Douglas Lin

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EDUCATION

BS in **Computer Science, University of Washington** (Seattle, WA)
June 2028 (expected)
Coursework: Calculus-Based Intro to Mechanics and E&M, Calculus 3, Computer Programming III, Discrete Structures

EXPERIENCE

Molecular Dynamics Machine Learning Researcher, UCSC *Marinescu Lab* (Santa Cruz, CA, Apr 2025 – Sep 2025)
▪ Collaboratively developing models to enable ligand-aware coarse-grained simulations using PyTorch and OpenMM
▪ Integrated ligand processing and benchmarking into existing simulate-train-test infrastructure

Founder/President, *International Genetically Engineered Machine (iGEM) Team* (Louisville, KY, Nov 2022 - May 2025)
▪ Led team (GCM-KY) to receive iGEM **Gold** Medal in Paris 2024; https://jamboree.igem.org/2024/results/medals
　o One of two high school teams in the US to do so; 397 total teams from 41 countries
▪ Led ideation and procedure development to design novel **biosensor** for PFAS, a persistent toxin in consumer products
▪ **Modeled** stochastic kinetics of designed genetic circuits; **developed** team wiki UI; **conducted** literature reviews
▪ Identified 2 novel potential mechanisms of PFAS human toxicity using computational and *in vitro* techniques
▪ Raised $32,000+ through NIH grants, **organizing** car wash events, Metrohm sponsorship, and GoFundMe campaigns
▪ Managed all team activities and **trained** members to use Virtual Cell, communicate, and analyze scientific literature

Genomics Researcher, *Summer Science Program in Genomics* (Las Cruces, NM, June 2024 - July 2024)
▪ **Bioinformatic** analysis to identify novel antibiotic resistance mutations and modeled mutations with Alphafold
▪ Performed plating, PCR, DNA extraction + purification, and natural transformation under antiseptic conditions
▪ Collaborated with 2 partners to produce paper report and poster presentation on our findings
▪ Sole recipient of the **Chambers Scholarship** for "academic excellence, hard work, and immense potential"

Biomedical Informatics Intern, *Ping Lab at UCLA* (Los Angeles, CA, June 2023 - July 2023)
▪ Extracted and annotated clinically relevant metadata from PubMed-indexed Clinical Case Reports

Hospital Transportation Intern, *Baptist Health* (Louisville, KY, June 2023 - July 2023)
▪ Worked with nurses to discharge patients in wheelchairs and round floors to gather stretchers and medical equipment

Data Science Intern, *Ericsson The One Network* (Los Angeles, CA, June 2021 - August 2021)
▪ Processed data to show gaps in coverage for 4G and 5G cellular data to promote indoor 5G
▪ Optimized runtimes of analytical algorithms by over **60,000%** using Python, Numpy, and Pandas

PROJECTS

Stochastic Multicellular Simulator (https://github.com/dglgit/multicell-sims**)**
▪ Implemented in optimized Python, Numpy, and Numba to validate biosensor designs incorporating quorum sensing
▪ Findings published in Frontiers in Molecular Biosciences: Biological Modeling and Simulation
Browser-Based Distributed Computing Framework (https://github.com/dglgit/webCompute_sf)
▪ Developed distributed computing framework accessible using only a web browser
▪ Maintained **SQLite** database; **WASM** for frontend computation; **Flask** for web routing

HONORS AND AWARDS

▪ 23 Science Olympiad medals over 4 years, with 5 state-level Gold Medals
▪ 1st Place, State Science Olympiad in Detector Building 2022-24 (design and calibration of **Arduino**-based sensors)
▪ USA Computing Olympiad Silver Division (C++)
▪ Modeling the Future Challenge Finalist: correlate health habits and socioeconomic status to chronic health issues with machine learning models and **quantified** projected risk

- USA Biology Olympiad 2024 Semifinalist Honorable Mention (top 2.9%)
- 1st Place, US National Chemistry Olympiad, Locals Section 2023 and 2024

PUBLICATIONS AND PRESENTATIONS

Lin, D., Martin, M. (Accepted 2025, August 22). *Role of Intercellular Interactions on Single Cell and Population Level Responses: Considerations for Multicellular Bioreporter Design*. Frontiers in Molecular Biosciences, 12. www.frontiersin.org/journals/molecular-biosciences/articles/10.3389/fmolb.2025.1595363.

Lin, D., et al. (2025, January 31 - February 1). *Insights into Molecular Interactions: Predicting and Validating PFOA Binding to Human Proteins*. Kentucky IDeA Networks of Biomedical Research Excellence Annual Research Conference 2025, Louisville, KY, United States. https://www.kyinbre.org/events/arc25/arc25-abstracts-list.

Lin, D. & Martin, M. (2024, October 1-3). *Role of Intercellular Interactions on Single Cell and Population Level Responses: Considerations for Multicellular Bioreporter Design* [Conference session]. 16th annual RECOMB/International Society of Computational Biology Conference on Regulatory & Systems Genomics with DREAM Challenges, Madison, WI, United States. https://www.iscb.org/rsgdream2024/programme-agenda/posters.

Dey, R., **Lin, D.**, Liu, V., et al. (2024, July 29). *Adaptation of Erythromycin Resistance in Vibrio natriegens*. Summer Science Program Genomics, Las Cruces, NM, United States.

Lin, D., et al. (2024, March 1). *Louisville iGEM: in silico PFAS Biosensor Detection System*. Kentucky IDeA Networks of Biomedical Research Excellence Annual Research Conference 2024, Louisville, KY, United States. https://www.kyinbre.org/events/arc24/arc24-abstracts-list

Lin, D. (June 18 2022). *Efficacies of Different Solvents on Iron Powder Reclamation Used in Microplastic Removal*. Stockholm Junior Water Prize, Golden, CO, United States.