Dan (Jungmin Shinn)
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EDUCATION

University of Pennsylvania (Bse in Computer Science and Computer Engineering) Aug 2022 - May 2026

Technical Skills

Languages: C, C++, Python, GoLang, PHP, Javascript, Assembly, Perl, Java, Rust, R, NodeJS, Apache Spark
Databases: PostgreSQL, MangoDB, NoSQL
Relevant Coursework: Embedded Systems, RTL, Data Structures and Algorithms, Compilers, Discrete Mathematics, WebDev, SQL systems, Automata, Machine Learning, Neural Networks, Artificial Intelligence, Computing Systems and OS, Solving hard problems in Python, Distributed Computing,

Projects

Optimization of Fluid Dynamics simulation
- Wrote and presented about integrating Immersed Boundary Method to Physics Neural Networks for optimized fluid dynamics computing
- Worked under mentorship of MacArthur Fellowship winner, Dr. Charles Peskin
https://docs.google.com/presentation/d/1EgTEPG2qGeyHveCLomD5lUL4JMOZXHo8bS5xXPuPOvQ/edit#slide=id.g2390f4fdb63_0_1

Front End/Back End dev for Chess Club
- Built a chess website for chess club at UPenn Chess Club using react.js and also for Canadian Chess Society helping the chess club earn thousands of dollars through sponsorship from Jane Street, Flow Traders, SIG, and more.

Decision tree algorithm for vaccine selection
- Wrote algorithms for vaccine selection project at Penn Med that has received >$1m funding by NIH, Penn Med, and BIONTECH at Germany

Stock price prediction model and a ML algorithm for predicting stock price volatility
- Wrote an LSTM and ARIMA algorithm to give range of stock movement to 95% confidence, applying it for day trading and profited $23,000 with $26,000 investment

Chess playing circuit and an engine
- Applied Machine Learning and minimax optimization and various optimizations {null move, killer move, iterative deepening)
- Wrote a self-learning chess transformer model that uses stockfish to create training sequences and improve that can play at 1200 Rating Strength

Spaceport - Penn High Powered Rocketry
- Interned under Operations and Aerodynamics of Penn Rocket to secure thousands of dollars in funding and a spot in Spaceport Competition.

Compiler(Assembler and Disassembler in C to Assembly and Assembly to C)
- Wrote an assembler to convert C into assembly language as a Teaching Assistant for computing systems with a class of size of 200 students.

Web Scraper and RDS build with MongoDB for a multiple International Think Tanks
- Wrote Webscrapers for 50+ Political ThinkTank and assisted with building a Relational Database with MongoDB for Penn Politics research

Internship/Research Experience

Research at Mayur Lab at University of Pennsylvania, University of Pennsylvania, USA Dec 2023 - Apr 2024
- Collaborated with a cross-functional team of 10 researchers to explore Scallop's interoperability with other programming languages; research outcomes generated interest from over 5 academic institutions and industries looking to implement similar studies.
- Worked on mRNA folding and Cancer dataset mortality prediction project with Flatiron Processing modeling 100k+ dataset with queries

Research at Weissman Lab at Perelman School of Medicine University of Pennsylvania, USA Fall 2023 - Present
- Wrote algorithms for vaccine target selections on multiple multimillion dollar research on vaccine selection funded by Biontech and Penn Medicine under mentorship of Nobel Laureate Drew Weissman

Y-Prize competition at the University of Pennsylvania and research into Physics Informed Neural Networks November 2022 - January 2024
- Improved Cardiac Ablation Catheters by applying Physics Informed Neural Network and obtained $1500 as research grants.
- Worked with industry professors in Machine Learning at Microsoft and consulted with Doctors at Penn Medicine.

Optimization in quantum computing and algorithms May 2023 - May 2024
- Independent research project at University of Pennsylvania through Ph.D course (Quantum Computing)
- Presented a comprehensive strategy to enhance Variational Quantum Algorithms, showcasing potential solutions for complex computational chess challenges; engaged over 10 leading researchers from Intel, Honeywell, Quantinuum, and Penn CS during the discussions.

Quantitative Trading discovery at Susquehanna International Group Feb 2023 - March 2023
- Participated in a program for gifted sophomores for quantitative trading and algorithm research at SIG

HONORS AND AWARDS

Putnam Competition, Top 1000 2023, 2024
AIME(American Invitational Mathematics Examination), Mathematics Association of America 2021,2022
Certificate of Distinction, School Champion, Canadian Computing Competition Senior Division February 2022
2nd Place, Pan-American Intercollegiate Chess Team Championship(Individual section), Texas, USA January, 2024