

# Shivin Thukral

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## EDUCATION

**University of Washington, Seattle, WA**

*Masters of Science in Computational Linguistics (Natural Language Processing)*

Sep 2020 – Jun 2022

GPA: 3.97 / 4.00

Relevant Coursework: Deep Learning for NLP, Statistical Methods for NLP, Machine Learning for Big Data (through Winter), Artificial Intelligence (through Spring)

**Birla Institute of Technology and Science, Pilani, India**

*Bachelors of Engineering (Hons) in Computer Science*

*Masters of Science (Hons) in Mathematics*

Aug 2015 – Jun 2020

GPA: 8.31 / 10.0

Relevant Coursework: Machine Learning, Deep Learning, Artificial Intelligence, Data Mining, Information Retrieval, Data Structures and Algorithms, Database Management Systems, Object Oriented Programming, Probability and Statistics

## WORK EXPERIENCE

**Avnio, Remote**

*Machine Learning Engineer (Consultant)*

Sep 2020 – Sep 2021

- Engineered an XLNet-based model that parses large-scale RFP documents to detect questions with 95% accuracy
- Deployed the Python-based text-classification model into production on a web server using Flask RESTful APIs
- Refined Azure-based model for Semantic Search of a query over knowledge base and reduced error rate by around 80%

**HWSaver LLP, Remote**

*Data Science Intern*

Jun 2020 – Sep 2020

- Deployed a seq2seq model using RNN/LSTMs in PyTorch for solving math word problems in EdTech product
- Model trained on GPUs was able to solve word problems and predicted target equations with over 70% accuracy
- Designed a retrieval model to be used in search engine for querying over questions containing LaTeX formatted text

**Samsung Research Institute, New Delhi, India**

*Software Development Intern (Speech Processing)*

Jan 2020 – Jun 2020

- Worked on development of robust Automatic Speech Verification (ASV) systems for commercial deployment
- Implemented deep learning frameworks (ANNs/RNNs) to develop countermeasures in Python reaching an EER of 5%

**Institute for Natural Language Processing, University of Stuttgart, Stuttgart, Germany**

*NLP Research Intern*

Jul 2019 – Dec 2019

- Explored the presence of cultural information in multilingual BERT word embeddings using t-SNE and linear regression
- Collected and analyzed over 8000 data points via crowdsourcing in multiple languages for modeling culture-specific data

## PUBLICATIONS & RESEARCH PROJECTS

**Multilingual Unsupervised Sequence Segmentation transfers to Extremely Low-resource Languages**, pre-print (under review)

C.M. Downey, Shannon Drizin\*, Levon Haroutunian\*, **Shivin Thukral\***

Oct 2021

- Analyzed the segmentation performance of a pre-trained multilingual SLM when transferred to a low-resource language
- Multilingual model achieves zero-shot segmentation of 20.6 F1 on low-resource target and beats monolingual baseline

**Probing Language Models for Understanding of Temporal Expressions**, BlackboxNLP (EMNLP 2021)

**Shivin Thukral**, Kunal Kukreja, Christian Kavouras

Sep 2021

- Conducted probing experiments on attention-based transformer models (RoBERTa, BERT) using NLI datasets
- Presented three datasets testing different temporal properties that display gaps in temporal understanding of NLI models

**Detection of Malicious Android Applications: Classical Machine Learning vs. Deep Neural Network Integrated with Clustering**, Broadband Communications, Networks, and Systems 2020 (Springer International Publishing)

Hemant Rathore, Sanjay K. Sahay, **Shivin Thukral**, Mohit Sewak

Feb 2021

- Performed unsupervised data exploration, feature extraction, and clustering techniques for analysis of opcodes dataset
- Modeled supervised machine learning methods (random forests) and deep neural networks achieving up to 95% accuracy

## SKILLS & OTHERS

**Programming:** Proficient in Python, C++ and SQL, Familiar with Java and JavaScript.

**Libraries:** huggingface, PyTorch, TensorFlow, Keras, pandas, NumPy, scikit learn, NLTK, SpaCy

**Tools:** Latex, Git, Linux Shell, Jupyter, Excel

**Certifications:** Natural Language Processing Specialization (DeepLearning.AI), CUDA and Deep Learning Training (NVIDIA)

## LEADERSHIP & HONORS

- Acted as the Infrastructure Head for college events, leading over 60 members in setting up light/sound infrastructure
- Awarded the INSPIRE scholarship for being the top 1% scorer in ISC examination among 70,000 students