Priyesh Vijayan

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EDUCATION

INDIAN INSTITUTE OF TECHNOLOGY MADRAS, CHENNAI
MS by Research in Computer Science and Engineering
Jan'15 - Dec'18 Expected |• CGPA: 8.4 / 10
Research Advisor: Prof. Balaraman Ravindran

SRI VENKATESWARA COLLEGE OF ENGINEERING | ANNA UNIVERSITY, CHENNAI
B.E in Computer Science and Engineering
Aug'09 - May'13 | CGPA: 7.29 / 10

EXPERIENCE

ROBERT BOSCH CENTRE FOR DATA SCIENCE AND AI, IIT-M, CHENNAI | Project Associate
Dec 2017 - present | Supervisor: Prof. Balaraman Ravindran & Prof. Mitesh Khapra
Project: Network Representation Learning | An IITM-Intel Collaboration

- Heading the team for building network representations toolkit for both attributed and non-attributed graphs
- Evaluating and building Graph Neural Nets that encode structured auxiliary information, viz syntax trees, co-ref, co-occurence, etc, for dialogue systems and abstractive summarization.

KLA-TENCOR, CHENNAI | Intern
June 2016 – Dec 2016 | Supervisor: Dr. Mohan Mahadevan & Prof. Balaraman Ravindran
Project: Defect identification in SEM images | An IITM-KLA Tencor Collaboration

- Designed CNNs and shared representation learning architectures for multi-modal defect classification.

RISE-IIL, INDIAN INSTITUTE OF TECHNOLOGY MADRAS | Project Associate
July 2014 – May 2015 | Supervisor: Dr. Balaraman Ravindran
Project: Wafer data inspection | An IITM-KLA Tencor Collaboration

- Worked on extreme binary and multiple classes class imbalance classification problems to detect defects in wafers.
- Proposed models that handled class imbalance by leveraging semi-supervised, multi-view and active learning setups.

ERICSSON R&D | Research Intern
June 2013 – June 2014 | Supervisor: Shivashankar Subramanian

- Worked on learning from heterogeneous data sources and build alarm prediction models for Telecom data.
- Proposed a Co-Training based framework for multi-label learning in multi-relational networks with multiple attributes.

GLOBAL OPERATIONS TEAM | PAYPAL | Intern
Dec 2011| Supervisor: Ms. Bhaduri Raju Naidu

- Developed a web application tool with J2EE and MYSQL for Resource mapping and Reporting

PATENTS

USER CATEGORIZATION IN COMMUNICATIONS NETWORKS | United States 20150236910
Work done during internship at Ericsson R&D | Collaborator: Shivashankar Subramanian

PUBLICATIONS AND PRE-PRINTS

HOPF: HIGHER ORDER PROPAGATION FRAMEWORK FOR DEEP COLLECTIVE CLASSIFICATION
Eighth StarAI workshop, IJCAI 2018 | Arxiv (under review)
Priyesh Vijayan, Yash Chandak, Dr. Mitesh Khapra & Dr. Balaraman Ravindran

F-GCN: FUSION GRAPH CONVOLUTIONAL NETWORKS
Fourteenth MLG workshop, KDD 2018 | Arxiv
Priyesh Vijayan, Yash Chandak, Dr. Mitesh Khapra & Dr. Balaraman Ravindran

SEMI-SUPERVISED LEARNING FOR CLUSTERABLE GRAPH EMBEDDINGS WITH NMF
Relational Representation Learning workshop, NIPS 2018 (under review)
Priyesh Vijayan*, Anasua Mitra* & Dr. Balaraman Ravindran

MULTI-LABEL COLLECTIVE CLASSIFICATION IN MULTI-ATTRIBUTE MULTI-RELATIONAL NETWORK DATA | IEEE/ACM ASONAM 2014
Priyesh Vijayan, Shivashankar Subramanian & Dr. Balaraman Ravindran

GRID SCHEDULING USING IMPROVED PARTICLE SWARM OPTIMIZATION WITH DIGITAL PHEROMONES | IJSER 2012 Proceedings
A P Sarath Chandar, Priyesh Vijayan & Dr. Doreen Robin

AWARDS

PANICKKER AWARD | 2011-2012 | Institute level
This award is given to the best over-all pre-final year undergraduate student.

