

MINDREN LU

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EDUCATION

Massachusetts Institute of Technology (MIT)

MEng in Computer Science, Concentration in BioEECS; Studying Computational Protein Design

BS in Computer Science and Biological Engineering; GPA: 5.0/5.0

Minor in Linguistics and Mathematics

Cambridge, MA

Expected May 2022

- **Current Coursework:** Computational Molecular Biology, Advanced Algorithms, Analysis of Biomolecular/Cellular Systems
- **CS Coursework:** Computational Biology, Design/Analysis of Algorithms, Quantum Computation, Machine Learning, Natural Language Processing, Embedded Systems, Software Construction, Computer Systems Engineering
- **Biology Coursework:** Biological Circuit Engineering, Biochemistry, Cell Biology, Fields/Forces/Flows in Biological Systems, Genetics, Organic Chemistry, Genome Stability & Engineering, Thermodynamics of Biomolecular Systems
- **Extracurriculars:** Men's Ultimate Frisbee (B Team Captain), Camp Kesem (Counselor), Bridge Club (Exec Member), DDR@MIT (Co-Founder, President), Asian Dance Team, Badminton, Piano, Biking, Hiking

WORK EXPERIENCE

Benchling

Software Development Engineer Intern

San Francisco, CA (Virtual)

Jun - Aug 2021

- Reduced the runtime of an NGS pipeline integration built in AWS by 80%, by redesigning its use of static dependencies
- Designed a novel data model to enable restarting the pipeline at intermediate points, maintaining regulatory compliance

doc.ai

Technical Project Manager Intern

Palo Alto, CA (Virtual)

Jan - Feb 2021

- Guided 8 MIT interns in 3 subteams to use GPT-3 to implement a digital Institutional Review Board (IRB) tool, automating clinical protocol parsing, validation, and creation

Amazon.com

Software Development Engineer Intern

Berkeley, CA (Virtual)

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

Software Design Engineer Intern

Cambridge, MA

Jan - Feb 2020

- Worked with the Met/Rijksmuseum to build a web app to find pairs of semantically related artworks transcending different cultures & media; returned KNN matches with a ball tree for conditional searches, and leveraged SHAP for interpretability
- App demoed at NeurIPS 2020; **Paper:** <https://arxiv.org/abs/2007.07177>

RESEARCH EXPERIENCE

Kellis Lab (MIT)

Computational Biology Researcher

Cambridge, MA (Virtual)

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; **Paper:** <https://www.biorxiv.org/content/10.1101/2021.05.11.443707v1>
- Investigated efficacy of drug targeting with Mendelian immune diseases and tissue-specific enhancer networks

MIT Computer Science & Artificial Intelligence Lab (CSAIL)

Undergraduate Researcher

Cambridge, MA

Feb - Aug 2020

- Built a framework for developing AI-mediated video conferences in Go & JavaScript with assistive visualizations and apps

Argonne National Laboratory

Research Aide

Lemont, IL

Jan - Feb 2019

- Implemented neural networks in Tensorflow to predict properties of oxygen atoms in $\text{Li}_3\text{FeO}_{3.5}$ using XANES spectra
- Presented a talk on this work at the 2019 APS March meeting; **Paper:** <https://arxiv.org/abs/1905.03928>

SKILLS

Experienced: Python, Java, Scala, HTML/CSS, JavaScript, Apache Spark, Git, AWS (Lambda, Batch, S3, EFS, CloudFormation)

Familiar: C/C++, Arduino, Go, SQL, Assembly, Bluespec, Flask, Docker

Languages: Mandarin (fluent), Latin (proficient), Spanish (basic)