

JULIAN A. STANLEY

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EDUCATION

Massachusetts Institute of Technology Cambridge, MA
PhD, Biology 2020-Present

Northeastern University Boston, MA
MS, Bioinformatics 2020

Northeastern University Boston, MA
BS, Biology with Honors Distinction, *summa cum laude* 2019
Thesis: *Sensitivity analysis of two-state ratiometric biosensors*

EXPERIENCE

Google Summer of Code, Remote Summer 2020
Software Developer, R Project for Statistical Computing
Advisors: Dr. Guillem Rigau and Dr. Toby Hocking
Topic: Designing a graphical user interface for gfpop, an HMM-constrained changepoint detection algorithm.
Skills: Open-source software development to create an interactive web application with R Shiny and JavaScript.

Harvard Medical School, Boston, MA July 2019-May 2020
Visiting Postgraduate Research Fellow, Department of Systems Biology
Advisor: Dr. Pamela Silver
Topic: Designing intrinsically disordered proteins inspired by tardigrades to induce stasis in human cells.
Skills: Predicting sites of protein carbonylation, high-throughput 3D modeling of human proteins, culturing and preparing samples of *H. dujardini* tardigrades for quantitative proteomics.

Northeastern University, Boston, MA 2015-2019
Undergraduate Research Associate
Advisor: Dr. Javier Apfeld
Topic: Temporospatial organization of redox potential; genetic pathways controlling lifespan and stress tolerance in C. elegans.
Skills: Automated genetic screens of stress and aging in *C. elegans*, ImageJ and MATLAB image analysis, derivations and sensitivity analysis implemented as an R package and web application.

Harvard Medical School, Boston, MA Summer 2018
Research Intern, Department of Systems Biology
Advisor: Dr. Jeremy Gunawardena
Topic: Identifying novel subtypes of endometrial cancers via analysis of clinical genomic data.
Skills: Genomic segmentation and unsupervised clustering algorithms implemented in Python, R, and MATLAB.

Cygnal Therapeutics, Cambridge, MA 2017-2018
Research Associate, Immunology and Bioinformatics
Advisor: Dr. Chengyi Shu
Topic: Identifying immune modulators by investigating crosstalk between innate immunity and the peripheral nervous system.
Skills: Human primary cell and cell line culture, suspension and adherent. Processing through flow cytometry, ELISA, qPCR, and sample preparation for RNA-seq. Analyzing public and in-house gene expression data.

FELLOWSHIPS, SCHOLARSHIPS, & GRANTS

Northeastern University Honors Interdisciplinary Thesis Grant	2019
Scholars Independent Research Fellowship	2016, 2017, 2019
Northeastern University Honors Research Assistantship	2016, 2017
Northeastern Provost Office Undergraduate Research Grant	2016
Northeastern University Scholarship (highest merit scholarship)	2015

PUBLICATIONS & PREPRINTS

4. **Stanley, J.**, et al. (2020) The SensorOverlord predicts the accuracy of measurements with genetically-encoded biosensors. *Scientific Reports*.
 3. Schiffer, J., et al., including **Stanley, J.** (2020) *C. elegans* processes sensory information to choose between freeloading and self-defense strategies. *eLife*.
 2. Chang, R., **Stanley, J.**, et al. (2020) Protein structure, amino acid composition and sequence determine proteome vulnerability to oxidation-induced damage. *EMBO*.
 1. Parra, J., **Stanley, J.**, et al. (2019) Crafting A More Environmentally Benign Extraction and Analysis of Pharmaceutical Precursors from a Medicinal Plant: A Student-Led Innovation. *chemRxiv*.
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PATENTS AND PATENT APPLICATIONS

3. Kahvejian, A., et al., including **Stanley, J.** Methods for treating cancer using GRM8 inhibitors. **U.S. Patent No. 10683352**. Published 2020-06-16.
 2. Kahvejian, A., et al., including **Stanley, J.** Methods and compositions for treating inflammatory or autoimmune diseases or conditions using chrna6 activators. **U.S. Application No. 62/624,269**. Filed 2019-01-31.
 1. Kahvejian, A., et al., including **Stanley, J.** Methods and compositions for treating inflammatory or autoimmune diseases or conditions using calcitonin receptor activators. **U.S. Application No. 16/140,224**. Filed 2018-09-24.
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TALKS, ABSTRACTS, & POSTERS

