

Songgun Lee

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RESEARCH INTERESTS	Quantum Computing, Quantum Simulation, Computational Physics, Quantum Algorithms, Statistical Mechanics, Data Analysis	
EDUCATION	University of California, Santa Barbara, Santa Barbara, CA Bachelor of Science in Physics, GPA: 3.6 Relevant Coursework: Linear Algebra, Differential Equations, Vector Calculus, Intro to Python, Physics Laboratory, Intro to Special Relativity and Classical Mechanics, Intro to Quantum Mechanics	06/2027
AWARDS	3 <sup>rd</sup> Place Award, UC Santa Barbara New Venture Competition 1 <sup>st</sup> Place Award, Technology Management Program Market Validation Award	2025 2025
SKILLS	Technical: Python , LaTeX, CAD , Building New Business, Business Strategy, Market Analysis, Sales, Leadership, Team Management, Interviewing, Project Management, Storytelling, Public Speaking, Prompt Engineering  Languages: Fluent in Korean (written and oral)	
PROFESSIONAL EXPERIENCE	<b>Co-Founder</b> <i>oxyy444, Seoul, Republic of Korea</i> I conducted market research and analysis for oxyy444's inaugural exhibition, If Not Now, When?, in Seongsu, Seoul, South Korea's leading art district. By analyzing audience trends and artist data, I directed digital content production, including footage and interviews published on YouTube to boost engagement. I am currently performing research for a summer exhibition featuring over a dozen original photography works. Additionally, I lead business strategies and market analysis for oxyy444, driving data-informed planning to foster growth and artistic initiatives.	11/2024 - Present
	<b>Co-Founder</b> <i>Masterminding, Santa Barbara, CA</i> I spearheaded business development for Masterminding, a UCSB-based AI EdTech startup developing a teacher AI agent to streamline high school lesson planning. I led market entry strategy, customer acquisition, extensive market research on demographics, demand validation, and total addressable market assessment. I identified customer pain points, synthesized data, and developed product enhancements. I oversaw weekly task delegation for efficient team growth. We leverage API-based LLMs, planning to build LEO (Large Education Optimizer), an education-focused LLM. I delivered multiple pitches to teammates and investors, contributing to our third-place in UCSB's 26th Annual New Venture Competition.	10/2024 - 07/2025
	<b>Operations and Quality Control Assistant</b> <i>Maison de Celine, Busan, Republic of Korea</i> Starting as an operations assistant, I addressed workforce shortages resulting from a surge in sales by implementing strategic workflow optimizations, which significantly improved overall efficiency. I played a key role in quality control by identifying a 20% defect rate in recurring trade transactions, allowing the company to take corrective action and refine its quality standards. I discovered the	05/2024-09/2024

largest source of revenue loss, enabling the company to mitigate financial risks and enhance long-term profitability.

### **Field Direction Center Squad Leader**

08/2022–02/2024

*Republic of Korea Army, 1st Infantry Division*

I conducted research on improving the efficiency of high-explosive and training round calculations for 4.2-inch mortars, integrating tools originally designed for 81mm mortars to optimize accuracy and usability. This led to the co-authoring of the fastest and most accurate hand-calculation textbook for 4.2-inch mortars, now distributed across the 12th brigade.

Additionally, I authored the first standard operating manual for gate guarding, outlining protocols for responding to drone intrusions, sudden bombings, unidentified human infiltrations, and emergency scenarios. This manual also detailed proper procedures for handling media personnel and news reporters during crises. I trained a squad in North Korean infiltration response, which involved executing 20-mile tactical hikes with 30+ kg of full armor and participating in mountain-based survival drills to enhance combat readiness.

### **Academic Instructor**

2021–2022, 03/2024–09/2024

*Seoul Language Institute, Busan, Republic of Korea*

I began as a Teaching Assistant, responsible for designing quizzes and homework sheets for elementary to high school students. I was later promoted to Head of Teaching Assistants, where I restructured and optimized the TA system, significantly improving efficiency and student support. Eventually, I became an Academic Instructor, specializing in SAT Math and English for high school students. Additionally, I taught advanced STEM subjects, including Physics, Linear Algebra, Advanced Calculus, and Chemistry, helping students develop strong analytical skills.

### **PUBLICATIONS**

**S. Lee, D. Lee (2023)** *4.2 inch Mortar FDC Field Manual for HE and Training Ammunition* <sup>1</sup>

**S. Lee (2024)** *Comprehensive Security Protocols for Guard Post Operations* <sup>2</sup>

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<sup>1</sup>This manual is a secret classified document that is only available to people with access to second-grade secret classified documents in the South Korean military.

<sup>2</sup>This document is a confidential document that is available to every Guard Post soldiers in the Republic of Korea Army.