Kathleen Bates

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Education

August 2013-present — **Ph.D., Bioengineering**
Georgia Institute of Technology, Atlanta, GA
GPA: 3.8/ 4.0

May 2016 — **M.S., Chemical Engineering**
Georgia Institute of Technology, Atlanta, GA

May 2013 — **B.S., Dual Degree in Chemical Engineering and Biomedical Engineering**
Carnegie Mellon University, Pittsburgh, PA
GPA: 3.86/ 4.0

Experience

August 2013 - present — **Doctoral Dissertation,** Atlanta, GA
Georgia Institute of Technology
Advisor: Hang Lu, PhD

- Image processing and machine learning for dimensionality reduction and deep phenotyping of animal behavior
- Hardware and software development for scalable microscopy system
- Behavior manipulation to understand sleep in model organisms

September 2012- May 2013 — **Honors Undergraduate Research,** Pittsburgh, PA
Carnegie Mellon University
Advisors: Robert Tilton, PhD and Newell Washburn, PhD

- Collected and analyzed data on the effectiveness of chemically modified antibiotics on biofilms

Skills

Lab — Microfluidics · microscopy · microbiology · 3-d printing · fluid dynamics · neuroscience · cell culture · nematode culture

Computational — Image processing · machine learning (dimensionality reduction) · HPC · Python · Matlab · Arduino · Autocad · Solidworks

Presentation and Papers

2019 — Bates, K* and Lu, H. Multi-environment unbiased mapping of the *C. elegans* phenospace. *In preparation.*

2019 — Bates, K* and Lu, H. Massively scalable platform for long-term organismal behavior phenotyping and active behavior-based environmental modulation. *In preparation.*

2019 — Bates K, Jiang S, Chaudhary S, *et al.* Fast, versatile and quantitative annotation of complex images. *Biotechniques* [Internet]. 66(6), 269–275 (2019). Available from: https://www.future-science.com/doi/10.2144/btn-2019-0010.

2018 — Bates, Bates, K., Jiang, S. Chaudhary, S., Jackson-Holmes, E., Goldman, D. and Lu, H. Fast, versatile, and quantitative annotation of complex images. *C. elegans* Neuroscience Conference, Madison, WI. Oral Presentation

2017 — Bates, K. , Porto, D., Berman, G. and Lu, H. Expanding the behavior space of *C. elegans*: a multi-environment and unbiased approach. Gordon Research Seminar on Neuroethology, Les Diablerets, Switzerland. Oral Presentation

	2017	Bates, K. and Lu, H. High-throughput behavioral drug screening using dedicated low-cost microscopy systems. Nobel Symposium on Microfluidics, Svartsjo, Sweden. Poster Presentation
	2016	Bates, K & Lu, H. Optics-Integrated Microfluidic Platforms for Biomolecular Analyses. *Biophysical Journal*, *110*(8), 1684-1697. DOI: 10.1016/j.bpj.2016.03.018
	2015	Bates, K.* and Lu, H. High-throughput behavioral drug screening using dedicated low-cost microscopy system for monitoring *C. elegans*. Micro-Total Analysis Systems Conference, Gyeongju, Korea. Poster Presentation.

Honors and Awards

2017-present **Ruth L. Kirschstein National Research Service Award**, NIH
- Scored in top 2% of applicants, grant# 1F31GM123662
- > $100k individual fellowship and funding for PhD research

2017 **Christopher J. Ruffin Graduate Student Leadership Award**, Georgia Tech
- Awarded to one Bioengineering PhD each year

2013-2017 **Presidential Fellowship**, Georgia Tech

2013 **Finalist in Honors Research Poster Competition**, Carnegie Mellon University

2009-2011 **Dean's List**, Carnegie Mellon University

2009-2011 **Presidential Scholarship**, Carnegie Mellon University

Leadership and Outreach

2014-present **Research mentor** to 9 undergraduate students and 1 high-school student
- Guided research projects, taught reasoning skills and basic lab techniques
- 2 students received Presidential Undergraduate Research Awards
- 1 student appointed prestigious Petit Scholar

2017-present **Mentor** for Big Brothers Big Sisters Atlanta
- One-on-one mentorship of Atlanta high-schooler

2015-2016 **Research Chair** for Bioscience and Bioengineering Unified Graduate Students (BBUGS)
- Organized two-day symposium and student-led research seminars

2014-2016 **Social Chair** for Bioengineering Graduate Students

2014-2015 **Professional Development Chair** for BBUGS