

VIVEK IYER

MS Research Assistant @ IIIT-H — Ex-intern @ IBM Research — GSoC 2018

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EDUCATION

August 2016—

Degree: B.Tech + MS by Research in CSE

Present

College: IIIT, Hyderabad

Expected graduation in May 2021

RESEARCH INTERESTS

Knowledge Extraction

Knowledge Representation & Reasoning

Knowledge Integration

IRE

Ontologies

Knowledge Graph

Semantic Web

Web & Data Mining

NLP

Graph Learning

RESEARCH WORK

Project: Ontology Alignment using Dual Attention

May 2020 - Sept 2020

Conference: AAAI 2021*; OM workshop†, ISWC 2020

- Built an Ontology Alignment system that uses a **two-step attention mechanism** (path attention followed by node attention) along with multifaceted context representation to construct contextualized representation of concepts and discover semantically equivalent concepts.
- **Beat state-of-the-art systems** which had been undefeated for 10 years, on **multiple datasets**

Project: Ontology Enrichment from Unstructured Text

Jan 2019 - Oct 2020

Conference: WWW 2021*

- Developed an end-to-end semi-automated ontology enrichment pipeline that, given an ontology, extracts a training dataset from DBpedia, domain-specific corpus from Wikipedia and trains a sequential DL ontology enrichment model.
- This model includes a bidirectional LSTM that **traverses linguistic dependency paths** to extract concepts & instances embedded in words, phrases & sentences using **learned path representations**.
- Tested the performance on enrichment of Information Security and Pizza ontologies and **beat SOTA systems by a huge margin** due to contextualized extraction of embedded concepts & instances.

Project: Ontology Quality Evaluation and Crowdsourced Validation

Oct 2019 - Current

- Evaluates and validates an ontology for **syntactic** and **semantic quality**
- Evaluates an ontology based on syntactic quality by checking for the presence of certain (manually configurable) pitfalls and **quantitatively scoring** using Support Vector Machines (SVMs).
- Semantic quality is validated by **crowdsourcing** using **Twitter based credibility** for quality control. The credibility score of a Twitter profile is predicted using Neural Networks to assess **relevance of tweets & pages followed** to the domain of the ontology.

Project: A survey on Ontology Enrichment from Text

Aug 2018 - Dec 2018

Conference: ICON 2020

- Survey, implement and analyses the performance of SOTA algorithms on Ontology Enrichment such as **Guided Clustering, C-PANKOW, FCA, Word2Vec, DYNAMO-MAS** etc

* Paper has been submitted and is under review

†System submitted to OAEI 2020, and results will be published soon

WORK EXPERIENCE

IIIT Hyderabad

Aug 2020-Current

MS Research Assistant

- Working on Ontology Enrichment, Ontology Evaluation and Validation under the mentorship of **Prof. Raghu Reddy** and **Prof. Vasudeva Varma** for building a **domain-specific search engine**.
- Project funded by the **Department of Science and Technology (DST)**, Government of India.
- Resulted in submissions to **WWW 2021** and **ICON 2019**

IBM Research Labs, Delhi

May 2020-Aug 2020

NLP Research Intern

- Worked on Ontology Alignment under mentorship of **Arvind Agarwal**
- Successfully completed the given tasks by **defeating SOTA systems** which had been undefeated for past 10 years in a **period of just 3 months**
- Resulted in submissions to **AAAI 2021** and **OAEI 2020**, part of **ISWC 2020**

Google Summer of Code

May 2018-August 2018

Student Developer @ X-Wiki

- Added language support for Velocity in Google Blockly to generate code for XWiki scripting actions
- Packaged and shipped the Blockly toolbox as an extension for the XWiki application.

5Fing3rs, Hyderabad

Aug 2017-Dec 2017

Applied Computer Vision Intern (AR)

- Architected, developed and successfully shipped an **Augmented Reality** application that uses Vuforia to track various **spatio-temporal metrics** of a real world object

ZingHR, Mumbai

May 2017-Aug 2017

Applied NLP Research Intern

- Engineered, developed and packaged a **Resume Parser** in collaboration with **Microsoft employees**
- The parser used a supervised ML model to recognize different sections and extract relevant fields

COURSE PROJECTS

Enrichment of Wikidata from other KGs

[Python]

Enrichment of Wikidata by using entity and relation resolution to merge triples from other popular KGs like **DBpedia**, **Freebase**, **BabelNet**, **Google KG** etc.

Customer service chatbot

[Python]

An FAQ chatbot built using the **Encoder-Decoder** with **Luong Attention** model and trained on the **Microsoft Frames** dataset. Won **first prize** at **Walmart Hackathon 2019**.

Question Generating System

[Java]

A Question Generation system that uses the Stanford CoreNLP Parser to parse factoids from Wiki articles into questions, ranked by syntactic and semantic relevance

Wikipedia Search Engine

[Python]

A mini **search engine** that indexes Wikipedia and returns articles ranked by their tf-idf scores

RELEVANT COURSES

Artificial Intelligence

NLP Applications

Statistical Methods in AI

IRE

NLP

Social Computing

Deep Learning

Linear Algebra

Multivariate Analysis

DSAA