Deepak Kumar

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Education

- **University of Massachusetts, Dartmouth** — Dartmouth, MA
  Ph.D. in Engineering and Applied Science — *Aug. 2018 - Aug. 2021*
  – Department of Computer and Information Science (Full Scholarship)

- **University of Massachusetts, Dartmouth** — Dartmouth, MA
  M.S in Data Science — *Jan. 2016 - Aug. 2018*
  – Program of Data Science

- **Shaheed Zulifkar Ali Bhutto Institute of Science and Technology** — Karachi, Pakistan
  B.S in Computer Science — *Aug. 2009 - June 2013*
  – Department of Computer Science

Research Interest

- **Computer Vision**: Cross-View Multi-View Action Recognition and Prediction, Multi-view Frame Reconstruction

- **Machine Learning:**: Deep Learning, Transfer Learning, Graph Attention, Knowledge Distillation

Experience

- **MIND Lab, UMass Dartmouth** — Dartmouth, MA
  Graduate Research Assistant, Mentor & Ph.D. Supervisor: Dr. Ming Shao — *Sept. 2016 - Present*
  – **Cross-Database Mammographic Image Analysis through Unsupervised Domain Adaptation**: 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
  – **Cross-View Action Recognition via Joint Dictionary Transfer Learning (Masters Thesis)**: Feature learning using jointly dictionary and transfer learning to improve the cross-view action recognition performance
  – One Paper submitted in **CVPR-2020**

- **Philips Research North America** — Cambridge, MA
  Research Intern at Ultrasound Imaging and Interventions Mentor: Balasundar Raju — *May 2019 - Aug. 2019*
  – Developed an automated AI based method for ultrasound image quantification

- **EDUENRICH** — Karachi, Pakistan
  Data Analyst, Mentor: Tauseef Raza — *Dec. 2013 - Dec. 2015*
  – Designed and developed databases to collect data
  – Wrote complex SQL queries using complex joins, grouping, aggregation, nested sub-queries, etc
  – Performed statistical analysis and developed recommendations using R and Tableau. Worked closely with the project managers and analysts

Teaching Experience

- **Guest Lecturer** — UMass Dartmouth
  Department of Computer and Information Science — *Fall 2019*
  – **CIS 530 - Advanced Data Mining**: Assessed different data mining models and discussed the potential strategies to guide student in their projects

Publications

1. **D. Kumar**, C. Kumar and M. Shao. Cross-database Mammographic Image Analysis through Unsupervised Domain Adaptation in 2017 IEEE International Conference on Big Data

Technical Skills

Languages Python, Matlab, R, C/C++, Javascript, D3
Deep Learning Tools Keras, TensorFlow, PyTorch, Caffe
Data Tools & Libraries Tableau, Numpy, Pandas, NLTK
Machine Learning Classification, Regression, Feature Engineering, Transfer Learning
Other Tools Latex, git

Talk

- Cross-database Mammographic Image Analysis through Unsupervised Domain Adaptation, 2017 New England Computer Vision Workshop, Boston, MA (Nov. 2017)

- Multi-View Action Recognition through Deep Learning, 2018 Three Minute Thesis Competition, Dartmouth, MA (April 2018)

- Cross-view Action Recognition via Joint Dictionary Transfer Learning, 2018 New England Computer Vision Workshop, Boston, MA (Nov. 2018)

Honors and Awards

- Received UMass Dartmout Graduate Student Travel Grant to attend 2017 IEEE Big Data Conference.

- I have been selected for feature stories of MS in Data Science of UMass Dartmouth

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)
Program Committee: Association for Advancement of Artificial Intelligence (AAAI)
Web & Publicity Co-Chair: 4th International workshop on Big Data and Transfer Learning (BDTL)

Projects

Visual Human Action Recognition through Dense Trajectories (Masters Project): Features from videos are extracted using Dense Trajectories method, the performance is evaluated using the bag-of-features approach, and non-linear SVM with different kernels used for classification.

USA 2016 Election Visualization: Data Visualization of USA 2016 Presidential Election primaries results using D3 to show trends over candidate campaigning and the counties they won.

Twitter Sentiment Analysis: A Web app was created to perform sentiment analysis of particular hashtag in particular area. All tweets were processed using Natural Language Processing (NLP), machine learning processing and visualized the processed tweets using D3.

Text Processing and Mining: Configured Jupyter Notebook on Stampede (Super Computer) to access it on local machine to per-form text processing and text mining on unstructured data using Python NLTK Library. https://goo.gl/kXN445