Nicolas Bertagnolli

Learning Lab, University of Utah,
11762 Whatta View Place, Riverton, UT 84065
(801) 913-1985 (phone) | bertagno@cs.utah.edu | nbertagnolli.com

EDUCATION

Institution	Degree	Year	Field
University of Utah	PhD	Expected 5/2019	Computer Science
University of Utah	B.S. Major	5/2014	Mathematics
University of Utah	B.S. Minor	5/2014	Bioengineering

RESEARCH EXPERIENCE

Graduate Research Fellow, Computer Science 08/2014 –
Develope, implement, and understand algorithms that are capable of acquiring new knowledge and automatically adapting their behavior over time.

1. Develope, implemente and demonstrate algorithms for understanding human language;
2. Create software that enables others to easily perform similar experiments as are run in our lab;
3. Rigorously prove relationships between known algorithms and leverage these results to improve performance

Undergraduate Research Fellow, Bioengineering 10/2011 – 05/2014
Studied advanced mathematical and computational techniques for the analysis of high throughput genetic assays with Professor Alter:

1. Developed, implemented and demonstrated algorithms for discovery of novel biological phenomena from data;
2. Created software that simultaneously extracts meaningful patterns from metabolic and transcriptomic data with Dr. Tennessen;
3. Rigorously proved mathematical theorems.

Research Assistant, Department of Oncology 11/2009 – 10/2011
Studied the effects of the protein Zyxin on cytoskeleton repair with Professor Beckerle:

1. Constructed, amplified, and mainted various fluorescent protein plasmids;
2. Imaged cytoskeleton protein dynamics in living cells using confocal microscopy;
3. Designed and implemented software for fluorescent protein localization and distribution image analysis using Matlab.

PUBLICATIONS

1. **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. http://dx.doi.org/10.1371/journal.pone.0078913
2. 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.

PRESENTATIONS

Posters at International Meetings

1. **N. M. Bertagnolli**, J. A. Drake, J. M. Tennessen and O. Alter, "SVD Identifies Transcript Length Distribution Functions from DNA Microarray Data and Reveals Evolutionary Forces Globally Affecting GBM Metabolism," *Biomedical Engineering Society Annual Meeting (BMES)* 2013 (Seattle, Washington, September 25, 2013 – September 27, 2013), contributed poster.

Posters at National Meetings

2. **N. M. Bertagnolli**, J. A. Drake, J. M. Tennessen and O. Alter,"SVD Identifies Transcript Length Distribution Functions from DNA Microarray Data and Reveals Evolutionary Forces Globally Affecting GBM Metabolism," *Utah Biomedical Engineering Conference* (Salt Lake City, Utah, September 16, 2013), contributed poster.
3. **N. M. Bertagnolli**, J. A. Drake, J. M. Tennessen and O. Alter,"Similarities and Differences between Normal Brain and Glioblastoma Multiforme Uncovered by Singular Value Decomposition of Transcript Size Distributions," *Scientific Computing and Imaging (SCI) Institute (SCIx)* (Salt Lake City, Utah, November 13, 2012), contributed poster.
4. **N. M. Bertagnolli**, J. A. Drake, J. M. Tennessen and O. Alter, "Similarities and Differences between Normal Brain and Glioblastoma Multiforme Uncovered by Singular Value Decomposition of Transcript Size Distributions," *Utah Biomedical Engineering Conference* (Salt Lake City, Utah, September 16, 2012), Best Poster Award.

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1. © **N. M. Bertagnolli**, J. A. Drake and O. Alter 2013, "SVD Identifies Transcript Length Distribution Functions from DNA Microarray Data and Reveals Evolutionary Forces Globally Affecting GBM Metabolism;" http://www.alterlab.org/GBM_metabolism

HONORS AND AWARDS

1. **First Year Graduate Fellowship, University of Utah** 8/2014
   Full support for first year of graduate school.
2. **Undergraduate Research Opportunities Grant, University of Utah** 8/2013
   $1200 Grant to pursue individual research under an advisor
3. **Dean's List, University of Utah** 8/2010–
   Maintained $\geq$ 3.5 GPA throughout enrollment
4. **Presidential Scholarship, University of Utah** 8/2010
   Full tuition room and board for eight semesters
5. **Robert C. Byrd Scholarship, U.S.A.** 8/2010
   Federal scholarship recognizing exceptionally able high school seniors
6. **Regent's Scholarship, State of Utah** 8/2010
   Scholarship encouraging high school students to prepare for college
7. **Valedictorian Juan Diego Catholic High School** 5/2010
8. **Utah State Champion Extemporaneous Speaking** 5/2009
9. **Macy's Follow a Leader Scholarship, State of Utah** 8/2008
   State-wide essay contest

10. **Energy Solutions Scholarship, State of Utah** 8/2007
    Scholarship for students who have selected degrees in the hard sciences

PROFESSIONAL SOCIETIES

Student Member, Biomdeical Engineering Society (BMES) 7/2012
Student Member, Society of Industrial and Applied Mathematics (SIAM) 11/2013

PROFESSIONAL ACTIVITIES

Founding president of the Utah Biomedical Engineering Society Student Chapter 5/2013