DR. RISHI GURNANI

Email: rishipgurnani@gmail.com | **>1800 academic citations** | **h-index = 13**
Personal Website | GitHub Profile

EDUCATION

Georgia Institute of Technology | Atlanta, GA | GPA: 4.00

- **Doctor of Philosophy, Materials Science & Engineering (MSE)** (2019 - 2023)
- **Master of Science, Computer Science**

University of California, Berkeley | Berkeley, CA

- **Bachelor of Science, Materials Science & Engineering** (2014 - 2018)

Relevant Courses: Polymer Chemistry, Biomacromolecular Structure, Deep Learning, Semi-Supervised Learning

NOTABLE PUBLICATIONS

(Additional on next page)

1. **AI-assisted discovery of high-temperature dielectrics for energy storage** (Nature). Read online.
    - Discovered a polymer dielectric with energy density **>11x** any commercially available polymer.
2. **Design of functional and sustainable polymers assisted by artificial intelligence** (Nature). Read online.
3. **polyGNN: Multitask graph neural networks for polymer informatics** (2023). Read online.

WORK EXPERIENCE

Coca-Cola | Atlanta, GA

Senior Manager, Artificial Intelligence (February 2025 - present)

- ML philosophy: Start simple and add complexity only as needed. Prefer models that incorporate domain wisdom. Prefer models that are explainable. Do not believe your model until you have tested it in the hardest possible conditions.
- Expert in developing fit-for-purpose machine learning algorithms and E2E model development from data discovery to model shipping.
- **Expert in:**
  - `Physics-informed ML`, `Graph Neural Networks`, `Cheminformatics`, `(Un)supervised Learning`, `Dimensionality Reduction`, `Clustering`, `Regression`, `Classification`.
- **Deep knowledge of:**
  - `RDKit`, `PyTorch`, `SymPy`, `Numpy`, `Pandas`, `Scikit-learn`, `Selenium`, `Playwright`, `BS4`, `Flask`, `D3`, `SQL`, `PyTest`, `Cypress`, `Vitest`, `Full Stack Development`.
- Experience in NLP, sentence embedding models, prompt engineering for LLM-based structured data extraction at scale.
- Developed novel algorithms for 1. predicting the color of beverage mixes 2. beverage recommendation systems 3. model validaton, and 4. model ensembling.
- Delivered process improvement via dashboard automation (35% reduction in manual time spent by VP), enhancing project efficiency and reducing error rate.

Matmerize Inc. | Atlanta, GA

Director of Software Engineering & Algorithms (March 2021 - February 2025)

- Oversee the development of an **enterprise ML software** (~2000 commits, ~100k lines of code, 5 languages) serving **>1000 users from >20 companies**.
- End-to-end experience with ML model development & deployment: **data-wrangling, web scraping, ML model prototyping &**

optimization, graphical user interface, unit testing, end-to-end testing, cloud deployment (AWS).

NOTABLE AWARDS AND INVITED TALKS

(Additional on next page)

1. **Keynote address**, Research, Innovation & Science for Engineered Fabrics Conference (2024).
2. **Graduate Student Award in Polymer Science (Finalist)**, ACS Division of Polymeric Materials (2024).
3. **Best Ph.D. Thesis**, Georgia Tech Chapter of Sigma Xi (2024).
4. **Graduate Student Award**, Materials Research Society (2023).
5. **Gold Medal for Best Presentation**, 2nd Energy & Informatics International Forum (2022).
6. **Best Talk**, Georgia Tech Student Polymer Network Spring Symposium (2022).

ADDITIONAL PUBLICATIONS / WRITINGS

- polyG2G: Machine learning applied to generative design of polymer dielectrics (2021).
- A Physics-Enforced Neural Network to Predict Polymer Melt Viscosity (2024).
- Gas permeability, diffusivity, and solubility in polymers: Simulation-experiment data fusion and multi-task ML (2024).
- Interpretable ML-based predictions in metal–organic frameworks (2020).
- Machine-learning predictions of polymer properties with Polymer Genome (2020).

Complete publication list on my website.

ADDITIONAL AWARDS AND INVITED TALKS

1. **Programs to Predict the Properties of New Polymers**, It's a Material World Podcast (2023). View online.
2. **Debugging Neural Networks**, Hands-on Data Science & ML Training Series, nanoHUB (2021). Watch on YouTube.
3. **polyG2G: ML Algorithm for Generative Design of Polymer Dielectrics**, 2nd Energy & Informatics International Forum, Tokyo Institute of Technology (2022). View online.
4. **Polymer Genome: Accelerating Materials Discovery via Data-Driven Approaches**,
    - 76th Annual Meeting & Exhibition, Society of Tribologists and Lubrication Engineers (2022). View online.
    - Materials Machine Learning Symposium, Sandia National Laboratory (2021). View online.