PROGRAMMING

LANGUAGES
Expert: Python, MATLAB
Intermediate: C++ • Java • C

LIBRARIES
TensorFlow

RECENT COURSES: 2015-2018

CS5011: INTRODUCTION TO MACHINE LEARNING | CS6310: ARTIFICIAL NEURAL NETWORKS | CS7015: DEEP LEARNING | CS6012: SOCIAL NETWORK ANALYSIS | CS6720: DATA MINING | CH5440: MULTIVARIATE DATA ANALYSIS |

CONFERENCES & SUMMER SCHOOLS

ORAL PRESENTATION International Conference on Emerging Trends, ICET | 2012
POSTER PRESENTATIONS Eighth Statistical Relational learning Workshop at IJCAI 2018
RBC-DSAI Workshop on Recent Progress in Data Science & AI, IITM | 2017
MICROSOFT SUMMER SCHOOL ON MACHINE LEARNING, IISC | 2015
DEEP LEARNING SUMMER SCHOOL, IIIT-H | 2016

EXTRA CURRICULAR

PROGRAM COMMITTEE MEMBER FOR ADCOM 2018
PROGRAM COMMITTEE MEMBER FOR CODS-COMAD 2018
SUBREVIEWER FOR AAAI'7, CODS'17 & DSAA'15
FIRST RUNNER UP| IBM THE GREAT MIND TECH QUIZ | 2011 | Regional
WINNER | MY IDEA PROGRAM INSTITUTE LEVEL | 2011 | Institute level
ORAL & POSTER PRESENTATION | 2012 | My Idea Program Regionals
SEMI-FINALIST | INNOVATION DAY | 2011 | Institute level
NATIONAL SOCIAL SERVICE (NSS) AND ROTORACT MEMBER | 2009-2013
Actively participated in social welfare activities for the betterment of the rural area in Kanchipuram district

TEACHING

ACM INDIA SUMMER SCHOOL ON DATA SCIENCE | June 2018 | National level
TA for 5 lab sessions on Machine learning
COMMUNICATION SKILLS MENTOR | 2010-2012 | Institute level
Designed and conducted interactive English improvement sessions for students from rural background
C-TRAINING TUTOR | 2011-2012 | | Institite level
Taught C Programming for M.C.A and junior B.E students

OFFICES HELD

CHAIRPERSON | SVCE-ACM STUDENT CHAPTER | 2012-2013
GENERAL SECRETARY | ASSOCIATION OF COMPUTER ENGINEERS (ACE) | 2011-2012
RESEARCH COMMITTEE HEAD | SVCE-ACM | 2011-2012
LIBRARY COMMITTEE REPRESENTATIVE | 2011-2012
EXECUTIVE MEMBER | ACE | 2010-2011
CLASS COMMITTEE MEMBER | 2010-2011
CLASS REPRESENTATIVE | 2009-2010
BOYS HOSTEL REPRESENTATIVE | 2009-2010

EVENTS ORGANIZED

STUDENT CO-COORDINATOR | NATIONAL LEVEL PROGRAMMING CONTEST, NLPC | 2012
First of its kind from our college which saw a participation of 491 students.

ORGANIZER | ASIA LEVEL PROGRAMMING CONTEST, NLPC | 2012
It was an online contest, where other student chapters from Asian countries participated
COORDINATOR | INTERRUPT, CS DEPT SYMPOSIUM | 2012
Well organized with interesting set of events which attracted 4 times more crowd than that of the previous year
ORGANIZED LECTURES: | 2009-2012
Membrane computing workshop, various guest lectures on Web 2.0, TCS, FGPA, Android, .etc
ORGANIZED C-TRAINING CLASSES FOR CS AND M.C.A DEPT. | 2012

