

EDUCATION

<b>Carnegie Mellon University</b> MS, Intelligent Information Systems - Advanced Study. Advisor: <a href="#">Prof. Jamie Callan</a> <b>Courses:</b> Advanced NLP, Advanced Multimodal ML, Question Answering, Computational Ethics, Intermediate Deep Learning <b>GPA:</b> 4.07 / 4.0	Pittsburgh, PA <i>Aug'21 - May'23</i>
<b>Birla Institute of Technology and Science (BITS) Pilani</b> Bachelor of Engineering in Computer Science. Thesis Advisor: <a href="#">Prof. Aruna Malapati</a> <b>Courses:</b> Machine Learning, Information Retrieval, Artificial Intelligence, Data Mining <b>GPA:</b> 8.79 / 10.0	Hyderabad, India <i>May'16 - Aug'20</i>

PUBLICATIONS

[1] **A S Veerubhotla**, L Poddar, J Yin, G Szarvas, S Eswaran, **Few Shot Rationale Generation using Self-Training with Dual Teachers**, To appear in Findings of ACL'23 [\[pdf\]](#)

[2] **A S Veerubhotla\***, S Agarwal\*, S Bansal\*, S Tripathi\*, S Gururaja\*, R Dutt, T Mitamura, E Nyberg, **R3 : Refined Retriever-Reader pipeline for Multidoc2dial**, DialDoc Workshop, ACL'22 [\[pdf\]](#)

[3] A Kumar, **A S Veerubhotla**, V T Narapareddy, V Aruru, L B M Neti, A Malapati, **Aspect term extraction for opinion mining using a Hierarchical Self-Attention Network**, Neurocomputing, 2021 [\[pdf\]](#)

[4] R Mitra, R Jain, **A S Veerubhotla**, M Gupta, **Zero-shot Multi-lingual Interrogative Question Generation for “People Also Ask” at Bing**, KDD'21 [\[pdf\]](#)

[5] A Kumar, V T Narapareddy, **V A Srikanth**, A Malapati, L B M Neti, **Sarcasm Detection Using Multi-Head Attention Based Bidirectional LSTM**, IEEE Access 2020 [\[pdf\]](#)

[6] A Kumar, V T Narapareddy, **A S Veerubhotla**, A Malapati, L B M Neti, **AAspect-Based Sentiment Classification Using Interactive Gated Convolutional Network**, IEEE Access 2020 [\[pdf\]](#)

[7] A Kumar, V T Narapareddy, P Gupta, **V A Srikanth**, A Malapati, L B M Neti, **Adversarial and Auxiliary Features-Aware BERT for Sarcasm Detection**, CoDS-COMAD 2021 [\[pdf\]](#)

SKILLS AND INTERESTS

**Skills :** Natural Language Processing, Prompt Engineering, Deep Learning, PyTorch, Python, Huggingface, FairSeq, ONNX

**Interests :** Large Language Models (LLMs), Question Answering, Dialogue Systems, Multimodal ML, Parameter Efficient Learning, Multilingual NLP, Code Generation, Information Retrieval

WORK EXPERIENCE

<b>Carnegie Mellon University</b> Graduate Research Assistant	Pittsburgh, PA <i>Aug'21 - Dec'22</i>
<ul style="list-style-type: none"><li>• Worked on Cross Lingual Open Domain QA. Developed a novel approach that enables the sharing of information between the reader and retriever through a two-way knowledge distillation process</li><li>• Worked on sparse lexical expansion to mitigate vocabulary mismatch problem in a hybrid Information Retrieval system</li><li>• Worked on unsupervised domain adaptation of Dense Information Retrieval models using synthetic query generation and adversarial hard negative mining using perturbations</li></ul>	
<b>Amazon Science</b> Applied Scientist Intern	Seattle, WA <i>May'22 - Aug'22</i>
<ul style="list-style-type: none"><li>• Researched on building T5 based Self-Rationalization models in a few-shot (~100 examples/label) settings</li><li>• Proposed a novel approach that uses pseudo-labels from two teacher models trained using Self-Training (Semi-Supervised Learning) in a cascading fashion for training the final joint student model</li></ul>	
<b>Microsoft</b> Applied Scientist - Microsoft Bing	Hyderabad, India <i>Jun'20 - Aug'21</i>
<ul style="list-style-type: none"><li>• Trained and shipped multilingual Question Generation and Grammatical Error Detection models supporting 100 languages</li><li>• Improved upon document Relevance Classification and Ranking models and increased NDCG@10 by 2.7 points</li><li>• Shipped models for doing multilingual Grammatical Error Detection for text cleaning with an AUC of 0.7</li><li>• Worked on a proof-of-concept project which became the topic highlights on People Also Ask</li><li>• Achieved 6-12x model size reduction of Generative and Discriminative models using Distillation, Quantization and ONNX</li><li>• Worked on extensions to Enterprise Search</li></ul>	
<b>Microsoft</b> Undergraduate Thesis - Microsoft Bing	Hyderabad, India <i>Jan'20 - Jun'20</i>
<ul style="list-style-type: none"><li>• Researched on Multilingual Neural Question Generation and developed systems to enable QA generation in over 100 languages for “People Also Ask” in Bing <a href="#">[pdf]</a></li><li>• Explored using Reinforcement Learning (Self-Critical Sequence Training), Distillation and Parameter Freezing for improving performance of Question Generation</li></ul>	

