

## CONTACT

Email\_ kaito@ucsd.edu

Twitter\_ @kaitochondria

## RESEARCH SKILLS

Experimental Design / Microscopy /

Statistical Analysis / Deep Learning /

Image Analysis / Data Visualization /

Network Clustering / Classification

## TECHNICAL SKILLS

Python . . . . . R . . . . .

Fiji/ImageJ . . . . . MATLAB . . . . .

Clojure . . . . . Illustrator . . . . .

## EDUCATION

# Sep 2016 > Present

**PhD Candidate** @ University of California, San Diego (San Diego)  
Biological Sciences with Specialization in Quantitative Biology

Biology Graduate Student Council Rep (2020-2021 term)

Neuromatch Academy - Deep Learning Interactive & Project Track

# Apr 2014 > Mar 2016

**Master of Arts** @ University of Tokyo (Tokyo)  
Research in bacterial cytoplasm biophysics and optogenetics

# Apr 2010 > Mar 2014

**Bachelor of Arts** @ International Christian University (Tokyo)  
Biology Major  
Editor-in-chief of weekly student newspaper

## EXPERIENCE

# Sep 2016 > Present

**PhD Candidate** @ University of California, San Diego [San Diego]

Investigating how bacterial spores use electrochemical charges to return to life by combining molecular genetics, fluorescence microscopy, and data analysis.

- Obtain time-lapse microscopy data for thousands of spores in a microfluidics device.
- Analyze image data in Fiji/ImageJ using custom macro to stabilize drift and extract image features.
- Process data in Python using Pandas and NumPy to detect spore germination, perform statistical analyses, and generate publication-ready data visualizations.
- First-author manuscript currently under review (see Publications).

# Apr 2013 > Aug 2016

**Student Research Assistant** @ The Systems Biology Institute (Tokyo)

Participated in bioinformatics research projects aiming to locate drug-target proteins from protein-protein interaction (PPI) networks.

- Developed a novel network mining method by sequentially applying clustering algorithms in R.
- Co-authored paper for identifying a submodule within the Human PPI network enriched with 40% of known kinase inhibitor targets.
- Participated in the Sage DREAM8 competition and ranked among the top 5 in the visualization sub-challenge.
- Led a project to apply clustering technique to Methicillin-Resistant Staphylococcus aureus (MRSA), refining the module analysis step to use an ensemble voting method comprised of 10 different machine learning algorithms to predict drug targets.
- Accepted to the 8th Asian Young Researcher's Conference on Omics and Computational Biology as an oral presentation with travel grants awarded (acceptance rate < 25%).

# Nov 2010 > Aug 2016

**President** @ Shoyojuku Private Tutoring (Tokyo)

Founded and ran a tutoring service for local secondary school students.

- Identified an underserved market of local students struggling to keep up with school.
- Managed a team of up to 8 part-time tutors, overseeing scheduling, pay, classroom renting, coordination with parents and school teachers, among other responsibilities.
- Taught mathematics, biology, Japanese, and English to students ranging from 7th to 12th grade, including preparations for college entrance exams.
- Helped students get into their dreams schools, including top-ranked Keio University.
- Paid twice the average tutor wage while maintaining competitive tuition rates.

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**PUBLICATIONS**

# Manuscript under review

Kikuchi K, Galera-Laporta L, Weatherwax C, Lam J, Theodorakis E, Garcia-Ojalvo J, Süel GM  
"Electrochemical Potential Enables Dormant Spores To Integrate Environmental Signals"

# Dec 2019

Zhai X, Larkin JW, Kikuchi K, Redford SE, Roy U, Süel GM, Mugler A "Statistics of correlated percolation in a bacterial community" PLoS Computational Biology

# Aug 2018

Larkin JW, Zhai X, Kikuchi K, Redford SE, Prindle A, Liu J, Greenfield S, Walczak AM, Garcia-Ojalvo J, Mugler A, Süel GM "Signal percolation within a bacterial community" Cell Systems

# Feb 2016

Hill S, et al. [HPN-DREAM Consortium, including Kikuchi K] "Inferring causal molecular networks: empirical assessment through a community-based effort" Nature Methods

# Nov 2014

Hase T, Kikuchi K, Ghosh S, Kitano H, Tanaka H "Identification of drug-target modules in the human protein-protein interaction network" Artificial Life and Robotics

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**FELLOWSHIPS AND AWARDS**

# Sep 2021

Best Student Speaker Award @ UC San Diego Biological Sciences - Salk Retreat 2021

# Oct 2020 > Sep 2021

The ANRI Fellowship @ ANRI

# Sep 2016 > Aug 2019

Overseas Graduate Scholarship @ Japan Student Support Organization

# Apr 2016 > Aug 2016

Research Fellowship DC1 @ Japan Society for the Promotion of Science

# Mar 2016

Outstanding Graduate Student Award @ University of Tokyo

# Jan 2015

AYRCOB Travel Grant @ 8th Asian Young Researcher's Conference on Computational and Omics Biology (AYRCOB)

# Apr 2014 > Mar 2016

Integrated Human Sciences Graduate Program Fellow @ University of Tokyo

# Mar 2014

Takuya Tokihisa Biosciences Award @ International Christian University

# Apr 2010 > Mar 2014

Peace Bell Scholar @ International Christian University

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**LANGUAGES**

Native fluency in English and Japanese

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**INTERESTS**

Cooking / Carving / Baking / Surfing / Biking / Pottery / Gardening / Kintsugi