

Kevin Y. Wu

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Education **University of Chicago** Sept. 2020 - June 2024
B.S., Computational and Applied Mathematics
Summa Cum Laude
GPA: 3.95/4.00

University of Chicago Sept. 2023 - June 2024
M.S., Computer Science
4-Year Joint Degree
GPA: 3.87/4.00

Experience **Robotic Intelligence through Perception Lab** Mar. 2024 - Present
Undergraduate Researcher
Advisor: Prof. Matthew Walter

- Worked on [Progressor](#), a self-supervised reward model capable of learning goal-conditioned task rewards from videos. Benchmarked the reward function using the DrQV-2 reinforcement learning (RL) algorithm in the Metaworld environment, and tested it on real-robot tasks via reward-weighted behavioral cloning (BC) using Action Chunking Transformers (ACT).
- Led a six-week robotic manipulation course, teaching high school students to build a low-cost 5-DOF arm and program it to play tic-tac-toe. Covered Python, forward/inverse kinematics, computer vision, and robot learning.
- Implemented two teleoperation systems for a UR5 robot with Leap Motion hand-tracking and Meta Quest 3. Exhibited at the Museum of Science in Chicago and enabled lab members to efficiently collect demonstrations for imitation learning.
- Designed and built a fully-programmable 4-DOF robotic arm module for [Duckietown](#), a company offering small autonomous vehicles for education and research.

Zero Knowledge Discovery Lab Nov. 2021 - July 2024
Undergraduate Researcher
Advisor: Prof. Ishanu Chattopadhyay

- Developed [Emergenet](#), a framework built on conditional inference trees to capture long-range structural dependencies in viral genomes with only sequence data.
- Introduced *E-distance* metric quantifying mutation probabilities between viral strains to assess the emergence risk of animal Influenza A strains.
- Validated Emergenet on $\sim 220k$ sequences from 2003 - 2023, outperforming WHO vaccine recommendations for H1N1/H3N2 in 81% of seasons.
- Emergenet predicted risk scores correlate ($R = 0.721, p = 10^{-4}$) with the CDC's expert-evaluated IRAT (Influenza Risk Assessment Tool) scores.

MathWorks June 2023 - Aug. 2023
Software Engineer Intern, Deep Learning Compression Team
Mentor: Dr. Brenda Zhuang

- Developed a neural network to classify ECG signals from a wearable device.
- Applied model quantization to reduce memory footprint for embedded systems.
- Implemented and trained Neural ODE (NODE) and Deep Equilibrium (DEQ) models to benchmark performance against ResNet.

MathWorks

June 2022 - Sept. 2022

Software Engineer Intern, Install & Licensing Team

Mentor: Sheba Oommen

- Built automated tests in Java JUnit and MATLAB for new license borrowing functions and user interface, achieving 100% code coverage.
- Built Python performance tests to profile MATLAB startup speed, identifying critical bugs and optimization opportunities.

University of Chicago Department of Mathematics

June 2021 - Aug. 2021

REU Student

Mentor: Livia Xu

- Wrote an expository [paper](#) on the chip-firing game and its use in proving the graph-theoretic analogue of Riemann-Roch.
- Solved problems and attended talks on combinatorics, geometry, and analysis.

Papers

Progressor: A Perceptual Guided Reward Estimator with Self-Supervised Optimal Refinement

Tewodros W. Ayalew, Xiao Zhang, **Kevin Yuanbo Wu**, Tianchong Jiang, Michael Maire, and Matthew R. Walter

Under review, International Conference on Learning Representations (ICLR), 2025

[arXiv](#) | [code](#) | [website](#)

Emergenet: A Digital Twin of Sequence Evolution for Scalable Emergence Risk Assessment of Animal Influenza A Strains

Kevin Yuanbo Wu, Jin Li, Aaron Esser-Kahn, and Ishanu Chattopadhyay

Under review, Science Advances, 2024

[arXiv](#) | [code](#) | [website](#)

Riemman-Roch through the Dollar Game

Kevin Yuanbo Wu

University of Chicago Mathematics REU, 2021

[paper](#)

Awards

Enrico Fermi Scholar - Top 5% of Physical Sciences Division	2024
Dean's List - Awarded each year of undergrad	2024
Phi Beta Kappa - Elected junior year	2023
Robert Maynard Hutchins Scholar - Top 10% of class	2022
Hack@Brown Wolfram Award - Top 25 projects	2021
LEGO Design Award - Model displayed at LEGOLAND	2020

Skills

Technical Languages: Python, MATLAB, C++, SQL, \LaTeX

Frameworks: PyTorch, Sklearn, NumPy, Pandas, OpenCV, MuJoCo

Tools: Unix/Linux, Git, Docker, Bash

Spoken Languages: English (native), Mandarin (native)

Hobbies: LEGO ([YouTube channel](#)), guitar, soccer, basketball, reading