<b>Birla Institute of Technology and Science, Pilani</b>	Hyderabad, India
Undergraduate Researcher	<i>Jan'19 - Dec'19</i>
<ul style="list-style-type: none"> <li>Developed a resource efficient model for Aspect Term Extraction that outperformed previous BERT-based approaches</li> <li>Improved upon previous approaches to develop the best Convolutional Neural Network model for Aspect Based Sentiment Analysis</li> <li>Created a model (MHA-BILSTM) that outperformed other baselines in Computational Sarcasm Detection</li> </ul>	
<b>Microsoft</b>	Hyderabad, India
Software Engineer (Machine Learning) Intern	<i>Jan'20 - Jun'20</i>
<ul style="list-style-type: none"> <li>Designed, implemented and tested Deep Learning algorithms for Text Summarization, Co-reference Resolution, and Automatic Question Generation and successfully integrated with a web service hosted on Azure</li> <li>Coordinated with a team of four interns to achieve all set objectives and won the best team award</li> </ul>	
<b>L.V. Prasad Eye Institute</b>	Hyderabad, India
LVP-MITRa Summer Intern	<i>May'18 - Jul'18</i>
<ul style="list-style-type: none"> <li>Part of the LVPEI-MIT Media Labs collaboration program</li> <li>Developed an automated system for patient information collection and integrated it with LVPEI medical record system</li> <li>Using Android for front-end and a Django web service at the back-end. Added Google Speech Transcription API to enable ease of use for the patients</li> <li>Built a bot ecosystem for allowing patient and hospital staff queries to be answered through a chat-bot</li> <li>Using Android for displaying the user-interface and a Django web service employing Elasticsearch for retrieving relevant answers</li> </ul>	

### TEACHING EXPERIENCE

- Teaching Assistant for [Multimodal Machine Learning](#) (Spring'23) taught by [Prof. Yonatan Bisk](#) and [Prof. Daniel Fried](#). Sole mentor to the course projects of 4 teams. Graded projects, provided feedback and guidance to the teams.
- Teaching Assistant for [Advanced NLP](#) (Fall'22) taught by [Prof. Graham Neubig](#) and [Prof. Robert Frederking](#). Designed and graded assignments for the course. Moreover, I was the sole mentor to the course projects of 6 teams. Graded projects, provided feedback and guidance to the teams.

### RESEARCH PROJECTS

- Open Domain Jupyter Notebook Code Completion Dataset :** Proposed and working on building a dataset for Jupyter Notebook code completion using reformulated markdowns as queries and a heterogeneous corpus from GitHub and StackOverflow. Advised by [Prof. Eric Nyberg](#), [Prof. Teruko Mitamura](#) and [Prof. Daniel Fried](#). [\[pdf\]](#)
- Cross Lingual Open Domain QA :** Presented a novel approach that enables the sharing of information between the reader and retriever through a two-way knowledge distillation process. Also explored methods for improving the individual reader and retriever components using self-training and cross-lingual adaptation. Working on publishing our results. Advised by [Prof. Graham Neubig](#). [\[pdf\]](#)
- Multimodal Multihop Question Answering :** Proposed a three-stage pipeline for WebQA using a corpus-level text retriever, a novel multimodal, multihop reranker for the fine-grained retrieval of information sources and a reader model for answer generation. Advised by [Prof. Yonatan Bisk](#). [\[pdf\]](#)
- PEFTDB : Parameter Efficient Debiasing of Language models across multiple bias axes :** Developed PEFTDB, an novel method for debiasing language models with minimal parameter usage. Evaluated PEFTDB on four datasets and two bias axes and emphasized the task-agnostic nature of these parameters, enabling their application in mitigating biases across diverse domains. Advised by [Prof. Emma Strubell](#) and [Prof. Maarten Sap](#). [\[pdf\]](#)
- Domain Adaptation for Open-Domain Conversation Question Answering :** Proposed and building a benchmark for organizing previously proposed datasets and approaches. Advised by [Prof. Eric Nyberg](#)
- Expansion-Aware Contextualized Inverted List for First-Stage Retrieval :** Presented an extension to the COIL architecture by incorporating automatic term expansion to mitigate the vocabulary mismatch problem present of lexical retrievers. Advised by [Prof. Jamie Callan](#). [\[pdf\]](#)
- Capturing Multimodal Connections with Negative Construction and Self-training :** Conducted in-depth analysis and improvement of two key multimodal connections: fine-grained alignment between visual and textual objects, and emotional/cardinal connections between visual objects. Advised by [Prof. Louis-Philippe Morency](#). [\[pdf\]](#)

### HONORS AND AWARDS

- 1st on UNSEEN track for MultiDoc2Dial, DialDoc Workshop in ACL, 2022. Awarded a \$1000 prize
- Awarded “Best Research Talk” at Microsoft internal ML and Data Science conference, 2020, for undergraduate thesis work
- 10/10 GPA in Senior Year, 2019-2020
- Voted “Best Team” for final project demo among 14 teams across Microsoft Garage India, 2019
- Finalist Engineering The Eye Hackathon, 2018