MANU DWIVEDI

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BIO

Graduate Teaching Assistant and Full Time Student at Michigan University. My interests lie in R&D, Machine Learning in the context of hardware acceleration, VLSI technologies, FPGA design and development. I'm proficient in sofhttps://www.overleaf.com/project/5fc73e3e & hardware languages as well the mathematical knowledge required for a background of datascience and analytics, with excellent communication skills along with problem solving capabilities.

ACADEMIC QUALIFICATION

Currently pursing MSc. in Electrical and Computer Engineering at Michigan State University Current GPA 3.833, Teaching Assistant for ECE 331 (Microprocessors and Microcontrollers) at MSU. Bachelor of Technology (Electronics and Communication Engineering) completed on May 2020. CGPA 8.09, 85.8%. Highschool from Kendriya Vidyalaya ONGC Panvel 85.6%

WORK EXPERIENCE

ONGC Mumbai

Intern *Nov 2018 to Jan 2019*

- During my time as an intern, I was extensively involved in working with neutron calibrators, using ECLIPS surface acquisition system which uses HP UNIX to create a wireline telemetry system.
- Implemented study of STAR (Simultaneous Acoustic and Resistive) analysis tool, and it's calibration for its applications in field.
- Involved in maintenance and preventative procedures, as well as microimaging from other industrial grade utilized in field which are Mirco Laterolog, GammaRay/Spectralog, WTS Common Remote.

OpenPOWER Foundation

Volunteer *May 2021 to December 2021*

- OpenPOWER is an organization built around the power-ISA products by IBM opened in 2013 with around 350 members.
- Involved in the R&D towards academic collaborations and re-producing the open source products by IBM.
- Produced an understanding of the Micro-watt core written in VHDL, and implemented the A2O core written in verilog on a Linux sub-system.

ACADEMIC PROJECTS

- Architecture design and implementation of efficient DCT algorithm for Guided Image Processing/G uided Image Filtering Current architectures for image processing are relatively inefficient in their processing; we propose an improved time-controlled architecture to create an efficient on hardware algorithm.
- Design of Reduce Instruction Set Concurrent Architecture, a CPU architecture in Verilog that is capable of most systemic features such as sorting, HCF, prime factorization.
- Built an imaging architecture to dynamically read image onto an accelerated hardware without the built in function of graphical interfacing on a CPLD device.
- An Evolutionary Computing based Approach to solving Symbolic Regression Problem using Pareto and Lexicase Tournament Selection.
- Currently working on a cyber-embedded physical system that produces and monitors an Invisible Fence under the context of home environment safety.
- Working on a Reinforcement Learning project for implementing Q-Learning (SARSAMAX) policy approximation with varying pre-conditioners such as Hessian.

RELEVANT ONLINE/OFFLINE COURSES

- Offline Course
  1. ECE 848 Evolutionary Computing at MSU: Developing understanding of Evolutionary Strategies, Evolutionary Algorithms, and Genetic Algorithms, mathematical understanding of Hill Climbing algorithms, Simulated Annealing, and Monte Carlo methods.
  2. ECE 830 Emdedded Cyber Physical System at MSU: Cyber Systems Design that for state machines, and intelligent systems.
  3. VLSI CAD Part I: Logic (04/2019-05/2019) Online course on Coursera by University of Illinois UrbanaChampaign
  4. VLSI CAD Part I: Layout (05/2019-06/2019) Online course on Cousera by university of Illinois Urbana-Champaign
- DeepMind
  1. Reinforcement Learning course by David Silver

OTHER SKILLS

Software Google Colab, Juypter Notebook, Anaconda, Spyder, PyCharm, MATLAB, Quartus Prime, Xilinx ISE Design, AutoCAD, OpenCV, PSPICE, Wish (TCL/Tk),

Libraries Pandas, Scikit-learn, Matplotlib, Seaborn, Folium, NumPy, SciPy, Rospy, gym OpenAI.

Frame Works Pytorch, TensorFlow

Programming Languages Python 3, C++, C, VHDL, Verilog, Matlab, ARM Assembly, MIPS Assembly.

Curation Involved in research and organizing of one the biggest independent events in the country for multiple speakers across the globe.