Harsh Rangwani

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Education

Indian Institute of Science — *Bengaluru, India*

PhD in Computational and Data Sciences (advised by Prof. R. Venkatesh Babu) — *August 2019*

- Courses: Game Theory: A+, Pattern Recognition and Neural Networks: A, Stochastic Methods and Applications: A+, Video Analytics: A+, Deep Learning for Computer Vision: A+, Advanced Image Processing: A+
- Cumulative Performance Index (GPA): 9.83/10

Indian Institute Of Technology (BHU) Varanasi — *Varanasi, India*

B.Tech. (Hons) in Computer Science and Engineering — *July 2015 - May 2019*

- Department Rank 2 in Sophomore year with AP (Exceptional Performance) Grade in Artificial Intelligence.
- Cumulative Performance Index (GPA): 9.44/10

Experience

Amazon.com (Outbound Marketing Automation) — *Bengaluru, India*

Software Development Internship (Technologies - Java, Spring, and EasyMock) — *May 2018 - July 2018*

- Created a design wiki for a data component for fetching product data from Amazon API considering issues like caching, coupling and ease of usage. The data component will be a part of low latency Notification Data Retrieval Service.
- On boarded the notification program for Sneak Peek Deals Prime Day 2018 through existing packages along with end to end testing. On basis of my performance I recieved a Pre Placement Offer.

Training and Placement Cell — *IIT BHU Varanasi*

Lead Portal Developer and Coordinator (Technologies - Django, Python, HTML and JavaScript) | Site — *August. 2017 - Present*

- Designed and Implemented the automated scheduling system of slots for campus placements based on student preferences.
- Added support for Caching (Memcache + FileBased) , Logging and Concurrent usage from backend and frontend. The portal has more then 2500 active users.

Projects

Named Entity Recognition on English Spanish Code Switched Tweets — *NLP Lab, IIT BHU*

Amazon Prize for Best System (State Of Art) at CALCS@ACL2018 | Publication | Result — *Spring 2018*

- Proposed usage of alignment of English twitter embeddings and Spanish Fasttext embeddings along with a gated neural architecture.
- Proposed a novel method of ensembling neural outputs from different activation functions. (2% increase in F1)
- An extended version of this with interpretebility comparison with BiLSTM CRF is under submission.

Irony Detection System — *NLP Lab, IIT BHU*

System Accepted at SemEval@NAACL2018 | Publication | Result — *Fall 2017*

- Build a system by combining linguistic features based on Senti Lexicon and activations from Pretrained CNN (DeepMoji).
- Proposed SMOTE for oversampling neural activations which led to increase of 4% F1 on the imbalanced subtask (Type Of Irony).
- Conducted ablation test for analysis. System outperformed baseline by 5% F1 and stood 4th among 33 teams worldwide.

Tourism Domain QA System — *Prof. R. Sangal and Prof. A.K. Singh*

Best Poster Runner Up At Institute Annual Day 2018 — *Summer 2017*

- Created a dependency based knowledge graph of WikiPedia data. Enriched the graph with Stanford NER and DbPedia annotations.
- Implemented a tree matching algorithm to match question queries to answer sentences using WordNet similarity.

Attention Models For Irony Classification — *Prof. A.K. Singh*

Stream Project | Code — *Fall 2018*

- Implemented two different ways of self attentive encoders along with attention visualization. Performance was close to state of art.

Development and Course Projects

2019	**Bottom Up and Top Down Attention for Captioning (Notebook Tutorial) (Code|Blog)**,	*Vision and ML*
2019	**Restricted Boltzman Machine for Classification (Code)**, Pytorch implementation in Numpy style (manual grads) for classification with generative, classification and discriminative objective.	*Vision and ML*
2019	**Time Series Modeling On Aviation Data (Code)**, Proposed a novel architecture with transformer as encoder and RNN decoder. The model produced better results then existing approaches.	*Vision and ML*
2017	**Paint It Out (Code)**, A unity based game based on combination of Divide And Conquer and greedy strategy.	*Code.Fun.Do, Microsoft*
2016	**Departmental Website (Code)**, A django and materialize CSS based site prototype with email sender using SMTPLib.	*Course Project*
2016	**Sentiment Analysis (Code)**, Analysis of Generative and Discriminative Models for text classification on the Twenty News Group Dataset.	*NLP Project*

Honors & Awards

Competitive Programming

2016	**Honourable Mention**, ACM ICPC India Regionals	*Amritapuri, India*
2016	**June Long Challenge**, Ranked 51st among 7937 participants in India	*CodeChef*
2016	**Regular Participant in Sophomore Year**, rangwani_harsh (Codeforces) , lastoption (Codechef) and rangwani_harsh(Hackerrank).	*IIT BHU Varanasi India*

National

2019	**Prime Minister Research Fellowship**, PhD student fellowship.	*India*
2015	**JEE Advanced**, Ranked 877 out of 1.5 lakh students in India	*India*
2015	**JEE Main**, Ranked 161 out of 15 lakh students in India	*India*
2014	**KVPY**, Ranked 412 in India and received scholarship.	*India*
2013	**National Talent Search Examination**, Scholarship Recipient	*India*

Skills

Programming Python, C/C++, JAVA, SQL, LaTeX, JavaScript, HTML
Frameworks Django, Flask, Spring, Keras, PyTorch, ScikitLearn, NLTK, TestNG, Gensim, Materialize CSS

Extra Curricular Activities

2018	**Machine Learning Reading Group**, Active participant and organizer of group meetings.	*NLP Lab, IIT BHU*
2018	**Oral Presentation at ACL2018**, Presented our work at CALCS workshop at ACL2018	*Melbourne, Australia*
2018	**Coordinator**, Preparing the problem statement and organizing Linguipedia (NLP Event).	*Codefest*
2017	**Co-coordinator**, Organizing the Byte The Bits Event a collection of Computer Science.	*Technex*
2013	**BasketBall Player**, Participated in District Level Competition among schools.	*Ajmer*