

Chetan Kumar

Address: 22 Old Westport RD, Dartmouth MA 02747

Email: ckumar@umassd.edu

Phone: 508-441-7120

Personal Page: www.chetan-kumar.com

EDUCATION

- **University of Massachusetts Dartmouth** Dartmouth, MA
Ph.D. in Engineering and Applied Science *Sept. 2018 - Dec. 2021*
 - Department of Computer and Information Science (Full Scholarship)
- **University of Massachusetts Dartmouth** Dartmouth, MA
MSc. in Data Science *Sept. 2016 - Aug. 2018*
 - Program of Data Science
- **Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology** Karachi, Pakistan
BSc. in Computer Science *Aug. 2010 - June 2014*
 - Department of Computer Science (Full Scholarship)

RESEARCH INTEREST

Machine Learning, Deep Learning: Adversarial Attack, Multi-view Graph based Learning, Multi-view Action Recognition

EXPERIENCE

- **MIND Lab, UMass Dartmouth** Dartmouth, MA
Graduate Research Assistant, Supervisor: Dr. Ming Shao *Sept. 2017 - Present*
 - **Finding Achilles' Heel: Adversarial Attack on Multi-modal Action Recognition (ACM 2020):** Multi-modal adversarial attack model is proposed on video data by exploiting the skeleton modality weakness which is used to identify key segments in other modalities to attack.
 - **Adversary for Social Good: Protecting Familial Privacy through Joint Adversarial Attacks (AAAI 2020):** A Graph Neural Network (GNN) based joint adversarial attack model is designed to prevent family information leakage through social networks.
 - **Cross-Database Mammographic Image Analysis through Unsupervised Domain Adaptation (Big Data 2017):** Improved the classification accuracy of unlabeled target mammogram image dataset by using different transfer learning methods to address the issue of fewer training data on target image dataset.
 - **Skeleton Based Action Recognition using Convolutional Neural Network (Masters Practicum):** Skeleton based live working model for action recognition was developed to explore the biasness present between synthetic and non-synthetic datasets. Kinect V2 is used to get skeleton representation of 2 persons.
- **ReviveMed** Cambridge, MA
Computational Chemist Intern, Supervisor: Dr. Leila Pirhaji *Jun. 2020 - Aug. 2020*
 - Worked on optimizing molecules generation framework as part of drug discovery using machine learning and deep learning based approaches.
- **College of Nursing and Health Sciences, UMass Dartmouth** Dartmouth, MA
Data Analyst, Supervisor: Dr. Karen Barnett *Oct. 2017 - May. 2018*
 - Carried out statistical analysis on Nursing School admissions and course enrollment & results data
 - JavaScript and D3 are used to visualize different patterns and trends for students performance against the courses
 - These results effectively helped the school to maintain and redesign their curriculum to get most success rate

TEACHING EXPERIENCE

- **Graduate Teaching Assistant** UMass Dartmouth
Spring 2019 - Present
Department of Computer and Information Science
 - CIS 180: Object-Oriented Programming I
 - CIS 181: Object-Oriented Programming II
 - CIS 272: Introduction to Computing Systems
 - CIS 280: Software Specification and Design
 - CIS 361: Models of Computation
 - CIS 550: Advanced Machine Learning
- **Guest Lecturer** UMass Dartmouth
Fall 2019
Department of Computer and Information Science
 - Guided students in Data Mining course projects

TECHNICAL STRENGTHS

Languages: Python, Matlab, R, C/C++, Javascript, D3

Deep Learning Tools: Keras, TensorFlow, PyTorch

Data Tools & Libraries: Numpy, Pandas, NLTK

Machine Learning: Feature Engineering, Transfer Learning, Graph Neural Networks

Other Tools: L^AT_EX, Git

PUBLICATIONS

1. D. Kumar, **C. Kumar**, C. Seah, S. Xia and M. Shao, Finding Achilles' Heel: Adversarial Attack on Multi-modal Action Recognition in 2020 ACM International conference on Multimedia
2. **C. Kumar**, R. Ryan and M. Shao, Adversary for Social Good: Protecting Familial Privacy through Joint Adversarial Attacks in 2020 AAAI Conference on Artificial Intelligence
3. D. Kumar, **C. Kumar** and M. Shao, Cross-database mammographic image analysis through unsupervised domain adaptation in 2017 IEEE International Conference on Big Data

POSTER PRESENTATIONS

- Adversary for Social Good: Protecting Familial Privacy through Joint Adversarial Attacks, 2020 AAAI Conference, New York, NY (Feb, 2020)
- Cross-view Action Recognition via Joint Dictionary Transfer Learning, 2018 New England Computer Vision Workshop, Boston MA (Nov 2018)
- Cross-database Mammographic Image Analysis through Unsupervised Domain Adaptation, 2017 New England Computer Vision Workshop, Boston MA (Nov 2017)

AWARDS

Research Award: Received CIS Graduate Research Award for the year 2020 from UMass Dartmouth

Travel Grant: Received UMass Dartmouth & AAAI 2020 Author Travel Grant

PROFESSIONAL SERVICES

Reviewer: Journal of Electronic Imaging (JEI), IEEE Computational Intelligence Magazine, International Conference on Data Mining (ICDM), Conference on Information and Knowledge Management (CIKM), IEEE Conference on Big Data (IEEE Big Data), European Conference on Artificial Intelligence (ECAI), Conference on Computer Vision and Pattern Recognition (CVPR)

Program Committee: Association for Advancement of Artificial Intelligence (AAAI)