Mindren Lu

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Education

Massachusetts Institute of Technology (MIT) — Cambridge, MA

M.Eng. in Computer Science, Concentration in BioEECS; GPA: 4.8/5.0 — *Sep 2021 - May 2022*

B.S. in Computer Science and Biological Engineering, Minor in Linguistics; GPA: 5.0/5.0 — *Sep 2018 - May 2022*

- **M.Eng. Thesis:** Enhanced Potts Models for Improved Computational Protein Design
- **CS:** Computational Biology, Machine Learning, NLP, Advanced Algorithms, Quantum Computation, Embedded Systems
- **Biology:** Biological Circuits, Biochemistry, Cell Biology, Genetics, Instrumentation, Fields/Forces/Flows, Thermodynamics
- **Extracurriculars:** Men's Ultimate Frisbee (B Team Captain), Camp Kesem (Counselor), Bridge Club (President), DDR@MIT (Co-Founder, President), Asian Dance Team, Badminton Club, MIT Mystery Hunt

Work Experience

Benchling — Boston, MA

Senior Software Engineer — *Jul 2024 - Present*

Software Engineer II — *Jul 2023 - Jul 2024*

Software Engineer — *Jul 2022 - Jul 2023*

- On the Lab Automation team; launched our 2023 flagship product, Connect, integrating lab instruments and their data
- Founding developer for allotropy, an open-source library for standardizing experimental data from 20+ instrument types
- Built Benchling's first off-monolith microservice, interacting with the monolith and customers' Windows lab machines
- Worked with Python, React, AWS Greengrass, DynamoDB, Docker, Terraform, Postgres, GraphQL, and Windows

Software Development Engineer Intern — *Jun - Aug 2021*

- Reduced the runtime of an NGS pipeline integration built in AWS by 80%, by redesigning its use of static dependencies

doc.ai — Palo Alto, CA (Virtual)

Technical Project Manager Intern — *Jan - Feb 2021*

- Guided 8 MIT interns in 3 subteams using GPT-3 to build a digital IRB tool for automating clinical protocol creation

Amazon.com — Berkeley, CA (Virtual)

Software Development Engineer Intern — *May - Aug 2020*

- Designed/implemented fixed effects regression and multicollinearity checking for an internal econometric modeling toolkit in Scala & Apache Spark; used at scales (billions+ of rows of data) beyond capabilities of existing tools in R or Stata

Microsoft Corporation — Cambridge, MA

Software Design Engineer Intern — *Jan - Feb 2020*

- Built a web app with the Met/Rijksmuseum to find pairs of semantically related artworks transcending cultures & media; searched for conditional KNN matches with a ball tree, and used SHAP for interpretability; demoed at NeurIPS 2020

Research Experience

Keating Lab (MIT) — Cambridge, MA

Research Assistant — *Sep 2021 - Nov 2022*

- Collaborated on TERMinator, a structure-based neural network generating Potts models for computational protein design
- Fine-tuned TERMinator's Potts models on experimental energetics data, improving their performance on orthogonal tasks
- Detailed an observed disconnect between accuracy on energetic benchmarks and native sequence recovery

Kellis Lab (MIT) — Cambridge, MA (Virtual)

Computational Biology Researcher — *Jun - Dec 2020*

- Built transcriptomic clocks using XGBoost and MLPs to predict tissue age in GTEx individuals and infer mechanisms of aging, improving baseline prediction correlation by 0.13; for a final project

Argonne National Laboratory — Lemont, IL

Research Aide — *Jan - Feb 2019*

- Used Tensorflow to predict properties of oxygen atoms in $Li_3FeO_{3.5}$ using XANES spectra; presented at 2019 APS March

Skills

Experienced: Python, Flask, TypeScript, React, AWS (Greengrass, IoT Core, SQS, Lambda, Batch, S3, EFS, CloudFormation)
Familiar: Java, Scala, Docker, Terraform, Postgres, GraphQL, Apache Spark, C/C++, Arduino, Go, SQL, Assembly, Bluespec
Languages: Mandarin Chinese (fluent), Latin (proficient)