

# Divyam Madaan

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## 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

- Advisors: Sumit Chopra and Kyunghyun Cho
- GPA: 3.85/4.00

**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](#)
- Advisor: Sung Ju Hwang
- Committee: Jinwoo Shin, Eunho Yang
- 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** Winter 2016

Open Source Contributor, with GCompris  
Develop the categorization activity to teach the concepts of categorization.

## CONFERENCE PUBLICATIONS

- [1] [Representational Continuity for Unsupervised Continual Learning](#)  
**Divyam Madaan**, Jaehong Yoon, Yuanchun Li, Yunxin Liu, Sung Ju Hwang  
*International Conference on Learning Representations (ICLR) 2022*  
*Selected as Oral presentation* (54/3391 = 1.6%)
- [2] [Online Coreset Selection for Rehearsal-based Continual Learning](#)  
Jaehong Yoon, **Divyam Madaan**, Eunho Yang, Sung Ju Hwang  
*International Conference on Learning Representations (ICLR) 2022*
- [3] [Learning to Generate Noise for Multi-Attack Robustness](#)  
**Divyam Madaan**, Jinwoo Shin, Sung Ju Hwang  
International Conference on Machine Learning (ICML) 2021
- [4] [Adversarial Neural Pruning with Latent Vulnerability Suppression](#)  
**Divyam Madaan**, Jinwoo Shin, Sung Ju Hwang  
International Conference on Machine Learning (ICML) 2020

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|                            | <p>[5] <b>VayuAnukulani: Adaptive Memory Networks for Air Pollution Forecasting</b><br/> <b>Divyam Madaan*</b>, Radhika Dua*, Prerana Mukherjee, Brejesh Lall<br/> IEEE Global Conference on Signal and Information Processing (GlobalSIP) 2019</p>  |
| WORKSHOP<br>PRESENTATIONS  | <p>[6] <b>Learning to Generate Noise for Multi-Attack Robustness</b><br/> <b>Divyam Madaan</b>, Jinwoo Shin, Sung Ju Hwang<br/> NeurIPS Workshop on Meta-Learning (MetaLearn) 2020</p> <p>[7] <b>Adversarial Neural Pruning</b><br/> <b>Divyam Madaan</b>, Jinwoo Shin, Sung Ju Hwang<br/> NeurIPS Workshop on Safety and Robustness in Decision Making 2019</p>   |
| UNPUBLISHED<br>MANUSCRIPTS | <p>[8] <b>Learning Sparse Networks Using Targeted Dropout</b><br/> Aidan N. Gomez, Ivan Zhang, Siddhartha Rao Kamalakara, <b>Divyam Madaan</b>, Kevin Swersky, Yarin Gal, Geoffrey E. Hinton<br/> Manuscript, 2019</p>   |
|                            | (* indicates equal contribution)   |
| ACADEMIC<br>SERVICE        | <p><i>Journal Reviewer:</i></p> <ul style="list-style-type: none"> <li>IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)</li> </ul> <p><i>Conference Reviewer:</i></p> <ul style="list-style-type: none"> <li>Neural Information Processing System (NeurIPS) 2020 – 2022</li> <li>International Conference on Machine Learning (ICML) 2020 – 2022</li> <li>International Conference on Learning Representations (ICLR) 2022</li> <li>Association for the Advancement of Artificial Intelligence (AAAI) 2021</li> <li>Asian Conference on Machine Learning (ACML) 2020</li> </ul> <p><i>Workshop Reviewer:</i></p> <ul style="list-style-type: none"> <li>Neural Information Processing System Meta-Learning Workshop 2020</li> </ul> <p><i>Student Volunteer</i></p> <ul style="list-style-type: none"> <li>International Conference on Machine Learning (ICML) 2020 – 2021</li> <li>International Conference on Learning Representations (ICLR) 2020, 2022</li> <li>Neural Information Processing System (NeurIPS) 2020</li> </ul> |
| MENTORING<br>EXPERIENCE    | <ul style="list-style-type: none"> <li>Codementor 2018 – Present</li> <li>Mentored university students for Google Summer of Code Summer 2018</li> <li>Mentored pre-university students for Google CodeIn Winter 2018</li> <li>Mentored students for Season of KDE Winter 2019</li> <li>Founded Programming Club that has now grown to 1000+ members. 2017 – 2018</li> <li>Co-organized Software Freedom Day 2017</li> </ul>  |
| INVITED TALKS              | <ul style="list-style-type: none"> <li>Representational Continuity for Unsupervised Continual Learning, ContinualAI 2022</li> <li>Fooling and protecting deep learning models, Pydata Conference 2018</li> <li>Getting started with GCompris, KDE India Conference 2017</li> </ul>   |