



Joyce Kao, Ph.D.

Data Scientist & Web Developer

- 01 Nov, 1984
- US citizen, Swiss B permit
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About Me

Highly-adaptable, detail-oriented data scientist with web developer skills. Extensive experience in complex experimental design, multi-modal data collection, and analyses. Over 10 years coordinating and managing internationally collaborative projects.

Languages

- English (native) ● ● ● ● ●
- Chinese (native) ● ● ● ● ●
- German (B1) ● ● ● ● ●

Technical Skills

- Data Science ● ● ● ● ●
 - A/B testing, Regression, Clustering, Survival Analysis, Machine Learning
 - R, Python
- Image Analysis ● ● ● ● ●
 - Segmentation, Classification
 - Fiji, ilastik, CellProfiler, Icy
- Web Development ● ● ● ● ●
 - Github: joycekao
 - Ruby on Rails, HTML 5, CSS, SQL, JavaScript, Heroku

Selected Experiences

- 2019 Oct–present** **Program Director (Pro Bono)** **ETH Zürich/University of Zürich**
Establishing the Open Innovation in Life Sciences program, a new division of Life Science Zurich, that helps life scientists practice open science. <https://www.openinnovationinlifesciences.com/>
Key Responsibilities & Contributions:
 - In charge of program development, assembling the operational infrastructure, establishing strategic partnerships, and preparing fundraising documents.
 - Designing and launching landing page, and managing online platforms for event registration and social media.
 - Supervising and guiding conference planning committee in organizing the 2020 Open Innovation in Life Sciences conference.
- 2018 Dec – present** **Freelance Statistics Consultant** **Self & Yashina Tutors**
Recommending and performing statistical analysis on various types of datasets including product and customer satisfaction assessment surveys.
- 2019 May–2020 Apr** **Postdoctoral Scientist** **ETH Zürich**
Developing root architecture variation data pipelines while assisting a new lab at the Institute of Plant Biology establish information/communication infrastructure.
Key Responsibilities & Contributions:
 - Building and optimizing image analysis workflows for biologists to analyze various types of image data.
 - Setting up and advising on basic lab informatics structure (i.e. lab communications, lab operational wiki, ordering systems, seed stock database, etc.).
 - Designing experiments investigating root architecture in *Arabidopsis arenosa* by streamlining workflows for experimental, data collection, and analysis protocols.
- 2014 – 2019** **Postdoctoral Fellow** **New York University**
Awarded the NIH Ruth L. Kirschstein Research Service Award to conduct research on effects of genetic backgrounds on chromatin gene perturbations.
Key Responsibilities & Contributions:
 - Coordinated a team of eight members to perform gene knockouts in over 400 lines of *Drosophila melanogaster*
 - Collaborated with the lab of Ernst Hafen at ETH Zürich to develop an image-based high-throughput assay for quantifying spatial color patterns of insect eyes.
- 2006 – 2014** **Graduate Research Assistant** **University of Southern California**
Led research projects in bioinformatics, molecular and marine biology, and ecology resulting in four peer-reviewed publications.
Key Responsibilities & Contributions:
 - Managed an interchanging team of six undergraduate researchers on multiple simultaneous research projects both in the laboratory and field.
 - Performed statistical analyses and coordinated team results for publications.

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Other skills



Microsoft Office: Excel, Word, PowerPoint, Outlook, etc.



Google Suite: Sheets, Docs, Slides, Cal, etc.



Communication: Slack, Glip



Task/Team tracking: Trello

Hobbies



Photography, Sewing, Crocheting



Yoga, Running, Traveling

Education

Degrees

2006 – 2014	Ph.D. in Computational Biology Publications: bit.ly/jykpub	University of Southern California
2003 – 2006	B.S. in Mathematics with honors	The University of Texas at Austin
2003 – 2006	B.A. in English with honors and minor in Biology	The University of Texas at Austin

Continuing Education

Spring 2020	Full Stack Web Development course	Le Wagon Switzerland
Fall 2019	Grundgrammatik: Deutsch A2-B1	Sprachzentrum der UZH & ETHZ
Mar 2019	Business Creation in ICT	Venture Labs

Extracurricular Activities

Volunteering for events, organizations, & initiatives to give back to the community.

2014-now	Science Ambassador Scholarship Reviewing annual applications on the judges panel for four-year, full-tuition college scholarship aimed towards supporting young women studying in STEM fields at U.S. institutions.	Cards Against Humanity
2016-now	Akademischer Mittelbau am Departement Biologie Official scientific staff association representing staff interests in shaping departmental policies. Serving as Communications Officer setting up key partnerships with local organizations.	ETH Zürich
2-5 Feb, 2019	NEUBIAS ECI Bioimage Analysis Training School Curated course content and organized trainers to teach image processing and analysis for the 3rd annual Network of European Bioimage Analysts (advanced) Early Career Investigators Training School.	Esch-sur-Alzette, Luxembourg
2012, 2014	Annual ISMB conference Supervised 30 volunteers at the 20th and 22nd Annual International Conference on Intelligent Systems for Molecular Biology on preparing event collateral, attendance reporting, session recording, etc.	multiple locations

Scientific Communications

Selected Publications (Full List @ bit.ly/jykpub)

2020	The Drosophila post-mating response: gene expression and behavioral changes reveal perdurance and variation in cross-tissue interactions. G3. DOI: 10.1534/g3.119.400963
2019	EvoChromo: towards a synthesis of chromatin biology and evolution. Development. DOI: 10.1242/dev.178962
2018	NEUBIAS 2018 Conference Report. Imaging & Microscopy. https://www.imaging-git.com/news/neubias-2018-0
2015	Population genomic analysis uncovers African and European admixture in Drosophila melanogaster from the southeastern United States and Caribbean Islands. Molecular Ecology. DOI: 10.1111/mec.13137

Outreach Videos

2018	The Company of Biologists EvoChromo Workshop: https://youtu.be/VjcuAZYxWwI
2017	Using flies to study cryptic genetic variation: https://wp.nyu.edu/siegel/cryptic-genetic-variation/

May 2, 2020

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