Josiah Witt

Software Engineer

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"If at first you don't succeed, call it version 1.0"

Skills Summary

- Experience with *Scala*, *OCaml*, and the functional programming paradigm
- Significant experience building web apps with *Elm-Lang*
- Extensive experience with *Python* and basic web development with the *Django* framework
- Prior experience with *Java*, *C++*, and *C#*
- Basic experience with *Objective-C* and *iOS* dev
- Experience with *Git* and *SVN* source control
- Well acquainted with *ReactJS* and *Redux* for building web apps
- Experience doing data analysis with *R* and other tools including *MATLAB*
- Experience with *Postgres*, *MySQL*, *ElasticSearch* and *MongoDB* database systems
- Familiar with *SciPy*, *NLTK*, *Apache Spark*, and *Hadoop*
- Experience with *Linux*, *OS X*, and *Windows*

Professional Skills

- Comfortable handling significant responsibilities and producing results in a timely manner
- Effective at communicating ideas and learning from interactions with software users
- Strong teamwork skills forged in the fires of late night hackathons with friends and colleagues

Work Experience

October 2016 - Present — **Software Engineer**, *Layer 6 AI*, Toronto, Ontario.
- Part of the team responsible for setup and design of platform infrastructure
- Contributed to algorithms used in the 2017 RecSys Challenge winning submission
- Built entire customer dashboard, with Elm-Lang, to visualize data and provide actionable insights

July - October 2016 — **Software Engineer**, *Milq Inc.*, Toronto, Ontario.
- Helped to re-imagine and redesign the Milq platform
- Rewrote the Milq web application using ReactJS and Redux
- Built web app which live streams questions and answers for use on large screens at venues

Fall 2015 — **Software Engineer**, *Tamr Inc.*, Cambridge, Massachusetts.
- Used Apache Lucene tokenization to improve recall for data deduplication algorithms
- Built web application to help users review models and determine if they fit the data correctly

Winter 2015 — **Software Engineering Intern**, *Esper Technologies*, Redwood City, California.
- Implemented performance-boosting and time-saving tools for remote executive assistants including:
- Designed and built a daily agenda digest for executives to keep them informed on their daily schedule as well as the progress of all of their scheduling tasks
- Made several user experience improvements to the tool used by all of the executive assistants daily

Spring 2014 — **Full-Stack Developer**, *Wriber Inc.*, Kitchener, Ontario.
- Interfaced software with Carrot^2 document clustering engine to group search engine results and provide insights more relevant to a users current topic
- Used the Python NLTK and other parsers to improve the sentence structure recognition
- Designed custom revision suggestions to help users write quality engaging content for their target market

Fall 2013 — **Software Engineering Student**, *exactEarth Ltd.*, Cambridge, Ontario.
- Refactored a very large software project which optimizes satellite recording periods as well as scheduling of downlinks to ground stations based on priority
- Used object-oriented design principles to reduce code duplication, increase maintainability and readability
- Worked with project manager to design the software to simplify and work well with future extensions to the project as well as integrate well with other related software tools

Personal Projects

RoadQuality, *Web Application*, https://roadquality.org.

- Web application for crowd-sourcing road quality data
- Elm-Lang front-end and Mapbox GL JS mapping library
- Scala Play back-end and t-rex tile server for custom rating tiles

Trifecta, *Web Application*, https://github.com/trifectalabs/trifecta.

- Training assistant for runners, cyclists and swimmers
- Import activities from activity tracking services, such as Strava, to determine fitness level and create tailor-made training plans
- Connect to calendars and schedule training plans at convenient times which also optimize the effectiveness of your training
- Build routes for running and cycling activities so you know exactly where to go to hit your goals

Glicko2Scala, *Scala library*, https://github.com/wittjosiah/glicko2-scala.

- Scala library which implements the Glicko2 rating system designed by Mark Glickman
- Used in Trifecta to rank users based on outcomes of matches with their peers

Laser Harp, *Arduino project*, https://github.com/wittjosiah/LaserHarp.

- Photocells detect when the beam of a laser is interrupted causing a note to be played
- Signal generated by interrupting the laser beam is converted into a MIDI signal which can be used with audio software to create music
- Infrared sensors determine the pitch of the note by sensing the distance of the beam interuption allowing the player to bend the pitch of notes by moving their hand up and down

Education

2013–Present **Certificate of Completion**, *Coursera*, World Wide Web.

- Relevant Courses (Click http://bit.ly/JWittCerts)
  - **Machine Learning:** Learned broad strokes of machine learning including: supervised learning (regression, SVMs, neural networks) and unsupervised learning (clustering, dimensionality reduction, recommendation systems).
  - **Functional Programming Principles in Scala:** Learned the cornerstones of functional programming, immutable objects, type safety and pattern matching.
  - **Exploratory Data Analysis:** Learned techniques for summarizing and modelling data in R to help make informed development decisions.
  - **Statistical Inference:** Learned fundamentals of statistical inference and drawing conclusions based on scientific truths from data.

2011–2016 **Bachelor of Applied Science**, *University of Waterloo*, Waterloo, Ontario.

- University of Waterloo Entrance Scholarship
- Relevant Courses
  - **ECE 457A Cooperative and Adaptive Algorithms:** Studied and implemented search algorithms, meta-heuristics, swarm intelligence, evolutionary computing and genetic algorithms.
  - **ECE 454 Distributed Computing:** Studied and built architectures, concurrency, synchronization, distributed algorithms, dependable distributed systems and fault tolerance.
  - **ECE 406 Algorithm Design and Analysis:** Studied the design and analysis of efficient, correct algorithms, advanced data structures, dynamic programming, approximation and randomized algorithms, and graph algorithms.
  - **ECE 356 Database Systems:** Studied various database models, system architectures and query languages. Designed and implemented a database system for hospital staff and patients.
  - **ECE 351 Compilers:** Studied lexical analysis, parsing, context-free grammars, finite automata, and other basic concepts used to construct compilers. Implemented a parser for a subset of the hardware desciption language, VHDL.

Volunteering & Activities

- Regularly ride in the Ride for Refuge raising money for charities who serve the displaced, vulnerable, and exploited across Canada and globally
- Played Volleyball and Ultimate frisbee throughout highschool and university including participating in class intramurals