AKHIL JALAN

Email: akhiljalan@utexas.edu — **Website**: akhiljalan.github.io — **Citizenship**: USA

SKILLS

Artificial Intelligence & Modeling

- Design of Experiments (Bayesian optimization, active learning)
- Unsupervised Learning (graph clustering, dimensionality reduction)
- Deep Learning (Graph Neural Networks, Transformers, CNNs)
- Computational fluid dynamics: Finite element methods, Reynolds-averaged Navier Stokes, Large Eddy Simulation

Bioinformatics

- Biological network modeling (protein-protein interactions, gene regulatory networks, metabolic networks)
- Metabolic modeling (flux balance analysis, genome-scale models)

Bioprocessing

- Process Analytical Technology (feedback control, soft sensing)
- Signal processing (Raman spectroscopy, Dielectric spectroscopy)
- Bioreactor modeling (Mechanistic, agent-based, statistical)

Programming

- Lannguages (experienced): Python, Java
- Languages (proficient): SQL, C++, MATLAB, R, Julia, C
- Software: Continuous integration, Docker, Kubernetes, AWS, Spark

EDUCATION

University of Texas at Austin Aug 2020 - May 2025 (Expected)
Ph.D. Computer Science

University of California, Berkeley Aug 2015 - May 2019
B.A. Applied Mathematics, Highest Honors

SELECTED PUBLICATIONS AND MANUSCRIPTS

1. **Model-Based Control in Cultivated Meat Cell Cultures through Raman Spectroscopy**
Akhil Jalan, Kai Hoeffner.
International Foundation for Process Analytical Chemistry (IFPAC), 2024.

RELEVANT WORK EXPERIENCE

BERA Partners Jan 2024 - Present
Research & Development Intern *Remote*

· Technical consulting for computational methodology in protein structure vs function in food technology

· Operations researcher for market shaping & alternative protein scale-up investing

Ark Biotech May 2023 - Aug 2023
Research & Development Intern *Cambridge, MA*

· Signficiantly increased viable cell density & reduced doubling times in bioreactor cell cultures
· Model-based control algorithm for bioreactors using Raman spectroscopy & machine learning
· Lead author of publication in IFPAC Global 2024

SELECTED RESEARCH EXPERIENCE

Institute for Foundations of Machine Learning, UT Austin Sep 2020 - Present
Graduate Researcher *Austin, TX*

· PhD researcher in statistical & mathematical modeling
· Published papers on controls theory, game theory, randomized algorithms, network analysis, operations research
· Invited to present research at UC Berkeley, Cornell, UC San Diego, and UT Austin

The Cultivated Meat Modeling Consortium (CMMC) Sep 2022 - Dec 2023
Modeler *Seattle, WA (Remote)*

· Multi-scale modeling of cellular aggregate behavior in spinner-flask and stirred-tank bioreactors
· Agent-Based Models (ABM) of adhesive forces in cellular aggregates.