Tobin Yehle

Experience

2017-Now **3M HIS Data Science Lab – Software Developer**

Medical Record Parsing – Built a scalable tool for medical record extraction and transformation using Scala and Spark. The tool uses functional programming techniques to ensure distributed failures are handled properly. The tool allowed the data science lab access to production data for training models for the first time.

Predictive Model Deployment – Designed the first deployment of a machine learning model from the data science lab. Requests are served using an AWS lambda function written in Python and a model in S3.

2018-Now **U of U Department of Education – Freelance Software Developer**

Built a web app for online therapy allowing better teaching tools and faster responses for patients.

2018 **Recurse Center – Self directed programming retreat**

Compiler using LLVM – Built a compiler in Haskell using LLVM that compiles a non-trivial language to x86. The compiler implements closure conversion without garbage collection and converts all expressions to SSA.

2011-2016 **University of Utah – Student & Research Assistant**

Parsing with Derivatives – Senior thesis research under Dr. Vivek Srikumar to extended the derivative parsing algorithm to English. The derivative parser is left to right, producing a savable state after parsing each token. This state can then be loaded from a cache if a matching sentence prefix is seen in the future for increased performance on large datasets.

Python Compiler – Project for a compilers class written in Racket to lex and parse all of Python 3. It implements two desugaring passes, eliminating most syntactic constructs. The resulting IR needed one more desugaring pass before code generation in assembly language.

Clustering of Suicide Cases – Project with the Department of Psychiatry at U of U to find familial groups in suicide cases. These groups can be used to find demographic or diagnostic attributes and possibly genetic attributes related to suicide. I used network clustering algorithms to find familial groups with some diagnostic abnormalities. The research group is using the clusters for further analysis.

2014 **Florida Institute of Technology – Research Assistant**

Spatial Structure of Crime – NSF funded program hosted by FIT where I used complex networks on police data to uncover structure in the timing and location events. We built networks with links between spacial or temporally close events, and used network clustering algorithms to find interesting regions, and allow new types of visualizations. There are two publications for this work, [White et al., Social Informatics, 2015] and [Oliveira et al., Complex Networks VI, 2015].

2012-2014 **Fusion-io – Software Developer**

Build and QA automation. Contributed to a refactor of the test infrastructure.

Open Souce Contributions

Three patches to mypy, the Python type checker. Two merged, one in review.
Type annotations for a Python package emulating Rust's `Result<T, E>` structure

Other Projects

Compiler targeting the λ-calculus
Sherlock, a question answering system
AIs for dominion, sudoku, wumpus world, etc.
Sheet-music optical character recognition
Genetic algorithm convergence project
Physical simulations of charged particles and dynamical friction
More on github and bitbucket

Education

2011 – 2016 **University of Utah – Honors BS Computer Science**

Magna cum Laude
Undergrad Research Scholar
Minors in Music & Astronomy

Interests

Programming Functional Programming, Compilers, Distributed Systems, Machine Learning

Other Trumpeting, Climbing, Pottery, Skiing, Biking, Hiking

tyehle
tobinyehle
tobinyehle@gmail.com
tobin.yehle.us