

DHEERAJ KUMAR PANT

Second Year Postgraduate • Computer Science And Engineering

✉ dheerajkumarpant.iitk@gmail.com • 🌐 DheerajKumarPant • in DheerajKumarPant

EDUCATION

I.I.T. KANPUR

M.TECH IN COMPUTER SCIENCE
AND ENGINEERING

July 2019 - Present • Kanpur, U.P.
CPI: 8.7 / 10.0

G.B.P.U.A.T PANTNAGAR

B.TECH IN ELECTRONICS AND
COMMUNICATION ENGINEERING
2018 • Pantnagar, Uttarakhand
CGPA: 7.24 / 10.0

COURSEWORK

GRADUATE

- Introduction to Machine Learning
- Malware Analysis & Intrusion Detection
- Machine Translation
- Cyber Security of Critical Infrastructure

ONLINE COURSES

Deep Learning Specialization by
deeplearning.ai on Coursera

- Neural Networks & Deep Learning
- Improving Deep Neural Networks: Regularization & Optimization
- Structuring ML Projects
- Convolutional Neural Networks

TensorFlow Developer by
deeplearning.ai on Coursera

- Introduction to TensorFlow for AI, ML, & Deep Learning
- CNNs in TensorFlow
- NLP in TensorFlow
- Sequences, Time Series & Prediction

Machine Learning: Clustering & Retrieval
by University of Washington on Coursera

SKILLS

PROGRAMMING

Comfortable:

C • C++ • Python

Familiar:

Java • HTML • CSS

LIBRARIES & TOOLS

OpenCV • TensorFlow • Keras

numpy • pandas • scikit-learn • \LaTeX

ACHIEVEMENTS

- Secured AIR **350** in GATE 2019.
- Secured Global Rank of **78** in HackerEarth September Easy 2020 competitive coding contest.

RESEARCH EXPERIENCE

GRAIN QUALITY & QUANTITY ASSESSMENT M.Tech Thesis

Supervisor: Prof. Nisheeth Srivastava

Jul'20 - present

Key participant in shape-based quality assessment, working in a team of two.

Image processing & machine learning techniques are primarily involved.

- Implemented fast algorithms for extracting major & minor axes of grains in sync with contour detection algorithm for quality assessment.
- Implemented an efficient features extraction algorithm for color-based assessment, particularly for classifying analogous-color pixels data.
- Exploring CNN based transfer-learning approach for segmentation of clustered-grains primarily for quantity assessment.

COURSE PROJECTS

DECAPTCHA

Nov'19

Introduction to Machine Learning

- Retrieved characters from captcha code through dilation & erosion techniques, followed by segmentation & then classification using CSVM.

STATIC & DYNAMIC ANALYSIS OF MALWARE

Mar'20

Malware Analysis and Intrusion Detection

- Optimal features set were selected for analysis, which were reduced by correlation filters & PCA. Random Forest were trained for classification.

PASAD (PROCESS-AWARE STEALTHY ATTACK DETECTION)

Sep'19

Cyber Security of Critical Infrastructures

- Inferred threshold values from clusters obtained in signal subspace by computing Singular & Eigen Value decomposition of lag vectors.

DIFFUSION MAP & CLUSTERING-BASED DETECTION SYSTEM

Nov'19

Cyber Security of Critical Infrastructures

- Anomaly detection system where K-Means clustering is used on top of RBF kernel-based diffusion map, to infer threshold value for attack.

SELF PROJECTS

ENCRYPTED TEXT EDITOR

Nov'16

- A text editor having encryption & decryption(from user entered password) feature, maintaining integrity & confidentiality of data.
- Two rounds of encryption, & hash computation is involved in project.

GENERATE SYNTHETIC IMAGES WITH DCGANS

Sep'20

- Used Deep Convolutional Generative Adversarial Networks (DCGAN) with Keras sequential APIs to generate images of fashion items.
- Used DCGAN to transform Gaussian noise to the training distribution.

CLASSIFICATION WITH TRANSFER LEARNING

Aug'20

- Used Convolutional Neural Networks architecture with existing pre-trained model MobileNet to classify cat vs dog images.
- Trained model using Transfer learning approach particularly with Inception Network on subset of above dataset, getting similar results.

POSITION OF RESPONSIBILITY

TEACHING ASSISTANT

Aug'19-Mar'20

- Teaching Assistant for Introduction to Computing Course(ESC101).
- Mentored students, assisted them in their weekly programming labs.