

Nickil Maveli

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RESEARCH INTERESTS I am broadly interested in Natural Language Processing, Machine Learning, and Information Retrieval. My recent research has focused on multilingual unsupervised syntactic parsing, semi-supervised learning, interpretability and robustness of machine learning algorithms, and understanding social inequality and bias in language.

EDUCATION **The University of Edinburgh**, Scotland, UK **2020–2021**
M.Sc. by Research, Informatics

Research Unit: Institute for Language, Cognition and Computation (ILCC)

Research Area: Unsupervised Parsing, Knowledge Graph Completion

Advisor: Prof. Shay Cohen

CMR Institute of Technology, Bangalore, India **2011–2015**
Bachelor of Engineering in Electronics and Communication
G.P.A.: 7.58/10

PUBLICATIONS Authors who contributed equally are indicated using a superscript ‘dagger’ symbol, i.e. †, while joint (co-) supervision is denoted using a superscript ‘double dagger’, i.e. ‡. All publications, except ‘Preprints’, underwent the peer-review process.

Workshop Publications

W1. EdinburghNLP at WNUT-2020 Task 2: Leveraging Transformers with Generalized Augmentation for Identifying Informativeness in COVID-19 Tweets [PDF]

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Proceedings of the 2020 EMNLP Workshop W-NUT

WORK EXPERIENCE **Niki.ai**, Bangalore, India **May 2018–Sept. 2020**
Senior Software Developer - NLP

- Developed a real-time pause detection algorithm on speech signals to identify end-of-speech conditions, which was later integrated on-device. Up to an SNR of 8 dB, the algorithm was able to correctly segment with an accuracy of 91% on different lengths of speech.
- Designed a probabilistic model capable of generating a binary outcome and intends to classify if an utterance is valid parse or not at every stage in the conversation. Engineered 63 statistical features from parse tree capable of achieving an accuracy of 97% on the holdout test set.
- Developed a bot that could respond to about 75 FAQs in regional languages and English through a Pooled GRU in conjunction with the FastText model. Customer Satisfaction scores increased by 35%, leading to better assistance at every dialogue stage.
- Built a character-level RNN model to classify utterances as ‘Hinglish’ (blend of Hindi and English) words with minimum lexicon support in combination with a dictionary lookup.
- Implemented an algorithm formed on Likelihood and Reliability scores to automatically generate contextual synonyms at n-gram context and augment concept-grammar data to avoid manual intervention.

Sociograph Solutions, Bangalore, India **Sept. 2016–Feb. 2018**
Data Scientist - Research and Development

- Built a deep learning time series model capable of generating weekly/monthly sales forecasts of products at SKU level with only a few thousands of supervised training data.

- Devised a robust machine learning model to predict and optimize various e-commerce metrics like sales conversion rate, customer lifetime value, average order value, shopping cart abandonment rate for retailers that led to 30% decrease in the drop off rate.
- Created an image search engine capable of recommending similar images based on segmentation as a selective search to increase the MAP by 45% compared to the available benchmark.

Hotify.ai, Bangalore, India

Feb. 2016–May 2016

Junior Data Scientist

- Aggregated tweets from pre-selected news sources to estimate trending hashtags.
- Created Actionable Insights by analyzing how select Twitter users through A/B testing react to real-time events by organizing frequencies into temporal buckets to observe the distribution of tweets over time.
- Prepared training data of close to 10K samples by carefully examining RSS feeds of news sources and rated each source using factors such as true reach, amplification, and network impact.

INTERNSHIPS

Google Summer of Code (GSoC), Remote

May 2021–Aug. 2021

Student Developer

Organization: Red Hen Lab

Project: Detecting Joint Meaning Construal by Language and Gesture

TECHNICAL SKILLS

Specialties Natural Language Processing, Machine Learning, Deep Learning, Reinforcement Learning, Recommender Systems, Time-series Forecasting

Languages Python, R, Matlab, Javascript, SQL, HTML/CSS, \LaTeX

Tools and Frameworks Pandas, NumPy, SciPy, Matplotlib, Scikit-Learn, NLTK, Keras, PyTorch, TensorFlow, PySpark, Flask, Django, Docker, Kubernetes, AWS, Jira, Git, Elastic Stack, MongoDB

ACHIEVEMENTS

- Selected to participate in the Lisbon Machine Learning School (LxMLS 2021). 2021
- Secured Top 2% in the Jigsaw Multilingual Toxic Comment Classification Challenge hosted on Kaggle; Won a silver medal. [\[Details\]](#) 2020
- Finished 2nd out of 479 competitors in the Quality Forecasting in Cement Manufacturing Challenge hosted on CrowdAnalytix; Won \$2,500 as prize money; Winner representing India. [\[Details\]](#) 2019
- Secured Top 3% in the Quora Insincere Questions Classification Challenge hosted on Kaggle; Won a silver medal. [\[Details\]](#) 2019
- Represented [niki.ai](#) to volunteer at the NITI Aayog Indic NLP Workshop for tackling challenges in regional languages concerning NLP. [\[Details\]](#) 2018
- Secured Top 0.85% in the Cold Start Energy Forecasting Challenge hosted on DrivenData. [\[Details\]](#) 2018
- Placed 6th out of 2310 competitors in the Predicting Poverty Challenge hosted on DrivenData. [\[Details\]](#) 2018
- Finished 2nd out of 750 competitors in the Predicting How Points End in Tennis Challenge hosted on CrowdAnalytix; Won \$2500 as prize money; [Featured in Tennis Australia's official press release.](#) [\[Details\]](#) [\[Media Coverage\]](#) 2018
- Placed 3rd out of 2975 competitors in the Click Prediction Challenge hosted on AnalyticsVidhya; Awarded a cash prize of ₹25000. [\[Details\]](#) 2017
- Finished 4th out of 404 competitors in the Funding Successful Projects Challenge organized by HackerEarth. [\[Details\]](#) 2017
- Among Top Stack Overflow Users for tags — Python, Pandas, NumPy, Matplotlib with an overall 25000+ reputation score and more than 4 million post views worldwide. [\[Details\]](#) 2016–present

My team was awarded 2nd and 1st place in the Niki Annual Hackathon for the years 2019 and 2020 respectively and won cash prizes. 2019/20

SERVICE

Reviewer:

AmericasNLP 2021

W-NUT@EMNLP (Shared Task 2), Scipy (Tutorials, Talk & Poster Presentations) 2020

Volunteer:

ACL, ICML, NAACL, ICLR, EACL 2021

EMNLP 2020

Respondent:

Semantic Scholar Diary Study project conducted by the Allen Institute for AI 2020

Discussant:

Selected at UAI 2021 to discuss about a Explainability/Fairness related paper 2021

SPOKEN
LANGUAGES

Hindi Native

Malayalam Limited Working

Kannada Limited Working

English Full Professional

REFERENCES

Available upon request.