

# REHA MATHUR

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## EDUCATION

**Princeton University, Class of 2024**

**College GPA: 3.99**

**Major:** Chemical and Biological Engineering

**Certificates:** Computer Science, Statistics and Machine Learning, Quantitative and Computational Biology

**Horace Mann School, Class of 2020**

**High School GPA: 4.07(unweighted)**

## RESEARCH/WORK EXPERIENCE

**D.E. Shaw Research**

New York, NY

Machine Learning Intern

06/23 – Present

- Developing a denoising diffusion model to predict positions of hidden waters within protein structures
- Benchmarking this model against the PDB to understand the performance of various force fields

**Lux Capital**

New York, NY

Intern

01/23 – Present

- Conducting technical due diligence on potential investments in the biotech and techbio sector
- Working on sourcing new deals, supporting portfolio companies, and new company development

**Department of Chemistry, Princeton University**

Princeton, NJ

Undergraduate Researcher, Rabinowitz Group

01/23 – Present

- Building a whole-body metabolic model to understand nutrient flow in mice with the Rabinowitz Lab
- Developing an accessible and optimized tool to perform metabolic flux analysis on larger systems

**D.E. Shaw Research**

New York, NY

Chemistry Intern

06/22 – 08/22

- Improved Free Energy Perturbation methodologies for more accurate drug discovery by incorporating pKa effects
- Developed a tool to incorporate the protonation and tautomeric state correction into current DESRES workflows

**Department of Chemical and Biological Engineering, Princeton University**

Princeton, NJ

Undergraduate Researcher, Panagiotopoulos Group

01/21 – 12/22

- Produced a machine learning model derived from first principles calculations to model bulk phase properties of carbon dioxide with the Panagiotopoulos lab
- Presented at the 2022 FOMMS conference and published in the Journal of Physical Chemistry B

**Department of Chemical Engineering, Columbia University**

New York, NY

Research Intern, Kumar Group

05/19 – 05/20

- Investigated the impacts of the thermal history of polymers nanocomposites using Small Angle X-Ray Scattering
- Presented my research at the 2019 AIChE Annual Conference and published in the Macromolecules journal

## EXTRACURRICULARS

**Princeton's Tiger Launch**

Princeton, NJ

Director

08/20 - Present

- Leader of Tiger Launch, the world's largest student-run entrepreneurship competition with competitors having raised over \$1.06 billion in VC capital and 7 pitch competitions worldwide

**Princeton Biotech Group**

Princeton, NJ

Co-founder and Co-President

09/22 - Present

- Founded and currently leading the Princeton Biotech Group to build a biotech community on campus
- Currently planning monthly biotech speaker events, journal clubs and a trip to Boston to meet with industry leaders

## PUBLICATIONS

- **Mathur, R.**, Muniz, M.C., Yue, S., Car, R., & Panagiotopoulos, A. (2023). First-Principles-Based Machine Learning Models for Phase Behavior and Transport Properties of CO<sub>2</sub>. *J. Phys. Chem. B*, 127(20), 4562 - 4569.
- Jhalaria, M., Jimenez, A.M., **Mathur, R.**, Tekell, M. C., Huang, Y., Narayan, S., Benicewicz, B.C., & Kumar, S.K. (2022). Long-Term Aging in Miscible Polymer Nanocomposites. *Macromolecules*, 55(11), 4502 - 4515.

## AWARDS AND ACKNOWLEDGEMENTS

**Barry M. Goldwater Scholarship**

03/23

- The most prestigious undergraduate scholarship given in natural sciences, engineering and mathematics

**Shapiro Prize for Academic Excellence**, Princeton University

09/21, 09/22

- Awarded to the top 3% of the freshman class based on the difficulty of coursework and overall GPA

**Joan Brady Bowen Mathematics Award**, Horace Mann School

06/20

**Robert A. Cairo Science Award**, Horace Mann School

06/20

**Dean's List Finalist**, FIRST Robotics – Nomination as one of the best high school engineers in the NYC region

11/18

**SKILLS:** Python, Java, PyTorch, R, Molecular Dynamics Simulation, MATLAB, Metabolomics, Linear Programming

**INTERESTS:** Biotech, Healthcare, Structural Biology, Machine Learning, Chemistry, Statistics, Entrepreneurship, Squash, Piano