



Kaito Kikuchi

SUMMARY

PhD Data Scientist with 10+ years of experience using machine learning for biomedical imaging and computational biology. Passionate about helping teams extract insights from data and using leadership and communication skills to turn them into actionable solutions. From uncovering how dormant cells make smart decisions to developing tools for detecting tumors and manufacturing defects, I thrive on solving impactful, interdisciplinary problems.

PERSONAL INFO

- 📍 San Diego, California, USA
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TECHNICAL SKILLS

- **ML/AI:** Deep learning (CNNs, LLMs, object detection), clustering, classification, regression
- **Image Analysis:** OpenCV, ImageJ/FIJI, QuPath
- **Programming:** Python (PyTorch, Pandas, NumPy, SciPy, Scikit-learn, Matplotlib, Streamlit), R, Clojure, Rust
- **Cloud & Infrastructure:** Google Cloud Platform (GCP), Docker, Kubernetes, Linux

LANGUAGES

- **English:** Native fluency
- **Japanese:** Native fluency
- **German:** Elementary

INTERESTS

Pottery/Cooking/Biking/Baking/Kintsugi

WORK EXPERIENCE

Applied Data Scientist

ThinkCyte, USA
Mar 2024 - Present

- Led the applied data science team to **enhance instrument performance** through data science, **develop new ML-driven products**, and **support clients** with experimental design, data analysis, and workflow optimization.
- Designed and deployed an **end-of-line analysis pipeline**, improving manufacturing quality control by detecting defects earlier and tracking logs.
- Contributed to **cloud-based analysis product development**, implementing ML pipelines and conducting alpha/beta testing.

Machine Learning Engineer

LPixel, Japan
May 2024 - Present
(Contract)

- Built a **semantic segmentation pipeline** for detecting and classifying nuclei and tissue structures from H&E-stained whole slide images.
- Achieved **92.8% precision** for seminiferous tubule staging and **84.5% for 11 cell classes**, with near-perfect detection coverage.

LLM Engineer

Phytometrics, Japan
Jan 2024 - April 2024
(Contract, Fixed-Term)

- Designed and implemented a **multilingual Retrieval Augmented Generation (RAG) application** using Llama-parse, Llama-index, Pinecone, GPT-4, and Chainlit.
- Developed the entire data ingestion pipeline, core indexing and retrieval logic, prompt routing, and GUI.

Manager, Computational Biology

Reveal Biosciences, USA
Aug 2023 - Jan 2024

- Led a digital pathology image analysis team of 5 scientists, driving research and development in **AI-based pathology solutions**.
- Developed ML pipelines with Pytorch, integrating specialized nuclei segmentation models with CNNs, achieving **>90% cell classification accuracy** across **14 tumor indications**.
- Built an **internal data QC web-app** for outlier detection and visualization, **reducing client study turnaround time by 35%**.

Image Analysis Scientist

Sep 2022 - Aug 2023

- **Discovered a novel mechanism** in which dormant bacteria use stored electrochemical potential to determine germination timing, published in *Science* (2022).
- **Led a multidisciplinary research project**, integrating single-cell time-lapse imaging, microfluidics, data science, and mathematical modeling to analyze microbial physiology.

EDUCATION

University of California San Diego

Sep 2016 - Jul 2022

Ph.D. in Biological Sciences with specialization in quantitative biology

University of Tokyo

Apr 2014 - Mar 2016

M.A. in Biophysics with a focus in single-cell live imaging and optogenetics

International Christian University

Apr 2010 - Mar 2014

B.A. in Biology with a focus in microbial genetics and DNA repair

SELECT PUBLICATIONS

- **Kikuchi K**, Galera-Laporta L, Weatherwax C, et al. *Electrochemical potential enables dormant spores to integrate environmental signals*. **Science**. Oct 2022.
- Larkin JW, Zhai X, **Kikuchi K**, et al. *Signal percolation within a bacterial community*. **Cell Systems**. Aug 2018.
- Hill S, et al. [HPN-DREAM Consortium, including **Kikuchi K**]. *Inferring causal molecular networks: empirical assessment through a community-based effort*. **Nature Methods**. Apr 2016.