

# Peter Zukerman

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## EXPERIENCE

### Natural Language Processing Scientist

Since Dec. 2021

*Infosciterx Corporation*

*Dayton, OH*

- Designed and implemented an efficient end-to-end speech-to-text (STT) to NER pipeline that streamlined the transcription and entity recognition process
- Fine-tuned Whisper, Wav2Vec, and Google Speech-to-Text models for a specific English domain, resulting in improved performance and increased domain-specific accuracy
- Bootstrapped statistical methods to enhance the accuracy and robustness of the NER component

### Software Developer

June 2021 - Dec. 2021

*Spotify (Findaway)*

*Solon, OH*

- Extended Voices Marketplace API in AWS
- Implemented backend infrastructure using Python and Django
- Troubleshoot AWS usage errors and monitored user influx to load balancer

### Natural Language Processing Intern

June 2020 - Aug. 2020

*Raytheon BBN*

*Cambridge, MA*

- Developed an AI visualization metric, enhancing detection by 83%
- Pioneered a sorting algorithm, boosting accuracy by a factor of 2.6 with no efficiency loss
- Designed logic for data models, increasing data collation and improving visualization

### Speech Processing Intern

May 2019 - Sept. 2019

*VoiceIt LTD.*

*Tel Aviv, Israel*

- Integrated VoiceIt backend infrastructure with Amazon Alexa
- Introduced a low-resource data augmentation paradigm, improving speech recognition by 24%
- Expanded parselmouth library, optimizing Praat's usage for machine learning in Python

## RESEARCH AND PUBLICATIONS

### Targeted Multilingual Models | *University of Washington*

Since Nov. 2022

- Co-authoring a paper on targeted multilingual models that cover a family of languages or several families in a close geographic relationship
- Positing that usually there is no need to use a "cross-lingual" or "massively multilingual" model for any given end task, since many languages and their associated vocabulary/parameters will be left unused

### BERT Verb Alternations | *University of Washington*

Mar. 2022 - June 2022

- Co-authored a paper on verb alternation classes and understanding using BERT. Accepted to BlackBoxNLP '22.
- Generated verb alternation sentence corpus, FAVA-ex, to augment existing FAVA and LaVA corpuses

### Natural Language Processing | *University of Illinois at Urbana-Champaign*

Jan. 2019 - June 2021

- Co-authored paper on adversarial speech synthesis
- Improved a morphological analyzer for the Siberian Yupik language with Prof. Lane Schwartz
- Wrote a Yupik E-Book parser, now in active use in St. Lawrence Island community
- IYIL 2019 Paper on initiating a tool-building infrastructure the Yupik community - Fort Wayne, IN
- Presented at CodeMash 2019 on Unicode, UTF-8, and foreign languages

## EDUCATION

### University of Washington

Seattle, WA

*Master of Science in Computational Linguistics*

*Sep. 2021 - May 2023*

### University of Illinois at Urbana-Champaign

Champaign, IL

*Bachelor of Science in Computer Science and Linguistics*

*Aug. 2017 - May 2021*

## TECHNICAL SKILLS

**Programming Languages:** Python, Java, C/C++, JavaScript, HTML/CSS, Ruby, R

**Developer Tools:** Git, Docker, Linux, Google Cloud Natural Language, AWS

**Libraries:** pandas, Sci-Py, NumPy, Matplotlib, NLTK, carmel, Tensorflow, PyTorch

**Foreign Languages:** Russian (Fluent), Japanese (Business Proficiency), Korean, Hebrew and Spanish (Conversant)