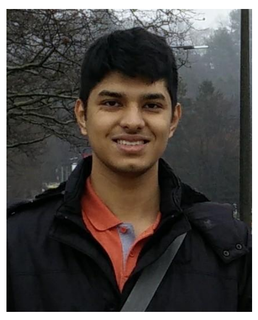

Anish Pimpley

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MS in CS, UMASS Jan 17- Dec 18

Summer 17: Research : MLDS Umass guided by Prof. Ben Marlin
Jun - Nov 16: ML engineer, Sensehawk: 3D pt. cloud classification
Jul 15 - Feb 16: Executive Engineer : Honda Motors
2011-15 : B.Tech: VNIT Nagpur : Vision, Robotics

Machine Learning
Vision

Seeking:
Internship : Summer 18
Co-op : Fall 18

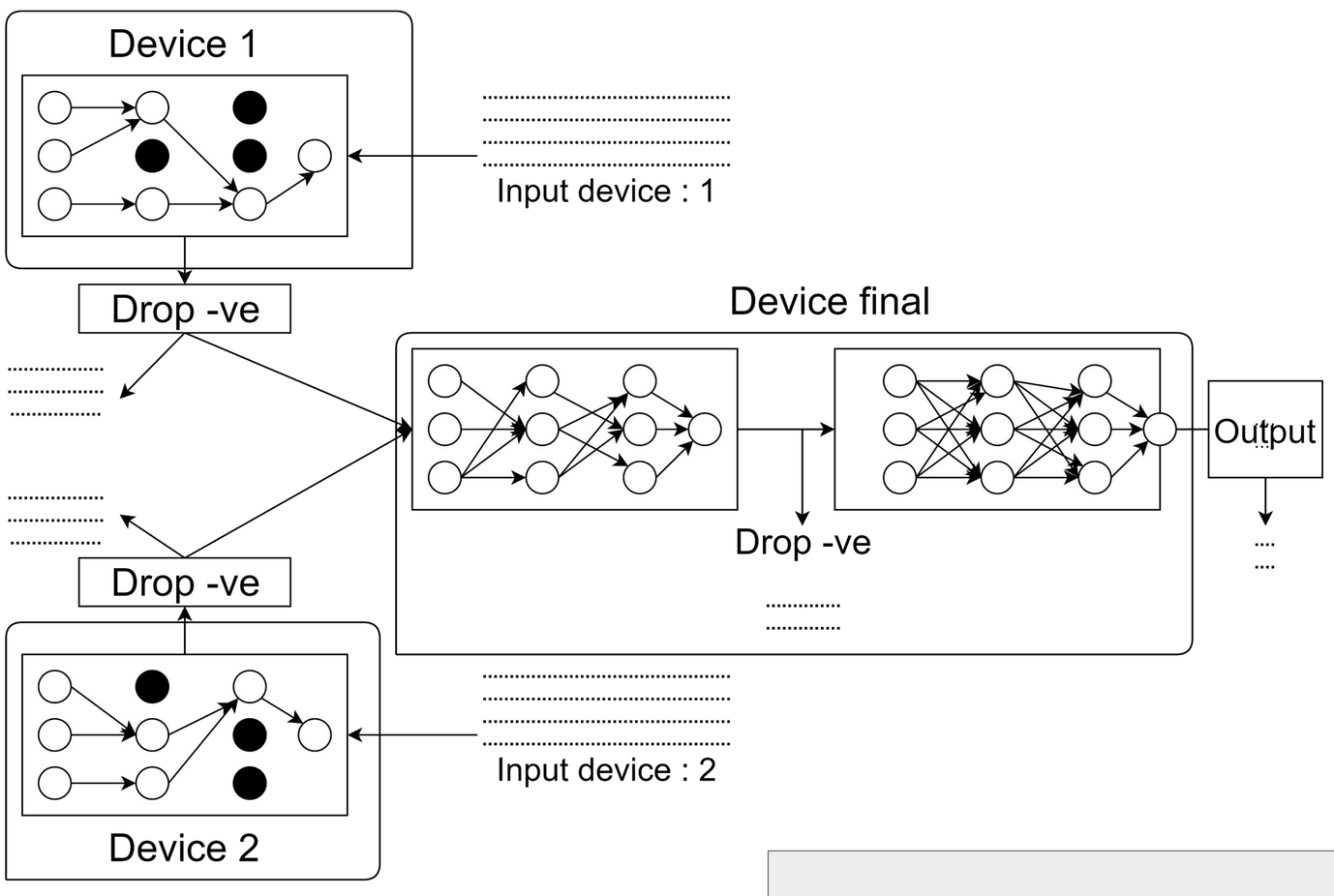
Inducing Sparsity in Cascade Classifiers for Imbalanced Datasets in Computation Sensitive Applications.

Problem:
Imbalanced datasets in low power ML applications.
Eg: Activity recognition, face detection in wearables
Accuracy -- Cost trade off → Hard !

Solution:
Cascade Classifiers :
- How to use with Neural nets → Define Black box model
- How to jointly optimize → Firm cascade model
- How to configure → Sparsity inducing stagewise regularizer
- How to sparsify → Sigmoid transformed L1 regularizer

Related work:
Viola - Jones [1]
Soft cascade [2]
Firm Cascade [3]

Datasets:
HAR, PuffMarker



Results:
Acc., F1 = Competing Models
Sparsity > Competing Models
Flexibility > Competing Models

Future Work:
More sophisticated Regularizer
Apply to Complex Networks (CNNs)
Improve stability
Extend to other applications

Coursework:
- Vision : UG
- AI : UG, 683
- ML: 589, 689
- Systems, Algo. for DS

Spring (planned):
- Intelligent Visual Computing
- Graphical Models

Seeking:
Internships in Machine Learning, Vision for Summer, Fall 2018.
No preferences for location. Open to both theoretical and application focussed projects.

Misc Projects:
- SLAM based object detection & grasping robot
- Predicting Crime using infrastructure & socio-economic indicators

References: [1]: Rapid object detection using a boosted cascade of simple features (2001) [2]:Robust object detection via soft cascade[3]: Learning Tree-Structured Detection Cascades for Heterogeneous Networks of Embedded Devices