Dr. Shravan Mohan
Researcher

Professional with **14** years of rich & diverse industrial research experience in the field of Machine Learning / Artificial Intelligence, Operations Research, Signal Processing and Control Systems. Hold a **B.Tech**, **M.Tech** and **Ph.D** in **Electrical Engineering** from **IIT Madras**. Love learning and developing algorithms.

EXPERIENCE

Amazon – Applied Scientist II
Bangalore, 04/2024 - Present
Lead researcher developing algorithms for **large scale entity matching using fine-tuned LLMs**, **optimal ranking** of entities on multiple criteria, and **binary time-series forecasting**.
Software tools: Python (PyTorch), SageMaker AI

Accenture – Associate Manager
Bangalore, 10/2020 - 04/2024
Lead a multi-faceted role. Major contributions: (i) developed a **large scale robotic warehouse simulator** encompassing algorithms for multi-agent path finding, item storage configuration, task allocation, dynamic repositioning of pods and bot charging schemes. (ii) designed low-memory and low-power footprint **deep learning** based audio/image classification methods using quantization/pruning/architectural improvements, (iii) designed optimal peer-to-peer split learning topologies for training large deep neural networks, (iv) developed **finetuning** and efficient training methods for **LLMs**.
Software tools: Python (CVXPY/Gurobi Solver, TensorFlow), ROS & Gazebo.

Santa Fe Research – Senior Research Scientist
Chennai, 05/2012 - 09/2020
Led all research efforts in the company. Major contributions (i) optimal signal design for **inverter/rectifier switching**, (ii) design of a **nonlinear controller** with actuation bounds for DC motors, (iii) optimal input design for **system identification**, (iii) optimal constellation design for **reducing PAPR**, (iv) determining **rank-k solutions** to linear matrix equations, (v) design of optimal **event-triggered controller** for LTI systems, (vi) optimal **cylinder packing**, (vii) stable/sub-optimal **AR parameter estimation**, (viii) **modeling/simulating** clinical trials, (ix) modeling impact of ambient conditions on **sports activity**, (x) **reconciling** hierarchical predictions.
Software tools: Python (CVXPY/Gurobi Solver, TensorFlow, Scikit-Learn, NetworkX), MATLAB (Signal Processing Toolbox, Control Systems Toolbox), Discrete-event Simulators

IIT Madras – Project Associate
Chennai, 08/2011 - 04/2012
Part of a research group studying: (i) impact of **delay on a chaotic non-linear circuit** and **analog PLLs** using Lyapunov theory, bifurcation analysis, transient analysis and harmonic balance method, and (ii) **sufficient conditions for stability** based on Linear Matrix Inequalities.
Software tools: Python, CVXPY, MATLAB ODE Toolbox.

Qualcomm – Engineer
Bangalore, 07/2010 - 03/2011
Part of the Physical Design team. Responsibilities: (i) conduct **Design Rule Checks** and **Electrical Rule Checks** for 100+ million gates VLSI chip designs using Magma-Calibre, and (ii) coordinate with teams designing floor-plans, placement/routing and static timing closure to identify root causes for large scale violations.
Software tools: C Programming, Python

Texas Instruments – Intern
Bangalore, 05/2008 - 07/2008
Conducted a comparative study of two different tools for **IR drop analysis**.
Software tools: C Programming.

CONTACT INFO
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EDUCATION

Ph.D - Electrical Engineering
IIT Madras - Chennai
01/2013 - 01/2019

M.Tech - Electrical Engineering
IIT Madras - Chennai
05/2009 - 05/2010

B.Tech - Electrical Engineering
IIT Madras - Chennai
05/2005 - 05/2009

PUBLICATIONS

1. S. Mohan *et.al.* "An improved PWM for a dual two-level inverter fed open-end winding induction motor drive.", *IEEE ICEM*, Rome, 2010.
2. S. Mohan *et.al.* "Some stability analysis of a non-linear time-delayed feedback circuit.", *IEEE CCDC*, Taiyuan, 2012.
3. S. Mohan *et.al.* "D-optimal input design for identification of a continuous system using sum of squares polynomial.", *IEEE ECC*, Linz, 20115.
4. S. Mohan *et.al.* "A linear programming approach for designing two-level switched waveforms for power invert- ers.", *IEEE ICC*, IIT Guwahati, 2017.
5. S. Mohan *et.al.* "Optimal input design for system identification using spectral decomposition.", *IJC*, 2018.
6. S. Mohan. "A note on rank constrained solutions to linear matrix equations.", *arXiv:1809.02491*, 2018.
7. S. Mohan *et.al.* "On the primal-dual dynamics of support vector machines.", *IEEE MTNS*, Hong Kong, 2018.
8. S. Mohan *et.al.* "Optimal finite-dimensional spectral densities for the identification of continuous-time MIMO systems.", *CTT*, 2019.
9. S. Mohan *et.al.* "Optimization of Relative and Absolute Thresholding Parameters in Event-triggered Control.", *IEEE ECC*, Naples, 2019.
10. S. Mohan. "Control of Permanent Magnet Motors with Actuation Bounds using Convex Optimization.", *arXiv:1911.11353* (2019).
11. S. Mohan *et.al.* "A linear programming approach for designing multilevel PWM waveforms.", *IJC*, 2020.
12. S. Mohan *et.al.* "A note on load balancing in DC microgrids.", *IEEE ICC*, IIT Madras, 2022.
13. S. Mohan. "A note on power allocation for optimal capacity.", *arXiv:2211.06827* (2022).
14. S. Mohan. "A note on the Bures-Wasserstein metric.", *arXiv:2303.03883* (2023).
15. S. Mohan *et.al.* "A note on reducing computatations in CNNs", *IEEE/ACM COMSNETS 2024*.
16. S. Mohan *et.al.* "Towards peer-to-peer split learning", *IEEE/ACM COMSNETS 2024*.
17. S. Mohan. "On extending the class of convex functions." arXiv preprint arXiv:2501.01854 (2025).
18. S. Mohan. "A note on finding optimal cut-offs." arXiv preprint arXiv:2509.11229 (2025).
19. S. Mohan. "A conjecture related to the Newman phase." arXiv preprint arXiv:2509.11278 (2025).

REFERENCES

Dr. Bharath Bhikkaji, IIT Madras, bharath@ee.iitm.ac.in
Dr. R. Pasumarthy, IIT Madras, ramkrishna@ee.iitm.ac.in
Dr. G. Ganesan, Santa Fe Partners, Girish.Ganesan@ieee.org