

Jacob Fuehne

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EDUCATION

University of Illinois at Urbana-Champaign

May 2021

Bachelor of Science in Computer Science and Linguistics

GPA: 3.77/4.00

- Won 1st place in 2019 Mechmania AI hackathon
- Relevant Coursework: Algorithms, Artificial Intelligence, Applied Machine Learning, Audio Computing Lab, Computational Linguistics, Computer Architecture, Computer Systems, Corpus Linguistics, Data Structures, Statistics, Programming Languages and Compilers

Southwestern Illinois College

May 2018

Associate in Science

GPA: 3.87/4.00

SKILLS

Languages: C#, C++, CSS, FOMA, HTML, Haskell, JSON, Java, JavaScript, LaTeX, LexC, Python, R, Verilog, XML

Libraries: Keras, Matplotlib, NLTK, NumPy, OpenCV, Pandas, PyTorch, Scikit, TensorFlow, Weka

Skills: Agile development, Data Mining, Docker, Finite State Machines, Git, Linux, Neural Networks, NLP, Parsing, Regex, RESTful APIs, Robotic Process Automation (RPA), Sentiment Analysis, Spintax, SQL, Text Analytics, Tokenization, Topic modelling, Unit testing, and more

EXPERIENCE

Solid Security

Champaign, IL

NLP researcher

October 2019 – April 2020

- Developed a program in Java to generate and index idiomatic permutations of a document through a custom Spintax ruleset, then discover the source of a leaker via semantic distance algorithms, syntactic differences, statistics, and repeated exposure
- Researched and tested effectiveness between various algorithms in literature survey such as Hamming Distance, Levenshtein Detailed Distance, word2vec skip-gram, character n-grams, and more
- Wrote preprint papers and reviewed current literature on paraphrase detection and generation for text (available upon request)

AbbVie Inc.

Champaign, IL

Software Engineer Intern

April 2019 – August 2019

- Worked with an Agile team of interns and a mentor to automate document processing for clinical drug trials, allowing pharmaceutical researchers to reallocate more than \$200,000 in salary hours for doing research, rather than reviewing documents
- Conducted interviews with researchers and business directors at AbbVie HQ to analyze problem in beginning of internship, and to present results of bot at the end in front of a crowd of 50 executives and researchers
- Implemented image recognition, machine learning, and statistical techniques in Python utilizing OpenCV, Matplotlib, NumPy, and other libraries to recognize and parse handwritten text in different formats
- Tested accuracies of various approaches to differentiating between intentional marks and bad scans, eventually deciding on Scipy stats to compare against a blank document copy and employing a histogram to determine statistical significance

Southwestern Illinois College

Belleville, IL

Programming and Mathematics Tutor

August 2017 – May 2018

- Mentored students from various backgrounds in Java programming fundamentals along with Math courses up to Multivariable Calculus
- Learned and refreshed on concepts on the job regularly in order to handle any question within a timely manner, quickly determining how to solve and explain problems from unfamiliar or rusty concepts while also managing other students
- Received International CRLA Level 1 Tutoring Certification, certifying competency in subject area and interpersonal communication skills

Fresh Pear Design

Breese, IL

Lead Web Developer

July 2014 – September 2014

- Implemented responsive cross-platform websites in Adobe Dreamweaver using artwork from the design team
- Coordinated other web developers as lead while communicating with the design team to reach customer deadlines

PROJECT HIGHLIGHTS

Language Learning and Text Analysis app

December 2020 – Present

- Analyzing and combining conversation histories in various data formats (XML, JSON, txt) to perform data mining on one's own data
- Visualizing term frequency, LDA topic modelling, and more to assist language learning, as well as novel linguistic analysis

Educational Software

May 2017 – July 2017

- Consulted with the SWIC Math Department head to develop Java based GUI for Regional Math Tournaments hosted by SWIC
- Independently planned and accomplished client's design criteria, with regular updates to the client and self-regulated milestones

RESEARCH

A Review of the Unified Corpus and a Methodology for Improvement on Generalizable Emotion Detection

1st author, Preprint

December 2020

Solid Spintax Spinner: Method for Generating Permutations of a Spintax

2nd author, Blue paper

March 2020

Solid Spintax Standard: Efficient and Scalable Deterministic Method for Specifying Indexable String Permutations

2nd author, Blue paper

March 2020

Systems Enabling the Use of Natural Language Processing Methods for Software-Based Leak Detection, Prevention, and Mitigation

2nd author, Proposal paper

February 2020