# Jonathan Moon

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## Work Experience

- **Co-Founder, Developer | AthLink** (San Francisco, CA)                              **August 2023-Present**
  - Co-founded a networking platform for current and former student athletes- guiding the company's technological direction and ensuring alignment with business objectives.
  - Implemented features such as account creation/verification/deletion, user connection process, posting, liking, commenting, push notifications, and more.
  - Used Typescript with React Native and Google Firebase.
- **Coach | 2 Knights Lacrosse** (Bridgewater, NJ)                              **May-August 2021 to 2024**
  - Aided to improve the 2028 team national ranking from over #250 to #121 in 2023.
  - Mentored and coached over 100 elementary and middle school players.
  - Established weekly practice plans, schedules, offensive/defensive schemes for three teams.
- **Co-Founder | Landscaping, Moving, & More** (Hillsborough, NJ)                              **2019-Present**
  - Co-Founded a small business that handled manual labor jobs for over 100 local families
  - Managed accounting, scheduling, logistic and financial responsibilities

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## Education

- **UNIVERSITY OF PENNSYLVANIA**, Philadelphia, Pennsylvania                              **2023-2026**
  - Computer and Information Science MSE
  - **GPA: 3.85**

  Relevant Coursework**:** Networks and Protocols, Software Systems (C/C++), Database & Information Systems (SQL)
- **HAVERFORD COLLEGE**, Ardmore, Pennsylvania                              **2021-2025**
  - Computer Science Major
  - 4 year starter on Men's Varsity Lacrosse team (NCAA DIII)
  - **GPA/Major GPA: 3.89/3.96**

  Relevant Coursework: Principles of Computing Systems (C/C++), Data Science (Python), Machine Learning (Python), Analysis of Algorithms, Compiler Design (C/C++)

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## Projects

- **PennCloud** (C++)
  - Developed distributed cloud platform with a webmail service, web storage service, and key-value store (KVS) backend optimized for scalability, high availability, and fault tolerance across nodes.
  - Implemented Primary Replication for tablet servers, maintaining three replicas per tablet to ensure consistency across write operations.
  - Utilized Two-Phase Commit (2PC) for atomic write operations and checkpointing, enabling robust state-saving and recovery mechanisms.
  - Designed crash recovery protocol where rebooted servers retrieve logs and tablet states from the partition's primary replica to ensure consistency and seamless reintegration.
- **Compiler for Tiger** (C/C++)
  - Developed each stage of the compiler, including lexical scanning, semantic analysis, and code generation, which optimized code execution and improved system performance by ensuring accurate interpretation and efficient output of source code.
  - Implemented Sethi-Ullman register allocation with stack usage to optimize memory usage.
  - Supported variable and function declarations, type definitions, C-style comments, if/then/else, for and while expressions, operations, comparisons, all with type-checking and error handling.
- **SMTP/POP3 Mail Servers** (C++)
  - Developed multi-threaded SMTP and POP3 servers to handle concurrent client connections.
  - Implemented synchronization mechanisms using mutexes and flock() to ensure safe access and modification of file descriptors across concurrent threads and processes.
  - SMTP server supports commands (HELO, MAIL FROM, RCPT TO, DATA) to send and store emails in user-specific mailbox files, POP3 server supports commands (USER, PASS, STAT, UIDL, RETR) enabling clients to view metadata about the mailbox as well as read and delete emails.
- **Predicting House Pricing with Linear Regression and Adaboost** (Python)
  - Implemented Linear Regression and Adaboost learning models to predict housing prices in the Boston area, which provided insights into model performance and identified key features driving predictions.
  - Analyzed the efficiencies and deficiencies of each model, improving understanding of predictive accuracy and feature importance.

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## Skills

- Java, Python, C/C++, TypeScript, JavaScript, HTML/CSS, LaTeX, UNIX, R
- Frameworks: React, React Native, Firebase, Pandas, NumPy