

# Akosua Pokua Busia

Computer Science | akosua@berkeley.edu | 831.566.5918

## Education

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University of California, Berkeley Aug 2018-present  
Doctor of Philosophy, Computer Science  
Advisors: Michael Jordan, Jennifer Listgarten

Stanford University Sept 2012-Jun 2016  
B.S. Mathematical and Computational Science with Honors and with Distinction 4.16 GPA  
Minor in Psychology, Neuroscience Focus

## Honors and Fellowships

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BEARGradS Award, William S. Floyd, Jr. Fellowship in Engineering 2018  
Awarded based solely on merit by the Berkeley Graduate Division to one EECS doctoral student per year

National Science Foundation Graduate Research Fellowship 2018  
Recognizes graduate students with demonstrated potential for significant achievements in science and engineering at the national level

Berkeley Fellowship for Graduate Study 2018  
Awarded to outstanding applicants to doctoral programs across all fields at UC Berkeley

Berkeley EECS Excellence Award 2018  
Awarded by EECS faculty in recognition of an outstanding undergraduate academic record

J.E. Wallace Sterling Award for Scholastic Achievement 2016  
Recognizes the top 25 graduating seniors in Stanford's School of Humanities and Sciences

Firestone Medal for Excellence in Undergraduate Research 2016  
Bestowed upon the top ten percent of all honors theses in the social sciences, natural sciences, engineering and applied sciences

Goldman Sachs Prize: Valedictorian 2016  
Presented to the male and female student with top GPA from Stanford Black Community's graduating senior class

Phi Beta Kappa National Honors Society 2015  
Honors students for the excellence and breadth of their undergraduate scholarly accomplishments

President's Award for Academic Excellence 2013  
Honors students in the top three percent of Stanford's outgoing freshman class

## Teaching

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- Course Assistant, Stanford CS 274 / BIOMEDIN 214 Sept 2015-Dec 2015  
Representations and Algorithms for Computational Molecular Biology; taught by Professor Russ Altman
- Mathematics Subject Tutor, Stanford Center for Teaching and Learning Sept 2014-June 2015  
Single- and multivariable calculus, linear algebra, and ordinary differential equations

## Service

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- Secretary, Women in Computer Science and Engineering June 2019-Present  
Organizing and documenting WICSE events; mentoring new female graduate students; updating WICSE website
- Mentor, Berkeley AI Research Undergraduate Mentoring Program Sept 2018-Present  
Mentoring promising Berkeley undergraduates from underrepresented groups
- Students Mentored: Tejal Gala, UC Berkeley, Undergraduate

## Research Experience

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- Google Brain Research Resident Jun 2016-Jun 2018  
Developed deep learning technologies for determining species- and strain-level taxonomy for short DNA reads from amplicon and metagenomic sequencing data  
Mentor: Mark DePristo
- Designed next-step conditioned convolutional language models for protein secondary structure prediction from primary sequence  
Mentor: Navdeep Jaitly
- Undergraduate Researcher, Stanford Biomedical Informatics Jun 2015-Jun 2016  
Developed and evaluated a mathematical model of association between county-level prevalence of Autism Spectrum Disorder and local measures of environmental toxins using unsupervised data analysis and supervised machine learning techniques  
Mentor: Russ Altman
- Undergraduate Researcher, Stanford Electrical Engineering Oct 2014-Jun 2015  
Developed and maintained scientific computing tools for simulation of theoretical models of spiky, probabilistic communication between layers of neurons  
Mentor: Kwabena Boahen
- Research Assistant, University of California, Santa Cruz Cognitive Science Summer 2013 & 2014  
Designed and directed experiments probing computer-mediated communication and analyzed human speech and gesture patterns using annotation software  
Mentor: Jean E. Fox Tree

## Presentations and Publications

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Brookes, D.H., **Busia, A.**, Fannjiang, C., Murphy, K., and Listgarten, L. A view of Estimation of Distribution

Algorithms through the lens of Expectation-Maximization. [arXiv:1905.10474](https://arxiv.org/abs/1905.10474)

**Busia, A.**, Dahl, G., Fannjiang, C., Alexander, D.H., Dorfman, E., Poplin, R., McLean, C.Y., Chang, P., and DePristo, M. A deep learning approach to pattern recognition for short DNA sequences. Under review.

**Busia, A.** and Jaitly, N. 2017. Next-step conditioned deep convolutional neural networks improve protein secondary structure prediction. 25th Annual Conference on Intelligent Systems for Molecular and Computational Biology and 16th European Conference on Computational Biology. Poster presentation. DOI: [10.7490/f1000research.1114813.1](https://doi.org/10.7490/f1000research.1114813.1)

**Busia, A.**, Collins, J., and Jaitly, N. 2016. Protein Secondary Structure Prediction Using Deep Multi-scale Convolutional Neural Networks and Next-Step Conditioning. [arXiv:1611.01503](https://arxiv.org/abs/1611.01503)

## Publicity

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[Google Brain Residency Program - 7 months in and looking ahead](#)

[Stanford seniors' thesis projects garner university medals](#)

[Congratulations to Sterling Award winners](#)

Jan 2017

Jul 2016

Jan 2016