

Education	University of Chicago B.S., Computational and Applied Mathematics <i>Summa Cum Laude</i> GPA: 3.95/4.00	Sept. 2020 - June 2024
	University of Chicago M.S., Computer Science <i>4-Year Joint Degree</i> GPA: 3.87/4.00	Sept. 2023 - June 2024

Experience	MathWorks <i>Software Engineer, Engineering Development Group</i> <ul style="list-style-type: none">Integrating the Flexible Collision Library (FCL) in C++ into MATLAB. Updating MATLAB's existing inverse kinematics (IK) solvers to include a constraint based on penetration depth for collision-free IK.Developing a user-facing collision-free inverse kinematics example.	Sept. 2024 - Present
	Robotic Intelligence through Perception Lab <i>Advisor: Prof. Matthew Walter</i> <ul style="list-style-type: none">Worked on PROGRESSOR, a self-supervised reward model capable of learning goal-conditioned task rewards from videos. Benchmarked the reward function using the DrQ-v2 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.	Mar. 2024 - Present
	Zero Knowledge Discovery Lab <i>Advisor: Prof. Ishanu Chattopadhyay</i> <ul style="list-style-type: none">Developed EMERGENET, a framework built on conditional inference trees to capture long-range structural dependencies in viral genomes with only sequence data.Introduced <i>E-distance</i> 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.	Nov. 2021 - July 2024

MathWorks

June 2023 - Aug. 2023

Software Engineer Intern, Deep Learning Compression Team

- 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 Residual Network (ResNet).

MathWorks

June 2022 - Sept. 2022

Software Engineer Intern, Install & Licensing Team

- 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

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

Papers

PROGRESSOR: A Perceptually 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, Conference on Computer Vision and Pattern Recognition (CVPR), 2025

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

[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