

Artificial Intelligence Research & Development Scientist

CAREER SUMMARY

- AI systems engineer and technologist with demonstrated success creating, planning, and implementing innovative, state-of-the-art machine learning solutions across Industry, Government, Military, and Academia.

AREAS OF SPECIALIZATION

- Natural Language Processing (NLP)
- Human Computer Interaction (HCI)
- Automated Machine Learning (AutoML)
- Machine Learning
- Research and Development
- Public Speaking and Presentation

TECHNICAL PROFICIENCIES

Languages: Python, C, JavaScript, UNIX Shell Scripting (BASH)

NLP: Word embedding (Word2Vec, fasttext, GloVe, ELMo), Sentence Embedding (InferSent, SentEval, SkipThought), Transformer Language Models (BERT, GPT,), Automated Text Summarization , Neural Text Simplification, feature engineering and dimensionality reduction, text and entity mining, sentiment analysis, multi-class and multi-label classification, paraphrase detection, semantic textual similarity and relatedness, Question Answering, Natural Language Inference, Event Discovery, fine-grained document classification, topic modeling

Artificial Intelligence: Deep learning in Keras & PyTorch, Recommendation & personalization systems, artificial neural networks (including CNN, MLP, HMM, LSTM, FF, RNN, GRU, SVM), Automated Machine Learning AutoML (AutoKeras, Auto Sklearn, self-developed frameworks), classical Machine learning (scikit-learn)

Open source libraries and toolkits: NumPy, SciPy, NLTK, AllenNLP, spaCy, REST APIs, Gensim, Pandas, HuggingFace transformers, etc.

Platforms: Scientific & cloud computing (Keras, PyTorch, IPython / Jupyter, Google Colab), Linux (Ubuntu), Windows, Mac OS

Education

BACHELOR OF SCIENCE | UNIVERSITY OF CHICAGO | JUNE 2020

- Computer Science, Specialization: Human Computer Interaction (HCI), focus Neuroscience
- Odyssey Scholar, Dean's List
- *Advanced Courses:* Networks & Distributed Systems, Machine Learning and Cancer, Computational Linguistics, Computer Architecture, Data Visualization, Disability & Design, Human Computer Interaction Engineering, Inventing, Engineering, and Understanding Interactive Devices, Theory Sequence (Discrete Mathematics, Theory of Algorithms, Formal Languages), Neuroscience of Communication, Neurobiology of Stress, Psycholinguistics, Social Neuroscience, Psychoanalysis

Experience

MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT) LINCOLN LABORATORY | Lexington, MA

Artificial Intelligence Research Intern | June 2019 – September 2019

- Created a novel framework to enable flexible and robust Automated Machine Learning on raw text data
- Achieved state-of-the-art performance on prolific downstream NLP tasks
- Outperformed current AutoML benchmarks while overcoming restrictive memory and structural limits
- Personally presented research to organizational group and broader laboratory community
- Expanding project to create meta learner for text embedding and universal language models
- Patent pending

TOYOTA TECHNOLOGICAL INSTITUTE AT CHICAGO (TTIC) | Chicago, IL

Undergraduate Researcher, Liew Family Research Fellow | September 2018 – June 2019

- Demonstrated that, when applied to the summarization of long-form scientific articles, LexRank, an unsupervised, non-neural, extractive baseline, with original TF-IDF-based similarity scores outperforms state-of-the-art neural methods
- Introduced a novel method text summarization method augmenting LexRank with BERT
- Co-authored a conference paper and poster
- Received fellowship grant for project developing a novel adaptive system for summarizing and simplifying complex texts according to literacy level and user-specific needs

INTEL CORPORATION, SAFFRON ARTIFICIAL INTELLIGENCE | Santa Clara, CA

Software Engineering Intern | June 2018 – August 2018

- Engineered a novel tool for building word vectors in domain-specific vocabularies (e.g. medicine, Information Technology, etc.), using state-of-the-art embedding techniques (Gensim + Word2vec, fasttext)
- Built an interactive visualization aid to explore spatial maps of concept connections learned from data using t-distributed Stochastic Neighbor Embedding
- Re-designed and implemented an event discovery pipeline on Issue-Resolution Data, substantially boosting entity-to-entity match detection accuracy by 20% from prior implementations
- Delivered Skype presentation to corporate audience of clientele across multiple continents

CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC) | Atlanta, GA

Scientific Editorial Assistant | June 2017 – August 2017

- Co-authored publication: *National Amyotrophic Lateral Sclerosis (ALS) Registry Impact, Challenges, and Future Directions*, Publication is currently in the top 5% of all cited Research outputs on Altmetric
- Reviewed epidemiological articles for publication in Morbidity and Mortality Weekly Report (MMWR)
- Assisted top medical officials with peer reviews of high profile medical journals

Machine Learning Engineer & Data Science Specialist | June 2017 – August 2017

- Developed a machine learning pipeline to automate selection of "Top Articles" for CDC weekly Science Clips, accounting for population impact and translation potential, media interest, relevance to CDC Winnable Battles and Strategic Priorities, and balance of topics
- Presented finished project to senior medical officials, librarians, and technical staff
- Collaborated with Microsoft Azure federal accounts to host service on cloud

Leadership & Community Service

COMPILEHER COMMUNICATIONS DIRECTOR | October 2016 -- Present

- Introduced middle school girls to computer science concepts in fun, interactive workshops, field trips, hackathons, and capstone events
- Acknowledged by the Obama Foundation
- Lead outreach operations to promote accessibility to girls in lower income neighborhoods in Chicago

Awards & Publications

RESEARCH AWARDS

- **Intel International Science and Engineering Fair (2016):** 1st place regional winner; 2nd place international winner
- Synaptics Special Award for the Innovative use of Human-Computer Interaction
- American Psychological Association (APA) Award for Achievement in Research in Behavior and the Psychological Sciences
- Intel Science Talent Search Research Report Award (2016)
- Liew Family Fellowship Grant for Undergraduate Research in Computer Science (2018)
- Future of Wireless 6-G Award

ACADEMIC AWARDS

- President's Award for Educational Excellence and Outstanding Academic Achievement – President Barack Obama (2016)
- University of Chicago Odyssey Scholarship (2016-2020)
- Dean's List University of Chicago (2016—Ongoing)
- National Merit Commended Scholar (2015)
- Merit-based grant to attend Grace Hopper Celebration of Women in Computing (2018)
- Kimpton Fellowship (2020)

PUBLICATIONS

- CDC Grand Rounds: National Amyotrophic Lateral Sclerosis (ALS) Registry Impact, Challenge, and Future Direction. MMWR Vol. 66 No. 50. (2017)
- Going for The Goal: The Effects of Removing Preparatory Information on The Fast and Unconscious Reading of Action Goals in a Computer-Simulated Competitive Interaction. *Scientia* Winter 2017: 33-42 (2017)
- Outperforming Long-form Neural Abstractive Summarizers with Simple Unsupervised Baselines. Midwest Speech and Language Day Conference (2019)

TEACHING EXPERIENCE

- *Automated Machine Learning (AutoML): What it is, How to Use it, and Where it's Going*; Workshop; October 24, 2019

PROJECTS

- Professional, academic, and personal projects and research presentations available upon request.