

# Curriculum Vitae

Jennifer Lu

<b>Position:</b>	Ph.D. candidate Steven Salzberg lab	<b>Address:</b>	Center for Computational Biology Johns Hopkins University Welch Medical Library, Room 115 1900 E. Monument St. Baltimore, MD 21205, USA
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## EDUCATION

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08/2015 – Present

**Ph.D. Candidate in the Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD.** Researching the usage of next-generation sequencing for diagnosing bacterial, fungal, or viral infections in human corneal and brain samples. Analyzing microbial DNA sequence complexities, similarities, and contamination. Thesis Advisor: Dr. Steven Salzberg

09/2011 – 12/2014

**Bachelors of Science in Chemical and Biomolecular Engineering from Johns Hopkins University, Baltimore, MD.** GPA 3.87/4.00 Minored in Computer Science

## RESEARCH EXPERIENCE

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08/2014 – 04/2015

**Student Researcher for Dr. Rebecca Schulman's Nanotechnology Lab at Johns Hopkins University, Baltimore, MD.** Evaluated the design, assembly, and fabrication of DNA-origami structures. Assessed the kinetics of dimer formation between DNA-origami structures.

05/2012 – 08/2012

**Student Intern for the Laboratory of Receptor Biology and Gene Expression at the NIH, NCI, Bethesda, MD.** Research on various Chromosome Conformation Capture experiments and the experimental biases present in Hi-C experiments. Developed programs in Perl and R to transform and analyze data produced in Hi-C experiments.

05/2014 – 12/2014

**Student Intern for Dr. Navin Varadarajan's Single Cell Lab, at the University of Houston, Houston, TX.** Developed an interface in Python allowing users to process and store microscopy data from single-cell assays while quantifying intercellular interactions in each assay. Employed the MySQL database system to store microscopy data for future analysis.

01/2013 – 11/2013

**Student Researcher for Dr. Jeffrey Gray's Rosetta Lab at Johns Hopkins University, Baltimore, MD.** Developed a Python-based interface to allow accelerated and automated benchmarking of protein modeling scripts.

## WORK AND VOLUNTEER EXPERIENCE

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10/2015 – Present

**Thread Volunteer, Head of Family, and Grandparent, Baltimore, MD.** Engaged with underperforming high school students, encouraging improved academic achievement and personal growth. Coordinated a "family" of volunteers to provide a network of support for Baltimore City high school students. Motivated relationships between volunteers and students.

09/2013 – 12/2013

**Classroom Assistant for Immediate Programming at Johns Hopkins University, Baltimore, MD.** Class taught by Dr. Yair Amir. Assisted students with the development of data structures and programs in the programming languages of C and C++ while teaching students about C/C++ memory management and code development

10/2011 – 05/2015

**Classroom Audio/Visual Technician at Johns Hopkins University, Baltimore, MD.** Provided technical support for professors using the Johns Hopkins technology-enhanced classrooms. Distributed and managed audio and visual equipment for guest speakers, professors, and performances throughout the Johns Hopkins campus in both classroom and auditorium settings.

## PUBLICATIONS

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### SUBMITTED

Z. Li, F. P. Breitwieser, **J. Lu**, A. S. Jun, S. L. Salzberg, C. G. Eberhart. (*awaiting review*). “Diagnosing corneal infections in formalin fixed specimens using next generation sequencing.” *Ophthalmology*.

### FIRST AUTHORED, PEER-REVIEWED PUBLICATIONS

**J. Lu**, F. P. Breitwieser, P. Thielen, S. L. Salzberg, (2017). “Bracken: estimating species abundance in metagenomics data.” *PeerJ Computer Science*, 3:e104 <https://doi.org/10.7717/peerj.cs.104>

### CO-AUTHORED, PEER-REVIEWED PUBLICATIONS

J. Fern, **J. Lu**, R. Schulman, (2016). “The Energy Landscape for the Self-Assembly of a Two-Dimensional DNA Origami Complex.” *ACS Nano*, 10(2), 1836-1844.

A. Merouane, N. Rey-Villamizar, Y. Lu, I. Liadi, G. Romain, J.S. Lee, **J. Lu**, A. Rao, N. Varadarajan, B. Roysam. (2015). “Automated Profiling of Individual Cell-Cell Interactions from High-throughput Time-lapse Imaging Microscopy in Nanowell Grids (TIMING)”. *Journal of Bioinformatics*, 31(19), 3189-3197.

## PRESENTATIONS

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**J. Lu** (01/2017) “Bracken: Bayesian Reestimation of Abundance with KrakEN” Presented at the bi-weekly Joint Biostats-Genomics Lab Meeting, Johns Hopkins University, Baltimore, MD.

**J. Lu**, N. Varadarajan, B. Roysam. (07/2014). “Bioinformatics of Single Cell Microscopy.” Presented at the University of Houston Research Experience for Undergraduates Poster Session, Houston, TX.

## SKILLS

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### SOFTWARE ENGINEERING

Operating Systems	Linux/Unix, Microsoft Windows XP, 7-10, Mac OS X
Programming Languages	C, C++, Python, Perl, R, Java, MATLAB®, L <sup>A</sup> T <sub>E</sub> X, HTML
Databases	MySQL

### LABORATORY SKILLS

Proficient in general laboratory skills, spectrophotometry, PCR and microscopy  
Limited training in plasmid DNA isolation and gel electrophoresis

### LANGUAGES

English (native), Chinese (conversational), Spanish (conversational)