Neil Thomas

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EDUCATION

University of California, Berkeley — Fall 2017 - Present
PhD, Computer Science

University of California, Berkeley — Fall 2011 - Spring 2015
BS, Engineering Mathematics & Statistics, *High Honors* (3.82 GPA)

Independent University of Moscow, Russia — Spring 2014
Participant in study-abroad program: *Math in Moscow*

WORK EXPERIENCE

Software Engineer — August 2015 - June 2017
23andMe, Mountain View, CA

- Responsible for collaborative project planning - distilling input from multiple teams. Interviewed candidates. Mentored and onboarded new engineers.
- Implemented IBD (Identity by Descent) pipeline in Apache Spark to take advantage of data locality and parallelization. Relieved company from increasing backlog of customer processing.
- Automated imputation pipeline using Minimac3 and Luigi. Imputed over 1 million individuals on custom reference panel with improved accuracy.
- Deployed to Amazon cloud (AWS) to scale computation pipelines to handle massive customer demand.
- Built haplotype phasing application using modified BEAGLE algorithm. Extracted legacy code from legacy environment. Wrote Python wrappers for research C++ code.

RESEARCH EXPERIENCE

SURF/Rose Hills Undergraduate Research Fellow — Summer - Fall 2014
Dept. of Statistics, University of California, Berkeley

- Designed and implemented computational experiments to test the performance of a demographic inference algorithm on inaccurately phased, simulated genetic data.
- **Neil Thomas**, Geno Guerra, Yun S. Song. "Assessing the Effect of Haplotype Phasing on Demographic Inference." Student poster presented at SURF research conference. August 2014.
- Awarded *First Prize* at SURF Student Poster Competition.

SURF/Rose Hills Undergraduate Research Fellow — Summer - Fall 2013
Dept. of Integrative Biology, University of California, Berkeley

- Designed and implemented an experimental setup for testing marine larval response to linear fluid accelerations. Analyzed data linking accelerations to behavioral response.
- **Neil Thomas**, Rachel Pepper, Dorian Liepmann, M.A.R. Koehl. "Simple microfluidic-inspired devices for observation of small aquatic organisms in controllable fluid flow: design and implementation." Student poster presented at the 66th Annual Meeting of the APS Division of Fluid Dynamics. November 2013.

PUBLICATIONS

V I. Manousiouthakis, **N Thomas**, A M. Justanieah. "On a Finite Branch and Bound Algorithm for the Global Minimization of a Concave Power Law Over a Polytope." *Journal of Optimization Theory and Applications.* October 2011, Volume 151, Issue 1, pp 121-134.

CONFERENCES

Short Course - UCLA Computational Genomics Summer Institute — July 2016

Annual Meeting - APS Division of Fluid Dynamics — November 2013

AWARDS

Winner - 23andMe Hackathon — October 2016

- In 1.5 days, built an interactive way to explore 23andMe genetic reports using the human body. Used Django, HTML, Javascript, Python. Team of 5.

Honorable Mention - COMAP Mathematical Contest in Modeling — February 2015

- **Neil Thomas**, Lukas Whaley-Mayda, Miles Rusch. "Leveraging the Criticality of Outbreaks to Eradicate Ebola." February 2015. (Whitepaper on github).
- In 4 days, simulated the effects of vaccination against an Ebola outbreak using site-percolation model. Modeled real-world connectivity with a "small-world network." Determined a "critical vaccination ratio," and the effect of localized vaccinations.
- Awarded to top 40% of entries for over 7600 international teams.

Dean's Honor List - College of Chemistry — Fall 2013

- Awarded for achieving a term GPA of 3.900

COMMUNITY SERVICE

Peer Advisor — Spring - Fall 2013

College of Chemistry, University of California, Berkeley

- Met with students, answered coursework and class planning questions, wrote for the advising blog, was counselor for Cal online student orientation.
- Worked in outreach: led lessons and demos in basic chemistry concepts for visiting middle school students.

LEADERSHIP

Social Manager — Fall 2014

Kingman Hall Student Cooperative, Berkeley, CA

- Managed a $3000+ budget and a 100+ people-hour labor budget.
- Organized a single event with over 400 attendees and a $2500 budget, coordinated among four student co-op houses.

LANGUAGES Python (NumPy/SciPy), Java, Matlab, R, C++

TOOLS AWS, Ansible, Apache Spark, Bash, Git, Jenkins, JIRA, LaTeX, MySQL, Packer, Tensorflow, Vagrant

FOREIGN LANGUAGES Russian, *Fluent*

HOBBIES Ultimate Frisbee, Piano, Hiking, Rapping, Improv, Dunking*

** - in progress*