CERTIFICATIONS & TESTS

TOEFL: TEST OF ENGLISH AS A FOREIGN LANGUAGE | 106/120
GATE: GRADUATE APTITUDE TEST IN ENGINEERING | 97.433 PERCENTILE
COURSERA: ANDREW NG'S MACHINE LEARNING COURSE [100%] | 2013
IBM CERTIFIED DATABASE ASSOCIATE, DB2 9 FUNDAMENTALS [85% - #1 IN COLLEGE] | 2011
IBM CERTIFIED DEPLOYMENT PROFESSIONAL, TIVOLI DIRECTORY SERVER V6.3 [90%] | 2012
COGNIZANT CERTIFIED STUDENT | 2012

FEW RESEARCH PROJECTS

IS LARGER (MULTI-HOP) NEIGHBORHOOD INFORMATION USEFUL ? | JAN-MAY'15

- Existing works for relational learning typically dismissed the use of higher-order neighborhood information
- Showed that higher-order information such as nodes' structural roles and community information were useful in achieving improved performance for protein function prediction.

HOW TO REDUCE THE HYPERPARAMETERS FOR GRAPH EMBEDDING MODELS ? | DEC'16-FEB'17

- Existing Random walk (RW) based methods require numerous hyperparameters to learn node embeddings.
- Proposed a Graph Language Model (GLM) with RNNs that learned to predict shortest path between nodes.
- Embeddings learned with GLM incorporated depth information and avoided hyperparms required for biasing the RW. The proposed method fared similar to or better than SoAs.

ARE EMBEDDINGS SUFFICIENT FOR THE END TASK? | FEB'17-MAY'17 | TEAM: YASH CHANDAK

- Embeddings alone does not provide finer control to model information diffusion in networks
- We classified nodes by modeling information propagation to the nodes from all of their k-hop shortest paths.
- The GLM can be perceived as a Data Structure with embeddings as data and DFS or BFS walks as it operators. We demonstrated that modeling paths explicitly instead of node structure improves node classification task

GATED ATTENTION PROPAGATION (GAP) KERNELS | JUNE'17-AUG'17 | TEAM: YASH CHANDAK

- Existing models assumed the network to be homophilous and treated the node and it's neighbors similarly
- We proposed mechanisms to learn a gating function to combine node and neighborhood information and as well learn an attention function to reweigh the edge weights.

SEMI-SUPERVISED CLUSTERABLE NODE REPRESENTATIONS | SEP'16-MAY'18 | TEAM: ANASUA MITRA

- Explored the much-ignored clusterability aspect of Semi-supervised learning (SSL) for learning representations.
- We proposed a semi-supervised model to learn cluster invariant representations for nodes of similar labels.
- Relatively, the proposed model achieved superior classification (4.7%), clustering (33%)and visualization improvements over existing models on 9 datasets

FASHION ATTRIBUTE DETECTION AND SIMILAR CLOTHING RETRIEVAL. | JULY-DEC'15

- Used ConvNets to classify attributes of images.
- Build a KD tree based retrieval system to find similar clothes in real-time.

A HYBRID FILTERING APPROACH FOR RECOMMENDER SYSTEMS USING CLUSTERING FOR CHAINS. | UG FINAL YEAR PROJECT | NOV'12-MAY'13

- Built a ranking based recommendation system that clustered users' ranking (POSets/Chains)
- Proposed a social network based content boosted Collaborative filtering (CF) model using clustering for chains.
- Built a music recommendation system for my classmates. The proposed approach proved to be better than the conventional Clustering for chains based CF by 25%.

VERIFICATION OF ASYNCHRONOUS BEHAVIOR OF SPIKING NEURAL P (SNP) SYSTEM USING PETRI NETS | SEP'12-NOV'12 | TEAM: SARATH CHANDAR AP

- Dynamic Petri Nets (DPNs), unlike SNP systems, were well studied concurrent mathematical models.
- In order to take advantage of the established tools for DPNs to study SNP systems, we proposed an algorithm for converting SNP systems into Dynamic Petri Nets.