

# Pengyao Jiang

Assistant Professor | School of Life Sciences | Biodesign Center for  
Mechanisms of Evolution | Arizona State University

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## Academic Employment

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01/2024 – present	<b>Assistant Professor, Biodesign Center for Mechanisms of Evolution and School of Life Sciences</b> Arizona State University, Tempe, AZ
12/2022 – 11/2023	<b>Acting Instructor, Genome Sciences</b> University of Washington, Seattle, WA
01/2018 – 11/2022	<b>Postdoctoral Scholar, Genome Sciences</b> University of Washington, Seattle, WA Mentor: Kelley Harris, co-mentor: Maitreya Dunham
07/2017 – 12/2017	<b>Postdoctoral Scholar, Ecology and Evolution</b> The University of Chicago, Chicago, IL Mentor: John Reinitz, co-mentor: Martin Kreitman

## Education

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09/2010 – 06/2017	<b>Ph.D., Ecology and Evolution</b> The University of Chicago, Chicago, IL Mentor: John Reinitz, co-mentor: Martin Kreitman
09/2006 – 06/2010	<b>B.E., Computer Science and Technology</b> East China Normal University, Shanghai, China
02/2009 – 07/2009	Exchange student, Shanghai Jiao Tong University

## Selected Honors and Awards

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2025	Nathan Shock Center Pilot Project Application Award (\$10,000 in NSC Core Resources) from the University of Washington Nathan Shock Center
2020	Parker Travel Award for Best Poster at UW Genome Sciences retreat ( <i>one postdoc and one graduate student were selected each year among all trainees at Genome Sciences</i> )
2015	Systems Biology short course at UC Irvine full scholarship
2012	MBL Gene regulatory network course scholarship award
2010	Outstanding Graduates in Shanghai
2009	1 <sup>st</sup> Prize in China Undergraduate Mathematical Contest in Modeling (CUMCM)
2007, 2008	National Scholarship ( <i>highest scholarship in China; top 2% of all university students</i> )

## Trainee-led Fellowships and Awards (<sup>G</sup>Graduate, <sup>U</sup>Undergraduate, <sup>T</sup>Technician, <sup>V</sup>Research Volunteer)

### **Fellowships and Grants:**

2025 – 2026	Bidstrup Foundation Fellowship	Jacob Matti <sup>U</sup>	\$2000
2025 – 2026	SOLUR scholarship, SOLS	Rosalie Thongphay <sup>U</sup>	\$4200
2024 – 2025	Graduate College Travel Award	Arin Shaw <sup>G</sup>	\$300
2024 – 2025	SOLUR scholarship, SOLS	Amanda Le <sup>U</sup>	\$4200

### **Awards:**

2024 – 2025 Honorable Mention, SOLUR Undergraduate Research Symposium Shreya Satheesh<sup>U</sup>

## Peer-reviewed Publications

Garge RK, Geck RC, Armstrong JO, Dunn B, Boutz DR, Battenhouse A, Leutert M, Dang V, **Jiang P**, Kwiatkowski D, Peiser T, McElroy H, Marcotte EM, Dunham MJ. Systematic Profiling of Ale Yeast Protein Dynamics across Fermentation and Repitching. *G3: Genes, Genomes, Genetics*. (2024) Mar;14(3):jkad293.

**Jiang P**, Kreitman M, Reinitz J. The effect of mutational robustness on the evolvability of multicellular organisms and eukaryotic cells. *Journal of Evolutionary Biology* 36(6), 906–924 (2023).

Yeh CL, **Jiang P**, Dunham MJ. High-throughput approaches to functional characterization of genetic variation in yeast, *Current Opinion in Genetics & Development* 76 (2022): 101979.

**Jiang P**, Ollodart AR, Dunham, MJ. A Modified Fluctuation Assay with a *CAN1* Reporter in Yeast. *Bio-protocol* 12, no. 11 (2022): e4435-e4435.

