, Deep Learning, Reinforcement Learning.
Coding	Python, R, Verilog, SystemVerilog, LaTeX, …
Libraries/Frameworks	TensorFlow, Keras, PyTorch, scikit-learn, XGBoost, LightGBM.
Data Handling	Pandas, NumPy, SciPy, HDF5.
Miscellaneous	Academic Research, Technical Paper Writing, Data Visualization.

Miscellaneous Experience

Awards and Achievements

2019 **VTU 4th Rank Award**, Master's Degree University Gold Medal Winner 2019.

Certification

2022 **Scientific Computing with Python**. Awarded by freeCodeCamp.

Machine Learning with Python. Awarded by freeCodeCamp.