

SUMMARY:

- » 1 year's experience in cutting-edge deep learning research for document processing
 - » Accelerated automated indexing, zoning/segmentation, and recognition of handwriting
 - » Design of machine learning processes for automated transcription of handwritten characters
 - » Our group was pioneering a Deep Neural Network approach to handwriting recognition built on **Kaldi**
- » 9+ years' experience in computational research and software design
- » 2 years' experience in teaching at the post-secondary level
- » At least 6 months' work in each of the following roles:
 - » Simulation of physical processes to compare with particle-collision data || 22 publications.
 - » Programming of the underlying shape-detection algorithms for Asian-language transcriptions

My research experience in computational analysis, data curation, data annotation, and mathematical modeling has prepared me to bring innovative approaches to solving software-based problems which arise in using machine learning to improve speech recognition. Further insight comes from my experiences volunteering with the hearing impaired community as well as from my use of speech-to-text software as a family-history tool.

SKILLS:

Machine Learning	Technical Writing	Sign Language (French/English)
English (native)	Creativity/Initiative	Linguistics
French, Spanish (fluent)	Training/Teaching	Python, Java, C++
Communication	Shell Scripting	Weka, Perl/PHP, HTML
		Mathematica, JavaScript, pSQL
		Cygwin and Linux

WORK EXPERIENCE

Data Analyst, Contingent (July 2016-July 2017)

FamilySearch (Salt Lake City, UT)

Found, prepared, and analyzed records and their annotations for the Advanced Research Team. I also discussed and developed algorithms and analyzed data patterns with the research team.

- » **Data Curation** || Reviewing and selecting data for collections, particularly a corpus of ~20k documents in 12 languages that cover patron demand || Quickly finding various data for unforeseen research needs
- » **Data Annotation** || Creating data sets, especially ground-truth data, for machine learning algorithms || Writing computer programs that allow volunteers to transcribe documents and split up images
- » **Software Design** || for image classification (Java) || for segmentation of document images and segment classification (Java) || for various encoding, validation, and completion testing (various languages)
- » **Software Evaluation** || Personally wrote code to incorporate a vendor's Asian-Language OCR (Optical Character Recognition) API || Scored performance using the speech recognition evaluation software, **sclite**.

Graduate Research Assistant (September 2010-October 2013)

UC Riverside Physics Department

- » Researched at Brookhaven National Laboratory, developing computer simulations, analyzing data from particle collisions. Statistical analysis, pattern-matching, and signal processing (C++).
- » Oversaw data flow and real-time data quality assurance for terabytes of collision-geometry data daily.

Work with the Hearing Impaired

- » Taught myself French Sign Language (LSF) in order to volunteer with a hearing impaired community's social programs near Paris. I continued to use this knowledge during my two-year stay in France.
- » One semester of Conversational American Sign Language during my undergraduate studies.
- » During a temporary job, I used the knowledge I'd gained to communicate with a group of about ten deaf friends, whom I met working there. I was able to simplify communication between the workers and the management.

EDUCATION:

- » (Applied for Fall 2018) **Master of Science, Computer Science**, *Computer Vision Focus*, BYU
- » **Master of Science, Physics**, University of California at Riverside, 2012
- » **Bachelor of Science, Physics**, Brigham Young University, 2010; Minors: **French, Mathematics**