

Kartik

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EDUCATION

- **University of Delhi - NSIT, Delhi, India**
B.E. in Manufacturing Processes & Automation Engineering, June 2016-20
CGPA: 8.07 (10.0-point grading system)
- **Jesus Mary Joseph School - Delhi, India**
Class XII: 90.2%, Class X: 9.2 CGPA

PUBLICATIONS

1. Gurjit S. Walia, **Kartik Aggarwal**, Kuldeep Singh, Kunwar Singh. [\[Early Access Paper\]](#)
“Design and Analysis of Adaptive Graph based Cancelable Multi-Biometrics Approach”
IEEE Transactions on Dependable and Secure Computing (TDSC), May 2020
2. **Kartik Aggarwal**, Anubhav Sadana. [\[Paper\]](#)[\[Code\]](#)
“NSIT@NLP4IF-2019: Propaganda Detection from News Articles using Transfer Learning”
NLP for Internet Freedom, EMNLP-IJCNLP 2019, Hong-Kong, p.143
3. S. Anand, D. Mahata, **Kartik Aggarwal**,..., Rajiv Ratn Shah, K. Uppal. [\[Paper\]](#)[\[Code\]](#)
“MIDAS at SemEval-2019 Task 9: Suggestion Mining from Online Reviews using ULMFit”
In Proceedings of SemEval 2019, NAACL, Minnesota, USA, (pp. 1213-1217)

RESEARCH EXPERIENCES

- **Laboratory for Computational Social Systems (LCS2), IIITD.** Jul’2020 - Present
Research Assistant, *Supervisor: Dr. Tanmoy Chakraborty, Dr. Md. Shad Akhtar*
 - **Code-Mix Machine Translation for Indian Languages**
The aim of this project is to design Neural MT systems for translating code-mix text between multiple low-resource Indian Languages.
 - **Collusive-user Detection using Graph Neural Networks**
The project aims to detect users on social-media platforms that use black-market services to gain followers, views, likes etc. We employ a heterogeneous Graph-Transformer Network to learn user-representations using structural and linguistic features.
- **Defence Research and Development Organisation (DRDO), India.** Aug’2018 - May’2019
Research Intern, *Lab: Scientific Analysis Group*
 - **Multimodal Biometric recognition using deep-learning and feature fusion**
Supervisor: Dr. Gurjit Singh Walia
Proposed a novel multimodal cancelable iris recognition system using a Graph-based Fusion approach. Security and Privacy analysis performed against various adversary attacks. [\[Early Access Paper\]](#)
 - **CNN-based Android Malware Detection using static analysis**
Supervisor: Sumit Kumar
Built a CNN-based malware detection system for android apps using features such as API sequence, permissions, and system commands. Apps were decompiled to obtain features and the system achieved 78% accuracy in classifying apps as malware or benign. [\[Code\]](#)
- **NSIT, Delhi.** Aug’2019 (7th sem) - Jul’2020 (8th Sem)
Research Thesis, *Supervisor: Dr. Umang Soni*
 - **Industrial Anomaly Detection using Generative Adversarial Networks**
Automated the visual-inspection of anomalies of the metal-surfaces. Datasets were manually collected from industrial workshops and GANs were used to augment training data. Residual networks achieved 97% accuracy in identifying 9 different metal defects. [\[Synopsis\]](#)[\[Web\]](#)
 - **Network-Transshipment model for post-disaster humanitarian logistics**
Designed a network transshipment model for optimizing the logistics and transport of covid19 essentials. The model is based on deterministic optimization with objective function as minimum of commercial factors such as inventory costs & unmet demands along with social costs such as minimization of human suffering. [\[Synopsis\]](#)[\[Code\]](#)

WORK EXPERIENCE

- **ML Instructor, CampK12.** May'2019 - Jul'2019
Taught machine learning and computer vision to high school students offline. Designed and recorded an online video course covering Python, Computer Vision, and ML. Organized live AI sessions every week.
- **Full-Stack Developer, ShopNani.com.** Aug'2017 - Dec'2017
Responsible for all aspects of IT planning and implementation for ShopNani.com. Developed an interactive and dynamic website using MEAN stack and various other services that ensured high traffic, page views, and quality User Experience.

TECHNICAL SKILLS

- **Programming** Python, C/C++, MATLAB | **Databases:** MySQL, PostgreSQL
- **Frameworks** PyTorch, Keras, Fastai, OpenCV, Sci-Kit | **Other:** Django, MEAN Stack, GIT

RELEVANT COURSEWORK

Undergraduate Curriculum: Computer Programming; Mathematics-I,II,III: Linear Algebra, Advanced Calculus; Artificial Intelligence: Fuzzy Logic, Genetic Algorithms, Decision Trees, ANN, Stochastic Optimization, NLP; Operations Research: Deterministic Optimization (Linear/Non-linear programming); Manufacturing Automation: Computer Vision, Human Machine Interface

MOOCs: Stanford-CS224n NLP, Stanford-CS229 Machine Learning, Fast.ai, Statistics 110: Probability

LEADERSHIP & VOLUNTEERING

- **Entrepreneurship Cell, NSIT.** Sept'2016 - Jul-2020
Technical Head
 - Responsible for handling technical interfaces, managing teams, ideating annual technical events of Entrepreneurship-Cell, NSIT.
- **Nuture.ai AI Saturdays.** Jul'2018 - Oct'2018
Ambassador/ Volunteer
 - Organized free-to-attend, structured study groups for Machine Learning every week targeted for people at all skill levels. Taught fast.ai course using hands-on coding sessions.

HONORS AND AWARDS

- Team Rank-10, Shared Task-9: Suggestion Mining from Online Reviews, SemEval, 2019
- First Prize, Data-Structures Hackathon, Hackerrank, 2016 (among approx. 100 participants)
- *Accepted:* Athens NLP Summer School, NCSR Demokritos, Greece, 2019 (Acceptance Rate: 18%)
- *Accepted:* CVIT Machine Learning Summer School, IIIT Hyderabad, 2019 (Acceptance Rate: 28.5%)
- Student Travel Grant, E-Summit, IIT Bombay, 2017
- Jee Mains, All India Percentile 98.3, 2016 (among approx. 1.5 million students)