ZACH ROBERS

🌐 zachrobers.com   GitHub   LinkedIn   ✉ zmr8@duke.edu   📞 (919) 358-7130   🏠 Durham, NC

SUMMARY

Creative, interdisciplinary problem-solver with strong technical skills and industry experience as a software developer and data scientist, along with research expertise in machine learning and applied math. Currently studying mathematics and computer science at Duke University on a full-ride merit scholarship.

EDUCATION

Duke University   *Durham, NC*
B.S. Mathematics, B.S. Computer Science, Minor in Classical Civilizations — GPA: 3.95/4.0   *Aug 2023 – May 2027*
- **Honors/Programs:** Angier B. Duke Scholar (full-ride merit scholarship awarded on *academic leadership and world-changing potential*), University of Oxford: Philosophy and Ethics of AI, Office of University Scholars Advisor Committee, Club Baseball, Sigma Chi President, Teaching Assistant for Discrete Mathematics
- **Relevant Coursework:** Theory and Algorithms of Machine Learning, Linear Algebra, Data Structures and Algorithms, Computer Systems, Probability, Asymptotics and Perturbation Methods, Data Science

University of North Carolina at Chapel Hill   *Chapel Hill, NC*
Part-time Studies in Mathematics — GPA: 3.95/4.0   *Aug 2021 – May 2023*
- **Honors/Programs:** Applied Math Fluid Dynamics Laboratory, awarded full-tuition merit scholarship
- **Relevant Coursework:** Multivariable Calculus, Differential Equations, Discrete Math, Numerical Analysis

WORK EXPERIENCE

The D.E. Shaw Group   *New York, NY*
Proprietary Trading Intern   *Jun 2026 – Aug 2026*

T. Rowe Price   *New York, NY*
Data Science Intern   *May 2025 – Aug 2025*
- Built a state-of-the-art topic modeling system to track the evolution of investment themes, combining LLM function-calling, natural language processing, and a novel embedding-based classification method to achieve 91 percent accuracy while dynamically allowing new topics to emerge over time
- Tackled a variant of the orienteering problem for geographically routing sales agents to maximize new fund investments through a graph-based metaheuristic, yielding a 37 percent improvement in expected inflows compared to existing routing strategies

RepVue   *Remote*
Software Engineering Intern   *Jun 2023 – Aug 2023*
- Developed integrations with the OpenAI API to improve web traffic through LLM-generated content, both creating the product outlines and coding the back-end for integrations
- Audited and improved the RepVue Score Algorithm, a holistic approach to providing a quantitative score to represent the quality of work life at a company
- Collaborated with senior developers and product leaders to enhance the company's Ruby on Rails RSpec testing framework

FeedStation   *Durham, NC*
Software Development Intern   *Jun 2022 – Aug 2022*
- Designed an automated billing system, coded data pipelines, created a Slack bot, programmed in C#, SQL, and HTML, interacted directly with customers, and worked collaboratively with full-time developers

RESEARCH EXPERIENCE

Hickey Biomedical Engineering Lab, Duke University   *Durham, NC*
Researcher   **Aug 2023 – Present**
- Constructed a first-of-its-kind diffusion model for tissue generation at the cellular level, integrating machine learning and computational biology to outperform all existing methodologies on output quality.

Math+ Summer Program, Duke University   *Durham, NC*
Researcher   **May 2024 – Jul 2024**
- Formalized an analytical and computational model for the interaction between shallow water waves and an elastic solid.
- Wrote a 35 page research paper and presented results to Duke Math Faculty

Applied Math Fluid Dynamics Laboratory, UNC-Chapel Hill   *Chapel Hill, NC*
Researcher   **Jun 2022 – Present**
- Led a project modeling heat diffusion across complex geometries using partial differential equations, thermal camera imagery, and thermistors to investigate why heat travels faster along bent paths.
- Won Best Undergrad Talk and Poster at the Triangle Computational and Applied Mathematics Symposium (TriCAMS).
- Presented findings at the American Physical Society Conference in Washington D.C. (Fall 2023).

AWARDS AND HONORS: A.B. Duke Scholar, HS Valedictorian (1 of 356), SAT: 1590, Perfect Score (every question correct) on AP Computer Science Exam, 4 of 100 on Duke Corporate Valuation Competition

BOARD MEMBERSHIPS: The Scholastic Artificial Intelligence League (www.sailea.org) –Chair, The East Chapel Hill Alumni Association (www.echhsalumni.org) –Chair

EXTRAS: Marathon finisher, avid reader, weightlifter, baker, and chef; loves dogs, traveling, and always learning