Douglas Lin

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EDUCATION

BS in **Computer Science, University of Washington** (Seattle, WA) - December 2027 (expected) **GPA:** 3.94/4.0
Relevant Coursework: Computational Biology (explainable AI focus; Graduate-Level), Hardware/Software Interface

EXPERIENCE

AI Agent Engineer, **Pauling.AI**, (Seattle, WA, Nov. 2025 - present)
- Implementing & testing agentic AI + simulation pipelines for rapid drug discovery and validation in CI/CD workflow
- Leading novel antiviral development for aging-linked virus; building target discovery **agent**; lab validation pending
- Full stack **Vue** and **Django**; **Google Cloud** and **Apache Beam** pipelines verified with **PyTest**; **PostgreSQL** database

Computational Protein Researcher, **2024 Nobel Laureate Baker Lab at UW** (Seattle, WA, Sep. 2025 - present)
- Extracted **+600K** curated datapoints using LLM workflows to improve binding/stability prediction models
- Optimizing latent protein representations of RosettaFold3 to improve binding affinity training speed & generalization
- Resolved errors in RFDiffusion-LigandMPNN-AlphaFold protein design & generation pipeline

Molecular Dynamics Machine Learning Researcher, **Marinescu Lab at UCSC** (Santa Cruz, CA, Apr. 2025 - Sep. 2025)
- Collaboratively developed 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 '22 - May '25)
- Led team (GCM-KY) to receive iGEM **Gold** Medal in Paris 2024; **one of two** high school teams in the US to do so
- **Modeled** stochastic kinetics of gene circuits; **developed** team wiki UI in **CI/CD** workflow; **analyzed** research papers
- 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)
- **Sole** recipient of the **Chambers Scholarship** for "academic excellence, hard work, and immense potential"
- **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

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
- Harmonized multimodal data into unified computer-readable format

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 (doi.org/10.3389/fmolb.2025.1595363; https://github.com/dglgit/multicell-sims**)**
- Implemented in optimized Python, Numpy, and Numba to validate biosensor designs incorporating quorum sensing
- Findings peer-reviewed and **published** and **cited** in Frontiers in Molecular Biosciences

Biology RAG ChatBot/Question Answerer (https://www.douglas-lin.net/bio-rag)
- Used **LangChain**, **Gemini API,** and **FAISS** database to create chatbot that cites from biology textbooks
- Containerized in **Docker** with **ASGI** interface hosted on **Azure**

Browser-Based Distributed Computing Framework (https://github.com/dglgit/webCompute_sf)
- Developed distributed computing framework for prime and Collatz number testing accessible via web browser
- Maintained **SQLite** database; **WASM** for high-performance frontend computation; **Flask** for routing

HONORS AND AWARDS

- **1st Place**, State Science Olympiad in Detector Building 2022-24 (design and calibration of **Arduino**-based sensors)
- **1st Place** US Chemistry Olympiad Locals Section 2023-2024
- USA Computing Olympiad Silver Division (C++); USA Biology Olympiad 2024 **top 2.9%** of scorers

PUBLICATIONS AND PRESENTATIONS

Lin, D., & Martin, M. (2025). *Role of intercellular interactions on single cell and population level responses: Considerations for multicellular bioreporter design.* Frontiers in Molecular Biosciences, 12. doi.org/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* **(Awarded Best Overall Presentation)**. 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.