**Jiang P**, Ollodart AR, Sudhesh, V, Herr AJ, Dunham MJ and Harris K. A modified fluctuation assay reveals a natural mutator phenotype that drives mutation spectrum variation within *Saccharomyces cerevisiae*. *eLife* (2021);10:e68285.

- This is the main research paper that lays the foundation of the research project that I carry on in my lab.

**Jiang P**, Ludwig MZ, Kreitman M, Reinitz J. Natural variation of the expression pattern of the segmentation gene *even-skipped* in melanogaster. *Developmental Biology* (2015), 405(1): 173-181.

He BZ, Ludwig MZ, Dickerson DA, Barse L, Arun B, Vilhjálmsson BJ, **Jiang P**, Park SY, Tamarina NA, Selleck SB, Wittkopp PJ, Bell GI, Kreitman M. Effect of genetic variation in a *Drosophila* model of diabetes-associated misfolded human proinsulin. *Genetics* 196, no. 2 (2014): 557-567.

Xu S, Jiao S, **Jiang P**, Ao P. Two-time-scale population evolution on a singular landscape. *Physical Review E*, (2014), 89(1), 012724.

Jiao S, Xu S, **Jiang P**, Yuan B, Ao P, Wright–Fisher dynamics on adaptive landscape, *IET Systems Biology*, 7(5), 153-164.

## Preprints

**Jiang P**, Sudhesh, V, Phan MM, Bansal I, Wheeler C, Herr AJ, Dunham MJ and Harris K. (2025) The discovery and patterns of the underlying long-standing mild-effect mutator alleles in *S. cerevisiae* populations. *bioRxiv*. <https://doi.org/10.1101/2025.11.22.689970>, prepare to submission to *Cell Genomics*

Armstrong JO, **Jiang P**, Tsai S, Phan MM, Harris K, Dunham MJ. *URA6* mutations provide an alternative mechanism for 5-FOA resistance in *Saccharomyces cerevisiae*. *bioRxiv*. (2024):2024-06.  
<https://doi.org/10.1101/2024.06.03.597250>, prepare to submission to *PNAS*

## Manuscripts under Preparation

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Kim AR, **Jiang P**, Kang CK, Kreitman M, Ludwig MZ, Sharp DH, Reinitz J, Functional analysis of the *even-skipped* S2E enhancer in Drosophilidae and Sepsidae.

## Grants and Research Support

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### Nathan Shock Center Pilot Project Application Award, University of Washington Nathan Shock Center

Title: Uncovering age-related mutation signatures through yeast models

Role: PI

Submitted: 10/15/2025

Duration: 11/20/2025 – 5/31/2026

Amount: \$10,000 (Resource allocation)

## Speaker Presentations

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**6 talks** by Pengyao Jiang after joining ASU, including 4 invited talks. **3 talks** by trainees at ASU.

December 2025	Center for Evolution and Medicine "CEMinar" Series, ASU Tempe Campus ( <b>invited talk</b> ) "Discovery and patterns of natural mutator alleles in yeast populations"
August 2025	Annual CanFunNet Fungal Biology Conference, Virtual "The discovery and effect of long-standing mild-effect mutator allele in <i>S. cerevisiae</i> populations"
April 2024	Center for Mechanisms of Evolution Seminar Series, ASU Tempe Campus "Measuring mutation spectrum from pooled mutants using Pacbio long-read sequencing in yeast"
April 2024	North Carolina State University ( <b>invited talk</b> for the Evolutionary Genetics Seminar), Raleigh, NC "Mutation rate and spectrum variation and evolution in <i>Saccharomyces</i> "
March 2024	MCB Colloquium, ASU Tempe Campus ( <b>invited talk</b> ) "Planned and unplanned: Natural variation's impact on mutation rate and spectrum and novel mutants growing in 5-FOA in <i>Saccharomyces cerevisiae</i> "
March 2024	University of Pennsylvania ( <b>invited talk</b> for the joined group meeting in Dr. Ziyue Gao's and Dr. Iain Mathieson's labs) "Mutation rate and spectrum variation and evolution in <i>Saccharomyces</i> "
November 2023	SMBE Satellite Meeting on Mechanisms of Cellular Evolution, ASU Tempe Campus "The effect of mutational robustness on the evolvability of multicellular organisms and eukaryotic cells"
July 2023	Pacific Northwest Yeast Club, Bellingham, WA

