Zetian (Neal) Wu

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EDUCATION

Johns Hopkins University   MD, United States
MSE in Data Science   *Jan. 2020 – present*

Zhejiang University   Zhejiang, China
BS in Physics | Minor in Finance   *Sept. 2015 – Jun. 2019*

RESEARCH EXPERIENCE

Research Assistant   Apr. 2020 – present
Center for Language and Speech Processing   *Johns Hopkins University, United States*

Benchmark on Multimodal Fusion Tasks *(Draft for NeurIPS 2021)*

What is the Fact of Shapley Value for NLP Models? *(Draft for EMNLP 2021 Short Paper)*

Scoring Lexicon for Sentimental Analysis by Interpreting NLP Models *(Draft for EMNLP 2021)*

Span Identification and Representation for Information Extraction
- Formulated entity mention detection problem under partially annotated datasets as a span ranking task, where a dedicated ranking loss is enforced to rank gold spans higher while not fully ablating unlabelled spans.
- Built an LSTM-based model to detect spans by conditioning on given spans, supporting extraction tasks such as event extraction.
- Investigated taking the SpanBERT-based coreference model as span proposal model to detect entity mentions, achieving recall above 0.9 and F1 score above 0.8 when finetuned with only a few training examples.

Research Assistant   Apr. 2018 – Aug. 2019
Intelligent Computing & System Lab   *Zhejiang University, China*

Anti-fraud Model for New Financial Leasing Services
- Constructed two kinds of features: one is obtained from Bipartite Graph as statistical features and the other is extracted from Unipartite Graph using DeepWalk model as node embeddings.
- Built supervised learning model (DeepFM) using Baidu's PaddlePaddle framework, increasing the anti-fraud ability of the new financial leasing services by 6% on AUC

Interactive Rare-Category-of-Interest Mining from Large Datasets *(AAAI 2020)*
- Built a web crawler for data collecting and a CNN-based feature extractor to construct a real audio dataset (Birdcall) along with a numerical dataset (Medicine) for performance evaluation.
- Implemented a Rare Category Detection (RCD) model using a combined method of offline phase inference and high-level knowledge abstractions, reducing the time complexity of query answering from quadratic to logarithmic.
- Implemented a Rare Category Exploration (RCE) model using a collaborative-reconstruction based approach, and compared our model with baseline algorithms including kNN, Interleave, NNDM, Clover, and FRANK, resulting in at least 11.75% improvement in accuracy.

WORK EXPERIENCE

Algorithm Engineer   Aug. 2019 – Mar. 2020
Hangzhou Enjoymusic Technology Co. Ltd.   *China*
- Built a sequence-to-sequence model for music style transferring using TransformerXL and Discriminator.
- Formulated automatic music piece generation problem as a conditional sequence generation task that decodes MIDI sequence from drum beats, and modelled with VAE architecture.
- Refactored Typescript Midi-me(https://magenta.tensorflow.org/midi-me) codes using Python for integration with our own platform and application.

SKILLS AND ADDITIONAL INFORMATION

Programming/Framework: Python, PyTorch, TensorFlow, AllenNLP, Linux, C/C++, MATLAB, R, SQL
Awards: Top Prize in China Collegiate Computing Contest-AI Innovation Contest, Honorable Award in COMAP
Honors: Outstanding Cadre of Communist Youth League of China, 2nd Level in Training Plan of the National Basic Subject Top-notch Talent Scholarship