Alan M Luu

amluu94@gmail.com • alanmluu.github.io• GitHub: alanmluu

EDUCATION

Ph.D. Physics, University of Illinois, Urbana-Champaign — Aug 2016 - Present

- Advisor: Jun S. Song
- Specialization: Machine learning, statistics, computational biology, genomics

B.A. Physics, University of California, Berkeley — Aug. 2012 - May 2016

RESEARCH EXPERIENCE

UIUC Computational Biology Group (Advisor: Jun Song) — Aug 2016 - Present

- Analyzed MiSeq data using Bowtie2 and Tophat2 to determine feasibility of using CRISPR-mediated base editing to induce alternate splicing.
- Created web application to determine which exons of a gene can be modified to be excluded from the final transcript using CRISPR-mediated base editing.
- Implemented various machine learning algorithms to discover new lincRNA.
- Investigated using graph spectral sparsification to identify important edges in a network.

UIUC Quantitative Ecology and Evolution Lab (Advisor: Seppe Kuehn) — May 2017 - Jul. 2017

- Carried out statistical and network analysis on gene knockout data to investigate the relationship between phenotypic robustness and evolvability.

UIUC Computational Bio-Nano Group (Advisor: Aleksei Aksimentiev) — Sept - Dec 2016

- Ran large molecular dynamics simulations using high performance computing resources to investigate stability of 3D nano-engineered DNA structures in various ionic solutions.

UC Berkeley Ion Trap Group (Advisor: Hartmut Haeffner) — Feb 2015 - May 2016

- Machined fixtures to house and align optical elements on an optical table. Designed and manufactured Helmholtz coils using electromagnetic simulation tools, computer aided design, and 3D printing.

Project IRENE at Lawrence Berkeley National Laboratory (Advisor: Carl Haber) — Jan - Oct 2014

- Implemented and benchmarked optical-flow-based algorithm to reconstruct audio signals from high resolution confocal microscope images of lacquer records.

INDUSTRY EXPERIENCE

Data Scientist at Seyvu Inc. — May 2018 (?) - Present

University of Illinois at Urbana-Champaign

- TODO

PUBLICATIONS

Jackson Winter, **Alan Luu**, Michael Gapinske, Wendy S. Woods, Jun S. Song, Pablo Perez-Pinera. Disruption of Splice Acceptors Using CRISPR-Cas9 Adenine Base Editors Induces Exon Skipping. Under submission to *Cell Discovery*.

Michael Gapinske*, **Alan Luu***, Jackson Winter, Wendy S. Woods, Kurt A. Kostan, Nikhil Shiva, Jun S. Song, Pablo Perez-Pinera. CRISPR-SKIP: programmable gene splicing with single base editors. *Genome Biology*, August 2018.

SKILLS

Machine Learning, Data Science, Statistical Analysis, Quantitative Biology and Genomics, Sequence Analysis, Text Analytics, Natural Language Processing, Image Processing

Languages: Python, R, Java, C, Matlab, Mathematica

Data Science: Keras, TensorFlow, Jupyter, Altair, scikit-learn, pandas, Git

Comp Bio: VMD, NAMD, FastQC, cutadapt, Bowtie2, Tophat2, HTSeq, limma

Web Dev: Flask, HTML, CSS, Javascript, MySQL, Vega-Lite

TEACHING

University of California at Berkeley

Course Assistant: PHYS7B (Intro to Electromagnetism and Thermodynamics)	June - Aug 2016
Grader: PHYS137B (Advanced Quantum Mechanics)	Jan - Aug 2016
Grader: PHYS139 (General Relativity)	Jan - Aug 2016
Course Lab Assistant: CS61A (Structure and Interpretation of Computer Programs)	Aug - Dec 2013

AWARDS

UIUC Center for the Physics of Living Cells Symposium Best Speaker Award	Apr 2018
UIUC Center for the Physics of Living Cells Fellowship	Aug 2016 - Aug 2018
UC Berkeley College of Letters and Science Dean's Honor List	Aug 2012 - May 2014
UC Berkeley Pomerantz Scholarship	Aug 2014 - Aug 2015

- Awarded for high academic standing and progress in the physics major

UC Berkeley Regents and Chancellor's Scholarship — Aug 2012 - May 2016

- Awarded to top 1% of applicants (top 5% of admitted students)

SERVICE

Lunch Coordinator and Volunteer for Society of Physics Students	Aug 2013 - May 2016
Campaign Organizer for California Public Interest Research Group	Aug 2012 - Dec 2012

*Equal Contribution