MUDIT VERMA

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EDUCATION

Ph.D

Arizona State University

Aug 2019 – Present AZ, USA

- Major: Computer Science, GPA: 4.0/4.0
- Ph.D. student advised by Dr. Subbarao Kambhampati. Working on areas of Explainable AI systems specifically Advising RL in the paradigm of Human in the loop Reinforcement Learning.

Bachelor of Technology

Delhi Technological University

Aug 2015 – June 2019 Delhi, India

- Major: Information Technology, GPA: 9.6/10

EXPERIENCE

Deep Learning Software Engineering Intern

Intel Corporation

May – Aug 2021 Santa Clara, CA, USA

- First analysis of float32 ResNet50 architecture on Intel IceLake (ICX) machines.
- Proposed Several optimizations (in parallel computing) like shared processes, to achieve BFloat16 performance (as benchmarked on CooperLake machines) on an ICX cluster. Additionally, first to provide the Best Known method (an automated way) for working with ResNet50 on Intel Endevour Cluster.
- Parallely, first to work with Quantized ResNet Models to show discrepancy in Saliency Based explanations between original RN50 and Quantized RN50.
- Tech : IntelMPI, Horovod, Tensorflow, PyTorch, Python Wheels

Machine Learning Intern

Samsung Semiconductor India Research (SSIR)

May – July 2018 Bangalore, India

- Created DRAM Bank Simulator, (400 times faster) with enhanced Fault Classes.
- Novel Approach to Redundancy Analysis Algorithms through State Space Reduction schemes & Beating RA through Monte Carlo Tree Search and Residual Networks.
- Awarded Best Intern Project at SSIR.
- Tech : C++, Python, PyTorch, UCT Search, MCTS

Machine Learning Intern

Samsung Semiconductor India Research (SSIR)

May – July 2017 Bangalore, India

- Diagnosed issues with SSDs & Implemented SSD Simulator for Read/Write/Garbage Collection.
- Created an LSTM Algorithm - Stream Selection for Smart Data Categorization (STRASDAC) to reduce write-wearing in SSDs and improve Garbage Collection.
- Reached Best Intern Project Finals at SSIR.
- Tech : C++, PyTorch, Python, LSTM, ML

HONORS & AWARDS

2019 :

- CIDSE Doctoral Fellowship
- 1st, Prestigious Smart India Hackathon (over 37000+ submissions)

2018 :

- 4th, Hack In The North (IIIT Allahabad)
- Selected for Education Innovation Mentorship Programme, ReadAlliance
- Department Rank 1, Merit Scholarship, for three consecutive years, DTU

2017 :

- 1st, READing Hackathon (USAID)
- 15, World Food India Hackathon
- Pramod Jain Scholarship, best student at DTU
- Exemplary Contribution, Computer Society of India-DTU
- Interest Development Group Head, CSI-DTU Chapter
- DTU Merit Department Rank Scholarship 2017.

PROJECTS

- **Perfect Observability is a Myth** Proposed a method to deal with partial observability of humans for Reinforcement Learning domains, when providing advice to agents.
- **Term Paper** Randomly Wired Networks are on the rise, have we been creating wrong Networks all along?
- **Term Paper** Diverging Emerging Field of Multi-Task Reinforcement Learning
- **Colors of Desert** Used D3 to highlight deserts are indeed colorful. Term Paper and Project.
- **TAC** App that adapts and teaches children/adults (specially dyslexic) to read/write/recognize using ML Techniques.
- **CookHub** Open Source Community for Recipes where one can chat, push, pull, fork, collaborate & view trending recipes and contributors.
- **Shut The Fake Up** App/Website Wisdom of Majority & AI for Fake News detection.
- **Text Summarization** Human like summarization using Pointer Generator Networks
- **StressOut**App to check one's stress levels and suggest better work timings to bring relief through Machine Learning.

SKILLS

Confident with C, C++, Python
Java, JavaScript/HTML/CSS, SQL, PDDL experienced.

Experienced Technologies:

PyTorch, NLTK, Tensorflow, Keras, OpenAI-Gym, OpenCV, Scikit-Learn, D3, Hadoop, Android App Development, Bootstrap, Flask, Photoshop, Final-Cut-Pro, Davinci-Resolve

PUBLICATIONS

- Zahedi, Z., **Verma, M.**, Sreedharan, S., & Kambhampati, S. (2021). Trust-Aware Planning: Modeling Trust Evolution in Longitudinal Human-Robot Interaction. In ICAPS 2021 Workshop on Explainable AI Planning.
- Gopalakrishnan, S., **Verma, M.**, & Kambhampati, S. (2021, June). Synthesizing Policies That Account For Human Execution Errors Caused By State Aliasing In Markov Decision Processes. In ICAPS 2021 Workshop on Explainable AI Planning.
- **Verma, M.**, & Buduru, A. B. (2020). Fine-grained Language Identification with Multilingual CapsNet Model. In 2020 IEEE Sixth International Conference on Multimedia Big Data (BigMM) IEEE.
- Guan, L., **Verma, M.**, & Kambhampati, S. (2020). Explanation Augmented Feedback in Human-in-the-Loop Reinforcement Learning. In 2020 ICML Workshop on Human in the Loop Learning (HILL 2020), NeurIPS 2020 HAMLETS, NeruIPS 2020 DRL
- Sreedharan, S., Soni, U., **Verma, M.**, Srivastava, S., & Kambhampati, S. (2020). Bridging the Gap: Providing Post-Hoc Symbolic Explanations for Sequential Decision-Making Problems with Black Box Simulators. In 2020 ICML Workshop on Human in the Loop Learning (HILL 2020)
- **Verma, M.**, Sinha, P., Goyal, K., Verma, A., & Susan, S. (2019, June). A Novel Framework for Neural Architecture Search in the Hill Climbing Domain. In 2019 IEEE Second International Conference on Artificial Intelligence and Knowledge Engineering (AIKE) (pp. 1-8). IEEE.
- **Verma, M.**, Bhambri, S., & Buduru, A. B. (2019). Making Smart Homes Smarter: Optimizing Energy Consumption with Human in the Loop. arXiv preprint arXiv:1912.03298.