Ajinkya Bankar | Jacksonville, FL |ajinkya_003@yahoo.com | www.linkedin.com/in/ajinkyabankar

Summary

- Data Scientist and Machine Learning (ML) researcher with a strong background in operations research led the innovation of thermal-aware sensitivity method for deep neural networks (DNN).
- Proficiency with Python, PyTorch, PYOMO, C, C++, Embedded C, Matlab programming.
- High-level thinking with expertise in real-time scheduling resulted in 3 high quality publications and 2 well-received presentations.

Education

- **Ph.D. in Electrical & Computer Engineering** August 2018 – May 2022
  Florida International University, Miami, FL, US.
  Dissertation Title: Thermal-aware Design Automation of the Electronic Control System for Autonomous Vehicles
- **M.E. Electronics (Digital Systems)** August 2011 – September 2013
  Savitribai Phule Pune University, Baramati, MH, India.

Awards

- Crowley TOPS award for displaying high performance value in September 2022.
- Dissertation Year Fellowship award for the Fall 2021 and Spring 2022 semesters by the University Graduate School, Florida International University.

Work Experience

Data Scientist | Crowley, Jacksonville, FL, US June 2022 – Current

- Problem solving and strong prescriptive analytics skills resulting in 3%–4% cost savings for empty container positioning optimization across the Crowley's network.
- Conflict resolution skills along with experience of predictive analytics demonstrated by the invention of maintenance prediction for tugboat engines.
- Ability to work in a fast-paced environment and skills to handle poor quality data resulted in handwritten text recognition framework enabling data-driven decision-making for leadership.

Graduate Researcher | Florida International University, Miami, FL, US August 2018 – Present

- Skills in developing deterministic and testable code with expertise in real-time system design as evidenced by novel temperature estimation framework for vehicle Electronic Control Units (ECUs).
- People management skills and strong mathematics fundamentals resulting in a 191x compute efficient reliability estimation method for ECU network requiring industrial safety standard ISO-26262.
- Adaptibility along with experience of function interpolation and mathematical programming demonstrated by the framework of latency minimization for automotive applications.
- Analytical skills and familiarity of numerical linear algebra invented DNN neuron sensitivity analysis method for inference accuracy maximization in the range 0.5 – 4.2% for standard architectures and datasets.
- Innovative thinking and skills in thermal-aware resource management demonstrated by mapping of DNN neurons on 3D memory banks for accuracy maximization in the range 0.18 – 47.91%.

Assistant Professor | Savitribai Phule Pune University, Baramati, MH, India July 2013 – July 2018

- Mentorship ability and rapid prototyping of new ideas resulted in students developing automation based cleaning robotic systems.
- Creative thinking and experience of development using Real-Time Operating System kernel with micro-controllers resulted in new lab instructions for Advanced Processors course.

- Strong leadership art and experience of mapping Image Processing algorithms on FPGAs resulted in a research project grant of INR 170K.

Technical Consultant | Sujlam Electronics, Baramati, MH, India March 2016 – December 2017

- Sensor interface debugging skills and experience of embedded firmware development led to the detection of dry-run problem, guiding the high performance and flexible control circuitry development.
- Passion for focusing and committing, and skills of I2C, SPI, UART protocol interfaces with PIC microcontroller resulted in commercial GSM based control prototypes.
- Excellent communication and collaborative team player skills, and experience of writing peripheral drivers as demonstrated by 7% lower cost electrical pump protection product than competitors.

Selected Publications

- A. S. Bankar, S. Sha, J. Bhimani, V. Chaturvedi and G. Quan, "Thermal Aware System-Wide Reliability Optimization for Automotive Distributed Computing Applications," in *IEEE Transactions on Vehicular Technology*, vol. 71, no. 10, pp. 10442-10457, Oct. 2022, doi: https://doi.org/10.1109/TVT.2022.3185978
- A. S. Bankar, "Thermal Aware Design Automation of the Electronic Control System for Autonomous Vehicles," *Ph.D. Dissertation*, Dept. of Electrical and Computer Engineering, Florida International University, FL, USA, May 2022, doi: https://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=6419&context=etd
- A. S. Bankar, S. Sha, V. Chaturvedi and G. Quan, "Thermal Aware Lifetime Reliability Optimization for Automotive Distributed Computing Applications," *2020 IEEE 38th International Conference on Computer Design (ICCD)*, Hartford, CT, USA, 2020, pp. 498-505, doi: https://doi.org/10.1109/ICCD50377.2020.00090
- S. Sha, A. S. Bankar, X. Yang, W. Wen, and G. Quan, "On Fundamental Principles for Thermal-Aware Design on Periodic Real-time Multi-core Systems," *ACM Trans. Des. Autom. Electron. Syst*., Feb. 2020, https://doi.org/10.1145/3378063
- A.S. Patil, J.P. Gawande, A. S. Bankar, "Heart Sound Signal Analysis and Its Implementation in VHDL," *Innovations in Electronics and Communication Engineering*, Springer Singapore, Aug. 2018, https://doi.org/10.1007/978-981-10-8204-7_23
- A. S. Bankar, B. S. Shah, P.K. Kadbe, "Interstage Pipeline VLSI Architecture for 2-D DWT," *International Journal of Engineering Research & Technology (IJERT)*, Vol. 2 Issue 5, May. 2013.

Technical Skill Set

- Python, PyTorch, Dataiku, SQL, PowerBI, Snowflake, C, C++, Embedded C, Matlab**,** AI/ML, Deep Learning, Pyomo, Matplotlib, Scikit-learn, VHDL, FPGA, CPLEX, Gurobi, AMPL Knitro, ARM 7, PIC, Linux tools, Github.

Extra Curricular Activities

- Invited speaker for presentation on "Higher Education and Career Opportunities in the United States" in Tuljaram Chaturchand College, Baramati, MH, India, Feb 2023.
- Judged abstracts for the "Graduate Students Appreciation Week," assessing research methods, results and limitations at Florida International University FL, USA, Feb 2021,
- Invited speaker for presentation on "Emerging Trends and Technology in Electronics" in National webinar at Tuljaram Chaturchand College, Baramati, MH, India, Feb 2021.
- Presented research paper in "2020 IEEE 38th International Conference on Computer Design (ICCD)," Hartford, CT, USA, Oct 2020.
- Judged poster presentations for the event "CURFIU 2019," assessing visual appeal, content clarity, and presentation effectiveness at Florida International University, FL, USA, Apr 2019.