- “Mutation rate and spectrum variation and evolution in *Saccharomyces*”
- December 2022 University of Iceland (**invited talk** for Biology Seminar), Virtual  
“Uncovering natural histories of mutator alleles in budding yeast”
- August 2022 Yeast Genetics Meeting, University of California, Los Angeles, CA  
“Uncovering natural histories of mutator alleles in budding yeast”
- July 2016 SIAM Life Sciences, Boston, MA  
“The relationship between mutational robustness and adaptation”
- November 2014 Midwest Drosophila Conference, Monticello IL  
“Natural variation in *eve* expression in *D. melanogaster*”

### Speaker presentations by trainees

(<sup>G</sup>Graduate, <sup>U</sup>Undergraduate, <sup>T</sup>Technician, <sup>V</sup>Research Volunteer, \*presenter)

- August 2025 Annual Retreat of Center for Mechanisms of Evolution, ASU Tempe Campus  
Valeria Icaza<sup>T</sup> and **Pengyao Jiang**. “High-throughput genomic techniques to profile mutation spectrum variation.”
- February 2025 Center for Mechanisms of Evolution Seminar Series, ASU Tempe Campus  
Valeria Icaza<sup>T</sup> and **Pengyao Jiang**. “High-throughput genomic techniques to profile mutation spectrum variation.”
- November 2024 Center for Mechanisms of Evolution Seminar Series, ASU Tempe Campus  
Arin Shaw<sup>G</sup> and **Pengyao Jiang**. “Natural Mutator Alleles in Fly Population.”

### Poster Presentations

**1 poster presentation** by Pengyao Jiang after joining ASU. **6 poster presentations** by trainees at ASU.

- March 2024 The Allied Genetics Conference (TAGC), Washinton, DC  
“Mutation rate and spectrum variation and evolution in *Saccharomyces*”
- June 2022 Population, Evolutionary, and Quantitative Genetics Conference (PEQG), Pacific Grove, CA  
“Uncovering natural histories of mutator alleles in budding yeast”
- July 2021 Society for Molecular Biology & Evolution (SMBE), Virtual Poster  
“Mutation rate and spectrum variation in *S. cerevisiae* natural isolates”
- May 2021 The Biology of Genomes, Virtual Poster  
“Mutation rate and spectrum variation in *S. cerevisiae* natural isolates”
- April 2020 The Allied Genetics Conference (TAGC), Virtual Poster  
“Mutation rate and spectrum variation in *S. cerevisiae* natural isolates”
- June 2019 Gordon conference on Molecular Mechanisms in Evolution, Easton, MA  
“Mutation rate and spectrum variation in *S. cerevisiae* natural isolates”
- July 2016 The Allied Genetics Conference (TAGC), Orlando, FL  
“The relationship between mutational robustness and adaptation”

- March 2015 Annual Drosophila Research Conference, Chicago, IL  
"Testing the role of *Caudal* in activating eve stripe 2 expression in sepsid fly *T. putris*"
- March 2014 Annual Drosophila Research Conference, San Diego, CA  
"Natural variation in eve expression in *D. melanogaster*"

### Poster presentations by trainees

(<sup>G</sup>Graduate, <sup>U</sup>Undergraduate, <sup>T</sup>Technician, <sup>V</sup>Research Volunteer, \*presenter)

