

**Nathan Gerstein**  
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## **SKILLS & COURSES**

- **Java, C, C++, Python, React, JavaScript, HTML, CSS, OCaml, Catch2, Pandas, x86 Assembly**
- **Linux, Git, VS Code, IntelliJ, Docker, Eclipse, Django, Spring Boot, MySQL, RestAPI, Postman**
- IoT device programming (Arduino & Raspberry Pi), sensing and actuating technologies, IoT protocol stacks, networking backhaul design and security enforcement, data science for IoT.
- System programming, using Linux operating system to interact with physical hardware, as well as enable multi-threading, synchronization, scheduling, and memory management.
- Performance models and optimization. Machine memory hierarchy and its components, e.g. caches and virtual memory, and the memory management mechanisms, e.g. paging and segmentation.
- Understanding of security errors and possible exploitations, for instance: network protocol implementation errors, CPU side channel attacks, control flow hijacking, malware and network attacks, cryptographic functions and protocols, and various security defense options.
- Data structuring concepts, including big data, relational and non-relational database systems like MongoDB and Neo4j. Designed data schemas, developed data management applications, performed query optimization and transaction processing.
- Artificial Intelligence (AI) development, building basic AI programs capable of decision-making, learning, and adjusting based on the detected environment changes.
- Fundamentals of networks and OSI Model, TCP/IP, Routers/Switches, Wireshark, Cisco Packet Tracer.
- Machine Learning (ML) algorithm development to convert raw data into predictive models, enabling data analysis and forecasting. Projects included photo enhancements, modifying CNNs for classification, and using PCA to compress data.
- Machine Perception algorithm development, using sensing techniques, probabilistic state estimation, localization/mapping, 3D scene reconstruction from sensors, scene understanding algorithms to insert 3D objects into images, and object detection and tracking.

## **EXPERIENCE**

- Software Assurance Engineer Intern, Amentum** **June 2025-Present**
- Contractor for Missile Defense Agency (MDA), Secret Clearance.
  - Leverage cybersecurity and software knowledge to determine whether features of software would introduce a possible vulnerability to MDA networks and machines.
  - Use Fortify tool to scan open-source software and inspect source code for vulnerabilities.
  - Understand how encryption and security standards for servers fit with reviewed software such as APIs.

- Sports League Management System** **May 2024-May 2025**
- Creating a Sports League Management application that enables matching of sports teams' ad-hoc needs to the pool of interested qualified players within the sports organization.
  - Wrote query functions using Spring Boot libraries to perform Crud operations on the MySQL database.
  - Implemented RestAPIs to streamline communication between the client and the server, and define the request/response parameters. Used Postman to test the application backend.
  - Developed a React front-end to communicate with the back-end and display data clearly to the user.

## **EDUCATION**

- University of Illinois Urbana-Champaign** **May 2024**  
*Grainger College of Engineering* *GPA: 3.66/4.00*  
Computer Science Graduated in 3 years with Honors

## **CERTIFICATIONS**

- CompTIA Security+ Renewal date: October, 2027