# Nicolas Maxwell Bertagnolli

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## Education

- **University of Utah** — Salt Lake City, UT
  *PhD in Computing, Data Management and Analysis Track; GPA:3.7* — *Expected May 2018*
  - Key Courses: Advanced Algorithms, Scientific Visualization, Structured Prediction, Clustering, Data Mining, Convex Optimization
- **University of Utah** — Salt Lake City, UT
  *Bachelor of Science in Mathematics; GPA:3.7* — *Aug. 2010 – May 2014*
  - Minor in Biomedical Engineering
  - Key Courses: Machine Learning, Probabilistic Graphical Models, Genomic Signal Processing, Modern Algebra, Real Analysis, Numerical Analysis, Probability Theory

## Experience

- **Learning Lab** — Salt Lake City, UT
  *Graduate Research Assistant* — *Aug. 2014 – Present*
  - Create 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
- **Rowland Hall St. Mark's** — Salt Lake City, UT
  *Substitute Teacher* — *Jan. 2014 – Present*
  - Teach math and other sciences to high school students when needed
- **Alter Lab** — Salt Lake City, UT
  *Undergraduate Research Fellow, Department of Bioengineering* — *Oct. 2011 – May 2014*
  - 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 and tensor factorizations
  - Created software to simultaneously extract meaningful patterns from metabolic and transcriptomic data using SVD

## 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.

## Class Projects

**Facial Recognition:** Worked in a team of four to create a facial recognition and classification system.

**GPS Model** Worked in a team of three to model gps communications between a vehicle, satellites, and a receiver.

**Cytoskeleton Analysis** Worked in a team of four to create a tool for biologists to measure and visualize cytoskeletal dynamics

## Programming Experience

**Proficient** Scala, Python, Matlab, Mathematica

**Familiar** Java, R, Processing, C++, Verilog