ALEXANDER LENAIL

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EDUCATION

TUFTS UNIVERSITY, B.S. COMPUTER SCIENCE
FALL 2012 – SPRING 2016
Concentrations: Machine Learning, Web Engineering,
Computational Biology.

MIT, VISITING STUDENT
SPRING / FALL 2015

PALO ALTO HIGH SCHOOL, 2012

WORK EXPERIENCES

MIT BIOLOGICAL ENGINEERING – FRAENKEL LAB COMPUTATIONAL RESEARCH ASSOCIATE
FEBRUARY 2016 - PRESENT
Building computational infrastructure for AnswerALS & NeuroLINCS consortia locally and on the cloud.
Azure, Docker, Galaxy Project, SLURM, kubernetes.
Research projects on the integration of 'omics data, machine learning approaches to disease modeling.
Jupyter, numpy, pandas, scikit-learn, tensorflow

BENCHLING SOFTWARE ENGINEERING INTERN
WINTER 2015-2016
Building out synthetic biologist's online lab notebook in React, Flask with SQLAlchemy.

GOOGLE SEARCH SOFTWARE ENGINEERING INTERN
SUMMER 2015
Developed an extensible classifier framework to recognize spam URL patterns in the crawl.
C++ template programming, MapReduce, AdaBoost. Machine Learning at web scale.

TUFTS CS – SLONIM LAB BIOINFORMATICS TA / RA
FALL 2014
Teaching assistant for Bioinformatics and research assistant on the CSAX algorithm project.

COURSERA – KPCB ENGINEERING FELLOW SOFTWARE ENGINEERING INTERN
SUMMER 2014
Building out the Coursera platform in Scala and Javascript with Backbone.

AUTODESK SOFTWARE ENGINEERING INTERN
SUMMER 2013
Building frontend for architecture-CAD tool 'FormIt Web'. CoffeeScript with Scene.JS / WebGL.

STANFORD GSB – SOULE LAB RESEARCH ASSISTANT
SUMMER 2012

PUBLICATIONS

Axial: Interactive Visualizations for High Dimensional Genomics Data
Manuscript in preparation

Transcriptional Profiling of Human Brain Endothelial Cells Reveals Key Pathways Underlying Cerebral X-Linked
Adrenoleukodystrophy
Manuscript in preparation

An integrated multi-omic analysis of molecular changes in iPSC derived motor neurons from ALS patients harboring the
C9ORF72 mutation
Manuscript in preparation

NN-SVG: Publication-Ready Neural Network Architecture Schematics
Alexander LeNail
The Journal of Open Source Software (**JOSS**)
In Review

Shallow Sparsely-Connected Autoencoders for Gene Set Projection
Maxwell P. Gold, **Alexander LeNail**, Ernest Fraenkel
Pacific Symposium of Biocomputing 24 (**PSB**)
January 2019

Proteomics, Post-translational Modifications, and Integrative Analyses Reveal Molecular Heterogeneity within
Medulloblastoma Subgroups
Contributing author
Cancer Cell Volume 34, Issue 3
September 2018

Genome-wide Analyses Identify KIF5A as a Novel ALS Gene
Contributing author
Neuron Volume 97, Issue 6,
March 2018

The Library of Integrated Network-Based Cellular Signatures NIH Program: System-Level Cataloging of Human Cells Response to Perturbations
Contributing author
Cell Systems Volume 6, Issue 1
January 2018

Graph-Sparse Logistic Regression
Alexander LeNail, Ludwig Schmidt, Jonathan Li, Tobias Ehrenberger, Karen Sachs, Stefanie Jegelka, Ernest Fraenkel
Neural Information Processing Systems - Discrete Structures in Machine Learning workshop (**NIPS DISCML**)
December 2017

A Fast Prize-Collecting Steiner Forest Algorithm for Functional Analyses in Biological Networks
Murodzhon Akhmedov, **Alexander LeNail**, Francesco Bertoni, Ivo Kwee, Ernest Fraenkel, Roberto Montemanni
International Conference on AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (**CPAIOR**)
April 2017