

DR. RISHI GURNANI

Email: rishipgurnani@gmail.com | **>1200 academic citations** | **h-index = 9**
[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](#).
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WORK EXPERIENCE

Matmerize Inc. | Atlanta, GA

Director of Software Engineering & Algorithms (March 2021 - Present)

- 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)**.
- **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.

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).
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OPEN-SOURCE CODE

1. **polyGNN**: Code for training fast and accurate structure-property models.
 - Used for the companion paper polyGNN: Multitask graph neural networks for polymer informatics.
 - [View on GitHub](#) (35 stars ★).
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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](#).