Revanth Gangi Reddy

Visiting Research Scholar, UIUC

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Incoming MS (thesis) in Computer Science student at University of Illinois, Urbana Champaign (Jan 2021)
Interests: Deep Learning, Natural Language Processing and Machine Learning

Education

B. Tech, Computer Science | Indian Institute of Technology, Madras | CGPA - 9.16/10 | 2014-2018

Work Experience

IBM Research AI **Oct 2019 - Oct 2020**
AI Resident, Multi-lingual NLP team *New York, United States*

- Worked on projects in the areas of question answering, open-domain knowledge retrieval and AMR parsing.

Microsoft **Oct 2018 - Sep 2019**
Software Engineer, Data Integration team *Vancouver, Canada*

- Part of the team responsible for developing data connectors that are used in PowerApps, LogicApps and Flow.

Current Research Projects

Towards Robust Neural Retrieval Models with Synthetic Pre-Training
Under review at NAACL 2021

- Improved the **zero-shot performance** of state-of-the-art neural IR models on both **in-domain and out-of-domain** datasets by pre-training with **synthetic questions** generated automatically from raw text passages.

End-to-End QA on COVID-19: Domain Adaptation with Synthetic Training
Under review at AAAI 2021

- Proposed a novel **synthetic example generation** approach to improve the performance of state-of-the-art open-domain **end-to-end** question answering systems in a specialized domain, such as COVID-19.

Recent Publications

Multi-Stage Pre-training for Low-Resource Domain Adaptation PDF ***EMNLP 2020***

- Proposed **synthetic pre-training** objectives by using structure in unlabeled text, that can transfer to downstream tasks with considerable gains in the **IT Domain.**

Answer Span Correction in Machine Reading Comprehension PDF ***Findings of EMNLP 2020***

- Proposed an approach for **correcting partial match answers** (EM=0, 0<F1<1) into exact match (EM=1, F1=1) and obtained upto **1.3%** improvement in both monolingual and multilingual evaluation.

Pushing the Limits of AMR Parsing with Self-Learning PDF ***Findings of EMNLP 2020***

- Proposed **self-learning approaches** via generation of synthetic text and synthetic AMR as well as refinement of actions from the oracle, achieving **state-of-the-art** performance on benchmark AMR 1.0 and AMR 2.0 datasets.

Multi-Level Memory for Task Oriented Dialogs PDF ***NAACL 2019 (poster)***

- Designed a novel multi-level memory architecture that retains **natural hierarchy** of the knowledge base without breaking it down into **subject-relation-object** triples.

A Formal Language Approach for Generating Graphs PDF ***SDM 2019 (oral, poster)***

- Proposed a graph generative model based on **probabilistic edge replacement** grammars and designed an algorithm to build graph grammars by capturing the statistically significant **sub-graph patterns**.

Internships

IBM Research AI **Summer 2018**
Research Intern, Watson Conversations team *New Delhi, India*

- Worked on better neural memory architectures for improving the performance of **task-oriented dialog** systems.

Microsoft India Development Center **Summer 2017**
Research Engineering Intern, Cortana Personalization Team *Hyderabad, India*

- Developed a model for **forecasting user activity** using **behaviour patterns** based on user temporal data.