

Barrett Larson

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EDUCATION

Virginia Tech, College of Engineering

Bachelor of Science in Computer Science

Minor: Mathematics | *GPA: 3.61*

Blacksburg, Virginia

May 2027

- Relevant Coursework: Data Structures & Algorithms, GUI Programming (JavaScript), DBMS (SQL), Computer Systems, Mobile Dev (Kotlin)

TECHNICAL SKILLS

- **Languages:** Java, JavaScript, Python, HTML, CSS, Kotlin, SQL, C
- **Frameworks/Libraries:** React.js, Express.js, Node.js, MongoDB, Spring Boot
- **Cloud/Tools:** AWS, Git, JUnit, pytest, Jest, Microsoft Office

EXPERIENCE

Software Developer Intern

CARFAX

Centreville, Virginia

May 2025 – August 2025

- Designed and deployed an end-to-end integration service that queried Salesforce account/contact data via REST APIs and reliably published updates to AWS SNS topics using Python-based Lambda functions.
- Modernized backend systems by upgrading Java 8/17 codebases to Java 21 and Spring Boot 3.5+, replacing insecure deprecated libraries and resolving runtime-breaking changes across multiple services.
- Refactored legacy Node.js Lambda functions to Python, resolving critical security vulnerabilities and adding unit tests for improved reliability.
- Automated infrastructure provisioning with AWS CloudFormation (YAML) and built CI/CD pipelines using GitLab CI for testing and deployments.

Manager/Lifeguard

Continental Pools

Leesburg, Virginia

May 2022 – August 2024

- Supervised lifeguard staff and pool operations, ensuring safety and quality patron experience.

Junior Coach

Woodlea Watermocs

Leesburg, Virginia

May 2021 – July 2024

- Coached 100+ swimmers (ages 5-14), emphasizing technique, teamwork, and sportsmanship.

PROJECTS

CtrlAltCommerce | MongoDB, Express.js, React.js, Node.js, Jest

- Developed a full-stack e-commerce platform for buying used computer parts and accessories.
- Built search and filtering functionality using React state and MongoDB queries for dynamic product discovery.
- Integrated Stripe to securely handle online payments, including checkout, payment confirmation, and order processing.

Full-Stack Todo-List | MongoDB, Express.js, React.js, Node.js, Jest

- Built a RESTful API with Express and MongoDB to support user-specific todo CRUD operations.
- Implemented user authentication with JWT, including login and protected routes for secure access.
- Developed a responsive React front end with dynamic state management using React hooks.
- Followed MVC architecture and modular routing for clean, scalable code organization across the backend.

External Memory Quicksort | Java, JUnit

- Implemented an external-memory QuickSort algorithm to sort large binary and ASCII files using limited RAM, operating directly on disk-based data with minimal memory overhead.
- Designed a custom buffer pool system with LRU replacement and dirty-block flushing to optimize disk I/O and reduce cache misses.

Fancy Gallery | Kotlin, Java, Android Studio

- Built an Android photo gallery app that fetches and displays public images from the Flickr API using Retrofit.
- Applied MVVM architecture with ViewModel, LiveData, and Repository to manage lifecycle-aware state and network calls.
- Displayed images in a RecyclerView grid with full-screen previews using fragments and dynamic UI layout.

HOBBIES AND INTERESTS

- Swimming (VT Swim Club), Weightlifting, Chess, Catan, Basketball, Guitar, Reading