6. **Stanley, J.**, Johnsen, S., and Apfeld, J. (2020) SensorOverlord predicts and compares the accuracy of measurements with redox, pH, and ligand biosensors. **Abstract and Poster**. Society of Developmental Biology Annual Meeting, Online.
5. **Stanley, J.** and Apfeld, J. (2019) What can your biosensor measure accurately? **Poster and Invited Workshop Talk**. 22nd International *C. elegans* Conference, Los Angeles, CA.
4. Schiffer, J., Heath, W., **Stanley, J.**, et al. (2017) How do worms determine their readiness to cope with environmental stress? **Abstract and Poster**. 21st International *C. elegans* Conference, Los Angeles, CA.
3. **Stanley, J.**, Vogelaar, A., and Apfeld, J. (2017) How do genetic interactions regulate aging in *C. elegans*? **Poster**. Research, Innovation, Scholarship, and Entrepreneurship Conference, Boston, MA.
2. Parra, J., Webb, C., Foster, S., **Stanley, J.**, et al. (2016) Greener extraction and analysis of medicinal plant compounds: A teaching module for undergraduates. Abstracts of the Papers of the American Chemical Society 252.

1. **Stanley, J.** and Apfeld, J. (2016) How do transcription factors regulate aging in *C. elegans*? **Poster.** American Society of Biochemistry and Molecular Biology Undergraduate Conference, Boston, MA.

TEACHING EXPERIENCE

Community Teaching Assistant Summer 2020-Present
Various biology courses (7.28.1-7.28.3) MITx
Assisted students from around the world in MIT's online courses, including Molecular Biology (7.28.1-7.28.3).

Graduate Teaching Assistant and Curriculum Developer Fall 2019-Spring 2020
Bioinformatics Computational Methods 1 and 2 (BINF6308, BINF6309) Northeastern University
Developed core curriculum related to fundamental concepts in genome and transcriptome assembly, sequence alignment, and biological databases. I also wrote and delivered weekly lectures, graded assignments, and wrote automated scripts to review and manage online course materials. I taught both in-person and online.

Undergraduate Teaching Assistant Summer 2016
Techniques in Biology (BIOL2309) Northeastern University
Taught a small group of undergraduates in a project-based course where students design and execute literature-driven experiments in molecular biology. I helped to prepare modules and worked directly with student groups to help them design feasible and scientifically-rigorous experiments.

Curriculum Developer Fall 2016
Laboratory for Genetics and Molecular Biology (BIOL2302) Northeastern University
Developed new genetics teaching modules about Cockayne Syndrome and Hemophilia A, with accompanying lab manual sections and problem sets, in a disease-focused, dry lab practical course.

Research Assistant Spring 2016
Laboratory for General Chemistry I (CHEM 1217) Northeastern University
Re-developed the introductory chemistry laboratory curriculum alongside a small team of undergraduates, graduate students, and faculty. I developed and tested a project module that required students propose and test environmentally-friendly methods for the extraction of vincristine from plant leaves, providing students a glimpse into research being conducted by Northeastern faculty Dr. Carolyn Lee-Parsons and Dr. Erin Cram.

OUTREACH & EXTRACURRICULAR LEADERSHIP

Leadership member (President, Vice President, Media Chair), Northeastern University Biochemistry Club 2016-2019
We invited local researchers to weekly meetings, organized diversity and volunteering events, and three times applied for and hosted the Northeast-regional undergraduate conference of The American Society of Biochemistry and Molecular Biology.

Senior Health Educator, Peer Health Exchange 2015-2017
We taught, independently and in pairs, 30-45-minute classes about physical and emotional health to high school freshmen in Boston area public schools. We participated in multiple courses and weekly workshops about education, diversity, and inclusion, led by local experts and certified health educators.

TECHNICAL SKILLS

- Scripting in Python, Perl, R, and MATLAB
- Bash scripting, Unix command line environment and SLURM, and git version control
- Data presentation through R markdown, Jupyter notebooks, pandas, ggplot, plotly, and shiny
- Design patterns and object-oriented programming in Python and Java; familiar with C++
- Analysis of high-throughput sequencing and microarray data