- April 2025 Fusion Annual Retreat at Biodesign Institute, ASU Tempe Campus  
Valeria Icaza<sup>T</sup> and **Pengyao Jiang**. "High-throughput genomic techniques to profile mutation spectrum variation."
- April 2025 Fusion Annual Retreat at Biodesign Institute, ASU Tempe Campus  
Arin Shaw<sup>G</sup>, Cale Whitworth, and **Pengyao Jiang**. "Investigating the Genetic Architecture of Drosophila Populations."
- April 2025 SOLUR Undergraduate Research Symposium, ASU Tempe Campus  
Shreya Satheesh<sup>U</sup>, Fangwei Su<sup>V</sup>, **Pengyao Jiang**, "Evolutionary Dynamics of Genome Stability: Investigating Mutation Load and Compensatory Mechanisms in Yeast". Received the **Honorable Mention** Award.
- April 2025 SOLUR Undergraduate Research Symposium, ASU Tempe Campus  
Amanda Le<sup>U</sup>, Rosalie Thongphay<sup>U</sup>, Pratham Patel<sup>U</sup>, Valeria Icaza<sup>T</sup>, Corrine Penrose<sup>T</sup>, and **Pengyao Jiang**. "Capturing Mutation Spectrum Variation in *S. cerevisiae* Using a CRISPR-Engineered Reporter Gene."
- March 2025 Annual Drosophila Research Conference, San Diego, CA  
Arin Shaw<sup>G</sup>, Cale Whitworth, and **Pengyao Jiang**. "Investigating the Genetic Architecture of Drosophila Populations."
- August 2024 Annual Retreat of Center for Mechanisms of Evolution, ASU Tempe Campus  
Valeria Icaza<sup>T</sup> and **Pengyao Jiang**. "High-throughput genomic techniques to profile mutation spectrum variation."

## Teaching

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### **BIO 340: General Genetics**

Fall 2025, Co-instructor with Dr. Gillian Gile, 15 of 30 lectures (250 students).  
Fall 2024, Co-instructor with Dr. Gillian Gile, 15 of 30 lectures (250 students).

### **BIO439/539: Computing for Research**

Spring 2025: 116 online students.  
Spring 2026: 138 online students.

## Guest Lectures

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- Fall 2025 BIO 552 Developmental Genetics, by Dr. Stuart Newfeld  
"Mutation rate and spectrum variation in *S. cerevisiae* natural isolates"

Fall 2024	EVO 610	Research Topics in Evolutionary Biology, by Dr. Jay Taylor "Uncovering the genetic basis of natural mutation rate variation"
Fall 2024	BIO 194	iSTEM SOLUR Prep Seminar, by Dr. Susan Holechek "Panel discussion: What is research"

## Professional Service

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### Internal Service (ASU)

#### **Faculty search committees**

2024 – 2025 Computational Life Sciences, M.S., teaching assistant professor search  
10 applications, 4 interviews, 1 hire

#### **Graduate program committees**

2024 – present Computational Life Sciences (CLS) master's program committee member  
2024 – present Evolution graduate program steering committee member

#### **Poster Judge/ Reviewer**

2025 3MT Thesis Competition award judge, SOLS, ASU  
2025 ProQuest Distinguished Dissertation Award Reviewer, College of Liberal Arts and Sciences, ASU  
2025 ASU SOLUR Undergraduate Research Symposium poster judge  
2024 ASU SOLUR Undergraduate Research Symposium poster judge  
2024 Ad-hoc reviewer for Microbiology Ph.D. program, Evolution Ph.D. program

#### **Guest speaker host**

2025 Host guest speaker Nick Buchler for Center for Mechanisms of Evolution Seminar Series, ASU

### Ad-hoc Scientific Journal Reviewer

Total number of manuscript versions reviewed in 2025: 8 (7 unique).  
Total number of manuscript versions reviewed in 2024: 3 (3 unique).  
Total number of manuscript versions reviewed in 2023: 6 (6 unique).

### Ad-hoc Scientific Grant Reviewer

2024 Israel Science Foundation: 1 proposal

### Conference/Symposium Organization

2022 Symposium of Molecular Evolution: In Honor of Martin Kreitman's Scientific Career organizing committee member  
2021 SMBE Conference online hub organizing committee member

### Conference Moderator/Poster Judge

2024 Networking hotspot Moderator for TAGC 2024: "First generation experiences in science"  
2022 PEQG Conference poster judge on Evolutionary Genetics