How did you discover your intellectual and academic interests, and how will you explore them at the University of Pennsylvania? Please respond considering the specific undergraduate school you have selected. (300-450 words)

*20 minutes. That’s a 99.3% success rate.*

I’d tracked my commute times to school, constructing a probability graph to maximise extra sleep without being late. I tested it out.

*I shouldn’t be late. Wait—I didn’t consider how traffic worsened over time.*

I was late that day.

I continued, measuring traffic variability, tweaking my system, eventually resulting in an equation factoring in everything from rain to whether it was Monday. I was fascinated with how, from motion to fluids, Math could simplify the world into relationships between variables.

Growing up, Dad’s gout and diabetes showed me the importance of medication. Watching its cost quickly accumulate, I scoured the web for reasons behind those prices, discovering the astronomical cost of treatment in Indonesia. Reading articles on drug development, I encountered chemical engineers, who reduced prices by optimising processes with Math; I was hooked.

Beyond simply learning theory, the practical SEAS curriculum would provide me the tools to make treatments more accessible through chemical and biomolecular engineering. Meeting industry professionals through Product and Process Design courses would prepare me for technical challenges I’d encounter, while Engineering Negotiation would train communication and persuasion—skills crucial to initiating my own ventures. A factor driving up Indonesian drug prices is the fact that most products and chemical feedstock are imported. Studying Global Supply Chain Management at Wharton would let me address the logistics of manufacturing.

Watching magnesium combust into a blinding white flame stunned me, but later explaining it by calculating energy loss was mind-blowing. The Pharmaceutics and Biotechnology concentration would let me relive those moments through engineering approaches to research. Applying those techniques to understand biological systems, I hope to collaborate with Professor Scott Diamond, whose work on computationally modelling blood clots guides better treatment designs for strokes that diabetics like Dad are especially prone to.

Debating International Space Station funding at Harvard Model Congress acquainted me with the economics of research. At Penn, I also intend to explore my interest in public policy. Since developing medication and technology domestically significantly reduces costs, I’d take Consumers, Firms and Markets in Developing Countries to gain insights into constructing policies incentivising corporations to tackle Indonesia’s lack of research.

Penn’s interdisciplinary nature lets me combine engineering and policymaking. Professor Damon Centola’s “Network Dynamics of Social Behavior” on Coursera introduced me to mathematically modelling society. Meeting students at the Warren Center for Network and Data Sciences would let me integrate ideas from sociology into modelling the spread of public support for research.

In the lab or up late tweaking models, I aim to continue learning about the world around me. At Penn, I’d be at home with my fellow Quakers’ diverse interests, applying knowledge in service to society.