NICOLAS BERTAGNOLLI

[redacted] ◆ [redacted] ◆ [redacted] ◆ [redacted] ◆ nbertagnolli.com

OBJECTIVE

My goal is to learn as much as I can and do meaningful work.

EDUCATION

University of Utah May 2016
Masters in Computer Science; GPA 3.77/4.0
- Coursework: Advanced Algorithms, Scientific Visualization, Structured Prediction, Clustering, Data Mining, Convex Optimization

University of Utah May 2014
Bachelor of Science in Mathematics with a minor in Biomedical Engineering; GPA: 3.7/4.0
- Coursework: Machine Learning, Probabilistic Graphical Models, Digital Circuits, Genomic Signal Processing, Modern Algebra, Real Analysis, Numerical Analysis, Probability Theory

SKILLS

Programming
- Scala, Java, Processing, C

Additional Software/Hardware
- Python, R, Matlab, Mathematica, Maple, Tableau, Arduino, Verilog, SQL, LaTeX, UNIX, Version Control (git, mercurial)

Lean Startup
- Started a small tech company focused on addressing known issues in swim coaching
- Designed, built, and iterated potential technology with customers using hypothesis driven product development

Miscellaneous
- Strong communication and technical writing
- Avid skier, mountain biker, climber, martial artist, and flautist

WORK EXPERIENCE

University of Utah – Salt Lake City, Utah Aug 2014-Present
Graduate Research Assistant
- Design algorithms for learning distributed representations of general structures
- Rigorously prove relationships between known algorithms and leverage these results to create new methods in natural language processing and machine learning

University of Utah – Salt Lake City, Utah Aug 2011-May 2014
Research Assistant Genomic Signal Processing Lab
- Studied mathematical and computational techniques for the analysis of high throughput genetic assays
- Developed algorithms for the discovery of novel biological phenomena from data using matrix factorizations
- Created software to simultaneously extract meaningful patterns from metabolic and transcriptomic data using SVD

TEACHING EXPERIENCE

Rowland Hall High School, Substitute Teacher
- Taught math and science classes to high school students when needed

University of Utah School of Computing, Teaching Assistant
- Provided supplemental instruction and wrote homework for the graduate and undergraduate machine learning course

PROJECTS

Facial Recognition & Classification
- Implemented a facial recognition system in Matlab using singular value decomposition

Swim Tracker
- Designed arduino based swim tracker capable of measuring stroke count and lap time to millisecond accuracy, submitting this data to a coach in real time over RF, and handling disrupted communication due to water

Transfer Function Visualization Tool
- Designed a user friendly tool to create meaningful transfer function visualizations of complex physical data in Processing

X-Ray Leach Depth Analysis Tool
- Designed an image analysis system to find the cobalt leach depth in synthetic diamond based on X-Ray images

PUBLICATIONS

- J. M. Tennessen**, N. M. Bertagnolli**, L. Evans, M.H. Sieber, J. Cox and C. S. Thummel (2014) "*Drosophila Embryogenesis and the onset of aerobic glycolysis*," G3: Genes, Genomes, Genetics 4(5): 839-850.
- **N. M. Bertagnolli**, J. A. Drake, J. M. Tennessen and O. Alter (2013) "*SVD Identifies Transcript Length Distribution Functions from DNA Microarray Data and Reveals Evolutionary Forces Globally Affecting GBM Metabolism*," *PLoS ONE* 8(11): e78913