Divyam Madaan

CONTACT INFORMATION

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EDUCATION

New York University, New York, United States
Ph.D. Computer Science, Courant Institute of Mathematical Sciences — 2021 - Present
- Adviser: Professors Sumit Chopra and Kyunghyun Cho
- GPA: 3.81/4.00

KAIST, Daejeon, Republic of Korea
M.S., School of Computing — 2019 –2021
- Thesis Topic: *Generalizable Robust Deep Learning via Adversarial Pruning and Meta-Noise Generation*
- Adviser: Professor Sung Ju Hwang
- GPA: 4.21/4.30

Panjab University, Chandigarh, India
B.E. (with Honors) in Information Technology — 2015 - 2019
- GPA: 9.21/10

RESEARCH INTERESTS

I am primarily interested in tackling the challenges that occur when deploying a deep learning model to real-world applications, namely 1) model interpretability, 2) safety to distribution shifts, 3) continual learning with unlabelled data, and 4) model compression.

PROFESSIONAL EXPERIENCE

FOR.ai — 2018 – 2020
Machine Learning Researcher, with Aidan Gomez and Yarin Gal
Explore sparse-ensembles and adversarial robustness to train robust and efficient models.

IIT Delhi — Summer 2018
Research Intern, with Aakanksha Chowdhery and Brejesh Lall
Develop an end-to-end real-time system for multivariate air-pollution forecasting of Delhi.

Google Summer of Code, KDE — Summer 2017
Open Source Contributor, with GCompris
Implement strategic and musical activities to identify the notes and teach the piano instrument.

Season of KDE
Open Source Contributor, with GCompris — Winter 2016
Develop the categorization activity to teach the concepts of categorization.

CONFERENCE PUBLICATIONS

[1] *Rethinking the Representational Continuity: Towards Unsupervised Continual Learning*
Divyam Madaan, Jaehong Yoon, Yuanchun Li, Yunxin Liu, and Sung Ju Hwang.
International Conference on Learning Representations (ICLR) 2022
Oral presentation $(54/3391 = 1.6\%)$

[2] *Online Coreset Selection for Rehearsal-based Continual Learning*
Jaehong Yoon, **Divyam Madaan**, Eunho Yang, and Sung Ju Hwang.
International Conference on Learning Representations (ICLR) 2022.

[3] *Learning to Generate Noise for Multi-Attack Robustness*
Divyam Madaan, Jinwoo Shin, and Sung Ju Hwang.
International Conference on Machine Learning (ICML) 2021.

[4] *Adversarial Neural Pruning with Latent Vulnerability Suppression*
Divyam Madaan, Jinwoo Shin and Sung Ju Hwang.
International Conference on Machine Learning (ICML) 2020.

[5] *VayuAnukulani: Adaptive Memory Networks for Air Pollution Forecasting*
Divyam Madaan*, Radhika Dua*, Prerana Mukherjee and Brejesh Lall.
IEEE Global Conference on Signal and Information Processing (GlobalSIP) 2019.

Workshop Presentations

[6] *Learning to Generate Noise for Multi-Attack Robustness*
Divyam Madaan, Jinwoo Shin and Sung Ju Hwang.
NeurIPS Workshop on Meta-Learning (MetaLearn) 2020.

[7] *Adversarial Neural Pruning.*
Divyam Madaan, Jinwoo Shin and Sung Ju Hwang.
NeurIPS Workshop on Safety and Robustness in Decision Making 2019.

Unpublished Manuscripts

[8] *Learning Sparse Networks Using Targeted Dropout*
Aidan N. Gomez, Ivan Zhang, Siddhartha Rao Kamalakara, **Divyam Madaan**, Kevin Swersky, Yarin Gal and Geoffrey E. Hinton.
arXiv: 1905.13678. May 2019.
(* indicates equal contribution)

Academic Service

Reviewer: (* outstanding reviewer)

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- International Conference on Machine Learning (ICML): 2020*, 2021, 2022
- International Conference on Learning Representations (ICLR): 2022
- Association for the Advancement of Artificial Intelligence (AAAI): 2021
- Neural Information Processing System (NeurIPS): 2020, 2021
- Asian Conference on Machine Learning (ACML): 2020
- Neural Information Processing System Meta-Learning Workshop: 2020

Student Volunteer:

- International Conference on Machine Learning (ICML): 2020, 2021
- International Conference on Learning Representations (ICLR): 2020
- Neural Information Processing System (NeurIPS): 2020

Mentoring Experience

- Codementor — 2018 - Present
- Mentored university students for Google Summer of Code — Summer 2018
- Mentored pre-university students for Google CodeIn — Winter 2018
- Mentored students for Season of KDE — Winter 2019
- Founded Programming Club that has now grown to 1000+ members. — 2017 – 2018
- Co-organized Software Freedom Day — 2017

Invited Talks

- Fooling and protecting deep learning models, Pydata Conference — 2018
- Getting started with GCompris, KDE India Conference March 2017