

# Max P. Johnson

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## EDUCATION

### University of Notre Dame

Majors: B.S. in Computer Engineering and Mathematics

Notre Dame, IN

Honors & Achievements: Dean's List, Intramural Indoor Soccer Champion 2023, Grand Challenges Scholars Program

May 2026

GPA: 3.92

## EXPERIENCE

### DM<sup>2</sup> Lab (Dr. Meng Jiang) – University of Notre Dame

Notre Dame, IN

Research Assistant

Aug. 2025-Present

- Co-authored MLSys 2026 submission on a novel decentralized RAG system that leverages blockchain to track source reliability
- Evaluated rationale processing to boost model accuracy when provided unreliable data--outperforms centralized baseline by 50%

### SnailAI

Co-Founder

Aug. 2025-Present

- Delivering AI solutions to automate data collection and analysis in university biology labs, partnered with the ND Rohr Lab
- Developing a sample processing pipeline with a ~60x increase in efficiency compared to traditional computer-aided processing

### Coinbase

Software Engineer Intern

San Francisco, CA

May 2025-Aug. 2025

- Backend with the International Exchange team—provides perpetual futures products—and focusing on post order flow
- Built a comprehensive gRPC E2E testing framework that prevented an estimated \$10k in customer impact (within days of deployment) and accelerated feature testing by over 99.9% (700x), improving platform stability and development efficiency
- Migrated the INTX API to a service mesh, reducing downtime by 15% and optimizing AWS ingress networking
- Developed an AI agent leveraging LangGraph to crawl git branches and systematically update README documentation

### Outerlands Capital

Quantitative Developer Intern

New York, NY

May 2024-Aug. 2024

- Led development of a mid-frequency statistical arbitrage strategy, significantly outperforming BTC with a Sharpe ratio >5
- Backtested factors for systematic asset investment on complete price, volume, and market cap data over 1475 assets
- Learned the basics of spot and perpetual trading through a lens of risk minimization, time series analysis, and machine learning
- Researched elementary market making algorithms and experimented their use on a variety of assets using HummingBot

### Web3Sense

Blockchain Trading Intern

South Bend, IN

Oct. 2023-Aug. 2024

- Initiated a model for systematic trading on X signals in Python using Pandas, NumPy, Statsmodels, and more
- Evaluated and invested in 10 NFT projects based on real-world viability and profitability, achieving over 1.2 Eth in realized PnL
- Developed Python and JS libraries to mint from Ethereum smart contracts, accelerating the NFT acquisition process by over 50x

## PROJECTS

### High-Frequency Trading System

Aug. 2025-Present

- Architected a C++ exchange with TCP gateway, achieving sub-ms E2E latency and 13µs average matching processing time
- Engineered a microservice architecture with Docker and Apache Kafka, processing >113k orders with 0 loss and 100% uptime

### Smart Sports Sensor

Mar. 2025-May 2025

- Constructed a sensor attachment for racket sports to identify stroke, side, and spin of shots using an Arduino Nano 33 BLE
- Analyzed and tested various model architectures, landing on a lightweight Conv1D, using TensorFlow to build and train
- Optimized the model through pruning and 8-bit quantization with TFLite for real-time inference and low flash usage

### Predictive Analytics for Professional Sport Stats

Feb. 2024-May 2024

- Engineered PyTorch regression models to analyze NBA and NFL team/ind. data, successfully identifying undervalued lines
- Executed a model-driven strategy, growing a live portfolio by 800%, leading to account restrictions due to a high win rate

## LEADERSHIP & ACTIVITIES

### Academically Collaborative Engineering Spaces – Peer Mentor

Sep. 2025-Present

- Tutor peers in six foundational computer science and engineering courses, clarifying complex concepts in a collaborative setting
- Mentor >20 students per meeting on effective study strategies & problem solving to improve academic coursework performance

### Notre Dame Quant Club – Managing Director

Sep. 2022-Present

- Establishing the club's quantitative trading portfolio with club funds to provide real trading experience to members
- Introducing students to proprietary trading, market making, and probability through mock trading and lectures
- Led and designed the infrastructure for the club trading competition to model building and active trading

## SKILLS & INTERESTS

**Skills:** Python, C++, C, Go, R, Linux, Git, SQL, Assembly (Risc-V, MIPS), Swift/SwiftUI, Cadence EDA, SystemVerilog, SystemC

**Interests:** Alpine Skiing, Poker, Minnesota Sports (Vikings, Timberwolves), Sudoku, Cooking, Soccer