Krishnateja Killamsetty

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RESEARCH INTERESTS

My research centers on developing techniques and algorithms that enable data-efficient, compute-efficient, and robust machine learning systems. My current work on data subset selection for efficient and generalizable machine learning leverages submodularity to achieve this goal in the context of supervised and semi-supervised learning scenarios. I am also interested in label-efficient machine learning through active and semi-supervised learning algorithms.

EDUCATION

The University of Texas at Dallas **4.0/4.0**
PhD, Computer Science December 2024
Indian Institute of Technology, Kharagpur **4.0/4.0**
B.E, Electronics and Communication Engineering May 2015

PUBLICATIONS

ACCEPTED

- Killamsetty, K., Zhao, X., Chen, F., & Iyer, R. (2021). **RETRIEVE: Coreset Selection for Efficient and Robust Semi-Supervised Learning. arXiv [cs. LG]. http://arxiv.org/abs/2106.07760 (Accepted to NeurIPS 21)**
- Kothawade, S., Beck, N., Killamsetty, K., & Iyer, R. (2021). **SIMILAR: Submodular Information Measure Based Active Learning in Realistic Scenarios. arXiv [cs. LG]. http://arxiv.org/abs/2107.00717 (Accepted to NeurIPS 21)**
- Krishnateja Killamsetty, Durga Sivasubramanian, Ganesh Ramakrishnan, Abir De, Rishabh K. Iyer: **GRAD-MATCH: Gradient Matching based Data Subset Selection for Efficient Deep Model Training. ICML 2021: 5464-5474**
- Ayush Maheshwari, Oishik Chatterjee, Krishnateja Killamsetty, Rishabh Iyer, & Ganesh Ramakrishnan. **Semi-Supervised Data Programming with Subset Selection. ACL/IJCNLP (Findings) 2021: 4640-4651**
- Krishnateja Killamsetty, Durga Sivasubramanian, Ganesh Ramakrishnan, Rishabh K. Iyer: **GLISTER: Generalization based Data Subset Selection for Efficient and Robust Learning. AAAI 2021: 8110-8118**

PRE-PRINTS

- Maheshwari, A., Killamsetty, K., Ramakrishnan, G., Iyer, R., Danilevsky, M., & Popa, L. (2021). **Learning to Robustly Aggregate Labeling Functions for Semi-supervised Data Programming. arXiv [cs. LG]. http://arxiv.org/abs/2109.11410**
- Krishnateja Killamsetty, Changbin Li, Chen Zhao, Rishabh Iyer, & Feng Chen. (2020). **A Reweighted Meta Learning Framework for Robust Few Shot Learning, arXiv:2011.06782 (In review at AISTATS)**
- Xujiang Zhao, Killamsetty Krishnateja, Rishabh Iyer, & Feng Chen. (2020). **Robust Semi-Supervised Learning with Out of Distribution Data, arXiv: 2010.03658 (In review at AAAI)**

PATENTS

- Boddeti Mohanvarakrishna, Gautam Raju, Krishnateja Killamsetty, Swadeep Kumar, **SYSTEM AND METHOD FOR ASSIGNING RESPONSIBILITY SCORES TO USERS OF VEHICLE**, Indian Patent (Application No: 201911022751)

- Boddeti Mohanvarakrishna, Gautam Raju, Krishnateja Killamsetty, Swadeep Kumar, **SYSTEM AND METHOD FOR PREDICTING BEHAVIOUR OF A USER OF A VEHICLE**, Indian Patent (Application No: 201911022492)

- Boddeti Mohanvarakrishna, Gautam Raju, Krishnateja Killamsetty, Kishore Subramanian, **METHOD AND SYSTEM FOR EXTRACTING AND GENERATING CRITICAL TEST SCENARIOS FOR AUTONOMOUS VEHICLES**, Indian Patent (Application No: 201841048116)

WORK EXPERIENCE

Microsoft Research, Redmond (USA)

Research Intern May 2021-August 2021

- Worked on developing screen understanding of GUI screens. Developed a data synthesis pipeline for GUI screens that can be used as training data for training object detection and visual relationship detection models.
- Worked on visual relationship detection models for detecting the relations between UI elements in the screens.
- Currently working on a new performance driven data synthesis pipeline for Visual relationship model training.
- Improved the efficiency of object detection model training using subset selection approaches.

Mercedes Benz Research and Development Private Limited, Bengaluru (India)

Data Scientist February 2018 -December 2019

- Worked on data from different sensors like Lidar, Radar, Camera etc. from the whole Mercedes Fleet
- Supplying insights by analyzing the huge data from Mercedes Cars to improve existing ADAS (Advanced Driver Assistance Systems) Algorithms of Daimler.
- Producing new business ideas to monetize the data being generated by Mercedes fleet.
- Spatial Analysis of Mercedes Cars data to generate Hotspots throughout the world which helps find areas throughout-out the world where Driver Assist Functions are failing.
- Worked on Cloud Based Technologies, Big Data Processing, Computer Vision and Machine Learning Algorithms.

Robert Bosch Engineering and Business Solutions Pvt Ltd, Bengaluru (India)

Senior Software Engineer (Computer Vision) July 2015-February 2018

- Worked on Signal Processing, Image Processing and Computer Vision algorithms for Video-based Driver Assistance projects.
- My responsibilities include algorithm prototyping, algorithm development and SIL testing.
- Worked on Image Stitching and Harmonization Algorithms of Surround View Camera for BMW and Daimler.
- Worked on lane detection algorithms to detect lanes using video input which is in turn useful for functions like Lane Departure Warning, Lane Keep Assist.
- Developed a complete web-based Evaluation framework to evaluate Lane Detection Algorithms which is being used in Bosch.

RESEARCH EXPERIENCE

The University of Texas at Dallas **Richardson, Texas**

PhD Researcher January 2020 – present

- Currently working on Data efficient Learning: Data Selection, Active Learning, and Data partitioning research Problems.
- Currently working on the Robust learning in the presence of Noise, Outliers and Class Imbalance etc.
- Worked on the Labeling Functions and Data Programming research problems.

IIT Kharagpur **Kharagpur, India**
Undergraduate Researcher June 2014 – May 2015

- Worked on Blind Image forgery detection research problems.
- Worked on High frequency crystal oscillator design.

TECHNICAL SKILLS

- Adept in programming skills (Python, C++, C, MATLAB, PyTorch, TensorFlow, Pandas, NumPy)
- Good Knowledge in Machine Learning, Computer Vision, Deep Learning Algorithms.
- Able to develop advanced and sophisticated algorithms for various machine learning applications to tackle problems in areas such as Driverless Cars.
- Have a good knowledge of challenges in the domain of driverless cars currently and am thorough with the newer technologies in the same domain

PRESENTATIONS

- **"Scenario Simulation Engine,"** Digital Life Day Daimler at Bengaluru & Germany to "Mr. Dieter Zetsche," CEO of Daimler and "Mr. Ola Kallenius," R&D Head at Daimler AG and "Mr. Manu Saale," Vice president at Daimler AG and other high-level management in Daimler.

AWARDS, LEADERSHIP & ORGANIZATIONS

- July 2018: ABCD **(Above and Beyond the call of Duty) Award** from my Department in Mercedes Benz within six months of my joining
- June 2018: **Digital Life Day Product Innovation Excellence Award** from Manu Saale, Vice President of Daimler AG.
- November 2018: **Innovation Excellence Driver Award** from my Department in Mercedes Benz.