NICOLAS BERTAGNOLLI

◆ nbertagnolli.com ◆

EDUCATION

University of Utah May 2016
Masters in Computer Science; GPA 3.7/4.0
- ◆ **Coursework:** Advanced Algorithms, Scientific Visualization, Structured Prediction, Clustering, Data Mining, Convex Optimization, Computer Architecture, Operating Systems

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

Languages
- ◆ Python, R, Scala, Java, Processing, JavaScript, PHP, Haskell, Racket, C/C++, Verilog, SQL, Racket

Software/Hardware
- ◆ Tensorflow, PyTorch, Keras, MXNet, Spark, Hadoop, Docker, UNIX, git, AWS, GCP, LaTex

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

WORK EXPERIENCE

Branded Entertainment Network– Provo, UT April 2020-Present
Principle Data Scientist
- ◆ Technical lead on team of data scientists and engineers.
- ◆ Designed BEN's influencer discovery tools to allow campaign managers to find influencers who are similar to eachother
- ◆ Built an automated experimentation platform to help campaign managers learn what factors contribute to success over time
- ◆ Designed state of the art video action recognition models in PyTorch
- ◆ Architected systems for one click deployment of web applications and APIs for Data Scientists to bring real value to clients

Lyssn.io, Inc – Seattle, WA Nov 2017-April 2020
Senior Machine Learning Engineer
- ◆ Designed and implemented NLP models for scaling automatic evaluation and annotation of 100k+ audio recordings of therapy
- ◆ Built out Lyssn's NLP and Audio learning architecture
- ◆ Designed and implemented website features including billing, and HIPAA compliant session sharing

3M Health Information Systems – Salt Lake City, Utah Feb 2018-March 2019
Senior Data Scientist
- ◆ Lead research efforts on applications of deep neural networks to medical coding of raw clinical texts
- ◆ Designed systems for explainable and interpretable deep models in medical coding leading to two patents

3M Health Information Systems – Salt Lake City, Utah June 2016-Feb 2018
Data Scientist
- ◆ Worked on the Performance Matrix product with Verily Life Sciences to design algorithms and systems capable of leveraging 3M's large quantity of medical data in order to improve patient care and decrease healthcare costs
- ◆ Helped architect the predictive portion of the Performance Matrix Platform using Docker, GCP, and Spark
- ◆ Lead research efforts on applications of deep neural networks to medical coding

Passive Logic – Salt Lake City, Utah Jan 2016-June 2019
Software Engineer
- ◆ Designed and implemented online interactive data visualizations to convey information about users' resource consumption

University of Utah – Salt Lake City, Utah Aug 2014-Dec 2015
Graduate Research Assistant, Learning Lab
- ◆ Designed algorithms for learning distributed representations of general structures

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

CONSULTING

Youper, Inc. – San Francisco, CA   May 2020–Jul 2020
- Designed deep conversational agents for therapeutic interventions

Loveland Innovations – Pleasant Grove, UT   Nov 2018–Jan 2020
- Built out model comparison and evaluation framework

Voicery – San Francisco, CA   Aug 2018–Feb 2019
- Worked on improving models to mimic human speech patterns.

Parendo LLC – Salt Lake City, UT   Aug 2017–Aug 2018
- Designed, implemented, and deployed fitness application concept from scratch in PHP

Rio Tinto (Kennecott) – South Jordan, UT   Aug 2016–Feb 2017
- Created a truck maintenance schedule optimization tool hosted with AWS Elastic Beanstalk and Docker.

Skullcandy – Park City, UT   Feb 2016–Aug 2016
- Created a music preference analysis app in python using kivy and sklearn

Dycap – Gainesville, FL   Nov 2015–Feb 2016
- Designed and implemented a real time facial recognition, and optical flow tracking system in C++

PUBLICATIONS

- S. Carvalho**, N. M. Bertagnolli** and T. Folkman (2021) *"Temporal Bottleneck Attention for Video Action Recognition"* Under Review at ACMM
- M. Tanana, C. S. Soma, P. B. Kuo, **N. M. Bertagnolli**, A. Dembe, B. T. Pace, V. Srikumar, D. C. Atkins and Z. E. Imel (2020) *"How do you feel? Using Natural Language Processing to automatically rate emotion in psychotherapy.,"* Behavior Research Methods
- 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

PATENTS

- Lord, S. P., **Bertagnolli, N. M.** (2021). *"System and method for increasing effective communication through evaluation of multimodal data, auto-correction and behavioral suggestions based on models from evidence-based counseling, motivational interviewing, and empathy."* (U.S. Patent Application No. 63/180,325).
- **Bertagnolli, N. M.**, Rocco, D. R., Coonradt, C. A. (2020). *"Predictive system for request approval"* (International Publication No. WO 2020/109950 A1).
- Xinzi, W., **Bertagnolli, N. M.**, Jimmy. (2020). *"Neural network model with evidence extraction"*

PRESENTATIONS

- **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.
- **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.
- **N. M. Bertagnolli**, J. A. Drake, J. M. Tennessen and O. Alter *"Similarities and Differences between Normal Brain and Gliblastoma 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.
- **N. M. Bertagnolli**, J. A. Drake, J. M. Tennessen and O. Alter *"Similarities and Differences between Normal Brain and Gliblastoma Multiforme Uncovered by Singular Value Decomposition of Transcript Size Distribution,"* *Utah Biomedical Engineering Conference* (Salt Lake City, Utah, September 16, 2012), Best Poster Award.

HONORS / AWARDS

3M Circle of Technical Excellence and Innovation Division Award 2016
- Recognizes the leading innovations and accomplishments in the 3M technical community

NSF Graduate Research Fellowship Honorable Mention
- National Science Foundation four-year fellowship. ~ 10% acceptance rate

PROFESSIONAL SOCIETY AND TECHNICAL COMMITTEE ACTIVITIES

International Conference on Healthcare Informatics 2017
- Committee Member and Technical Reviewer Analytics Track

GRANTS

NIH R01DA038466: June 2018–Mar 2019
- Title: Enhancing Evidence-based Counseling for Opioid Abuse via Machine Learning Performance-based Feedback
- Role: NLP Consultant

OPEN SOURCE CONTRIBUTIONS

mxnet-the-straight-dope
- Improved tutorial quality, edited documentation, and fixed minor bugs