

# Douglas Lin

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## EDUCATION

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**BS in Computer Science, University of Washington** (Seattle, WA)

June 2029 (expected)

**Math, Science, and Technology Magnet, duPont Manual Magnet High School** (Louisville, KY)

Valedictorian, May 2025

GPA: 4.6/4.0

ACT: 36

APs: 15/15 Full Scores

Global Seal of Biliteracy: Spanish

## EXPERIENCE

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**Molecular Dynamics Machine Learning Researcher**, *Marinescu Lab at UCSC* (Santa Cruz, CA, April 2025 - present)

- Collaboratively developing models to enable ligand-aware coarse-grained simulations using pytorch and OpenMM

**Founder/President**, *iGEM Louisville* (Louisville, KY, November 2022 - May 2025)

- Led team to receive **Gold Medal** in 2024 in Paris, becoming one of two high school teams in the US to do so
- 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; **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

**Science Kits Program Head**, *STEMY Inc.* (Louisville, KY, May 2023 - May 2025)

- Led team of 5 to develop new assembly process for educational kits that teach environmental microfluidic pH testing
- Delivered hands-on STEM lessons at libraries and middle schools for underserved students for the first time in 6 years

**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 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, 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)

- Discharged patients in wheelchairs, rounded 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

## HONORS AND AWARDS

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- Poster presenter at RECOMB/ISCB RSGDREAM 2024 (research on self-built stochastic multicellular simulator)
- 1st Place, State Science Olympiad in Detector Building 2022-24 (design and calibration of Arduino-based sensors)
- USA Biology Olympiad 2024 Semifinalist Honorable Mention (top 2.9%)
- 1st Place, US National Chemistry Olympiad, Locals Section 2023 and 2024
- USA Computing Olympiad Silver Division (C++)
- Modeling the Future Challenge Finalist: correlate health habits and socioeconomic status to chronic health issues

## PUBLICATIONS AND PRESENTATIONS

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- 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.