Don Kurian Dennis

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Github : www.github.com/metastableB

PhD Student, Machine Learning Department
Carnegie Mellon University
Advisor: **Prof. Virginia Smith**

RESEARCH INTERESTS

Primary: Theoretical and Applied Aspects of Machine Learning, Optimization, Statistical Learning
Secondary: Systems for ML, Resource Efficient Inference and Training

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EDUCATION

Carnegie Mellon University
PhD, Machine Learning Department   *August '19 -*
Courses: Optimization, Measure Theoretic Probability, High-Dim Stats, Advanced ML, Modern Algorithms.

Indian Institute of Technology Patna
Bachelor of Technology, Computer Science and Engineering   *July '13 - May '17*

PUBLICATIONS

Heteroginity For the Win: Communication Efficient Fedeated Clustering
Don Dennis, Virginia Smith
In submission at Advances in Neural Information Processing Systems (NeurIPS), 2020.

Shallow RNN: Accurate Time-series Classification on Resource Constrained Devices
Don Dennis, Durmus Alp Emre Acar, Venkatesh Saligrama, Prateek Jain
Advances in Neural Information Processing Systems (NeurIPS), 2019.[Link]

Multiple Instance Learning for Sequential Data Classification on Resource Constrained Devices
Don Dennis, Chirag Pabbaraju, Harsha Simhadri, Prateek Jain
Advances in Neural Information Processing Systems (NeurIPS), 2018. [Link]

EdgeML: Edge of Machine Learning - Demonstration of Low resource Keyword Spotting
Don Dennis, Harsha Simhadri, Prateek Jain
Advances in Neural Information Processing Systems (NeurIPS), 2018 (MLPCD2 Workshop).

GesturePod: Programmable Gesture Recognition for Augmenting Assistive Devices
Shishir Patil, Don Dennis, Chirag Pabbaraju, Harsha Simhadri, Manik Varma, Prateek Jain
ACM Symposium on User Interface Software and Technology (UIST), 2019. [Link]

OPEN SOURCE CONTRIBUTIONS

EdgeML: Machine Learning for Edge and End-Point Devices   [GitHub]
Open Source   *Microsoft Research*

Core developer of EdgeML, Microsoft Research India's machine learning library for edge and end-point devices. Developed ProtoNN and EMI-RNN for EdgeML's Tensorflow submodule. Maintainer of the python codebase.

Mixxx: Open Source DJ Mixing Software   [GitHub]
Open Source

Worked on improving various aspects of the Auto-DJ feature. My improvements were included in the 1.12 release.

WORK EXPERIENCE

Microsoft Research Lab India
Advisor: Dr. Prateek Jain & Dr. Harsha Simhadri   *July '17 - July '19, Research Fellowship*

Working on bringing machine learning to severely resource constrained edge and end-point devices (IoT devices, embedded systems, etc). Research involved designing new and novel theoretical frameworks and algorithmic tools for such settings as well as implementing these algorithms on user-facing real-world systems.

Center for Smart Systems, SUTD/NUS Singapore [Report]
Advisors: Dr. Vishram Mishra & Prof. Lim H Beng ***Summer Internship '16***

Research involved building and analysing various ontologies for a protocol agnostic universal IoT Gateway.

Indraprastha Institute of Information Technology (IIIT), Delhi [GitHub & Report]
Advisor: Prof. Debajyoti Bera ***Summer Internship '15***

Explored a new Breadth First Search algorithm with multi-point initialization for throughput efficiency on the distributed map-reduce framework. Also worked on developing ear-decomposition algorithms on Map-Reduce.

Google Summer of Code '15 [GitHub]
Advisors: David Anders & Tom King, Intel ***Summer Internship '15***

Developed the first complete simulation of the Harwell WITCH, a Dekatron based computer used at the Atomic Energy Research Establishment, Oxfordshire during early 1950s. Simulator was built using extremely scarce schematics inferred from recently declassified documents.

REFERENCES

Virginia Smith
Assistant Professor,
Machine Learning Department, CMU
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Prateek Jain
Sr. Principal Researcher
Microsoft Research India
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Arijit Mondal
Assistant Professor
Indian Institute of Technology (IIT), Patna
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Harsha Vardhan Simhadri
Senior Researcher
Microsoft Research India
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