Nihal V. Nayak

CONTACT INFORMATION

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EDUCATION

Brown University, Providence, USA

Ph.D. in Computer Science, 2019 - Present
Sc.M. in Computer Science, 2019 - 2021

M. S. Ramaiah Institute of Technology, Bangalore, India

B.E. in Information Science and Engineering, 2013 - 2017

EXPERIENCE

Brown University, Providence, USA
Advisor: Stephen H. Bach
Graduate Research Assistant **August 2019 - Present**
ZSL-KG: a general-purpose zero-shot learning framework with a novel transformer graph convolutional network (TrGCN) to learn class representation from common sense knowledge graphs. Outperforms existing graph-based methods on five out of six zero-shot benchmark datasets in fine-grained entity typing tasks, intent classification, and object classification [PDF] [Code] [Project].

Stride.AI, Bangalore, India
NLP Engineer **November 2017 - May 2019**
Researched on low resource information extraction in financial domain. Improved the state-of-the-art performance for financial NER dataset by 5.8 accuracy points [AAAI-MAKE 2019].

StrideSDK: Developed a proprietary python package for information extraction. The library is used in 20+ projects.

Summer Intern **June 2016 - August 2016**
Involved in data scraping to parse third party public portals to get key data points.

Indian Institute of Science, Bangalore, India
Advisor: H. S. Jamadagni
Project Assistant **August, 2017 - November, 2017**
Involved in data creation and validation of sub-components of a video analytics project.

Project Intern **July 2015 - July 2017**
Developed a novel vocabulary flashcard application with a short answer grading algorithm [ACL SRW 2017].

Developed a web application for Ministry of Micro, Small and Medium Enterprises (Govt. of India) to digitize application process at the IISc MSME Centre of Excellence.

HONORS AND AWARDS

Received travel grant from Association for Computational Linguistics to attend ACL 2017 in Vancouver, Canada.

Received Best Outgoing Student Award (2013 - 2017) from the Department of Information Science and Engineering, M.S. Ramaiah Institute of Technology.

Received USD 2000 for winning the 2015 IEEE/IBM Watson Showcase (worldwide competition) [Article].

Published Papers

Nihal V. Nayak and Stephen H. Bach. **Zero-Shot Learning with Common Sense Knowledge Graphs.** *Technical Report, 2020* [PDF] [Code] [Project].

Anush Kumar, **Nihal V. Nayak**, Aditya Chandra and Mydhili K. Nair. **Study on Unsupervised Statistical Machine Translation for Backtranslation**. *International Conference on Recent Advances in Natural Language Processing (RANLP 2019)* [PDF].

Nihal V. Nayak, Pratheek Mahishi and Sagar M. Rao. **DEXTER - Data EXTraction and Entity Recognition for Low Resource Datasets.** *AAAI 2019 Spring Symposium on Combining Machine Learning with Knowledge Engineering (AAAI-MAKE 2019).* (Acceptance: 55%). [PDF].

Nihal V. Nayak and Arjun R. Rao. **Context Based Approach for Second Language Acquisition.** *13th Workshop on Innovative Use of NLP for Building Educational Applications (BEA at NAACL 2018)* [PDF].

Nihal V. Nayak, Tanmay Chinchore, Aishwarya Hanumanth Rao, Shane Michael Martin, Sagar Nagaraj Simha, G.M. Lingaraju and H.S. Jamadagni. **V for Vocab: An Intelligent Flashcard Application.** *55th Annual Meeting of the Association for Computational Linguistics - Student Research Workshop (ACL 2017).* (Acceptance: 40%)[PDF].

Mydhili Nair, **Nihal Nayak** and Arjun Rao. **Data Migration Techniques from SQL to NoSQL.** *NoSQL: Database for Storage and Retrieval of Data in Cloud.* Chapman and Hall/CRC, 2017. [Artcile]

Professional Service

Reviewer: ACL SRW 2018, 2020; AACL-IJCNLP SRW 2020; NAACL SRW 2021

Volunteer: ACL 2017

Unpublished Projects

BertPhysics *CS 2952, Spring 2020*

Probed BERT to check if the model understood physics properties of objects in the world, such as "the boy carried the car. Is the boy heavier than the car?" Our experiments showed that BERT is better at predicting the physical properties of concrete concepts (eg. a car) than abstract concepts (eg. an object).

Second Language Acquisition Modeling *CS 2470, Fall 2020*

DeepDuo (2019): Contributed to a self attention architecture to model second language acquisition. Our model showed an improvement of +4.7 to +5.3 points on AUROC over the baseline model in three languages. [Brown CS News].

Wordinator *IEEE / IBM Watson Showcase 2015*

Developed a reverse dictionary to help language learners with "Tip of the Tongue" moments. Trained IBM Watson's Natural Language Classifier with word-meaning labels scraped from the Internet [Article].

Leadership Roles

Head of Operations for TEDxMSRIT 2016. Managed over 100+ volunteers in 4 departments - logistics, design, ticket sales, and social media.

Overall Coordinator for IEEE Women in Engineering (WiE) Chapter in MSRIT 2015. Coordinated with 50+ volunteers across different departments.

Student Representative in the College Sports Committee for Athletics for the years 2015-16, 2016-17. Captain of Athletics team for the year 2016-17. Under my captaincy, the team won the 1st Inter-GEF Annual Athletics Meet.