

CARLOS SEMEHO EDORH

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EDUCATION

Northeastern University

Vancouver, BC

M.S. in Computer Science

Expected Graduation, Dec 2025

- **Concentrations:** Intelligence and Modeling/Simulations
- **GPA:** 3.72/4.00
- **Related Coursework:** Web Development, Mobile Application Development, Algorithms, Building Game Engines, Data Mining Techniques, Computer/Human Interaction

University of Education, Winneba

Ghana

Bachelor of Science in Information and Communication Technology

Graduated: November 2014

TECHNICAL SKILLS

Languages: JavaScript (ES6+), TypeScript, PHP, SQL, C#, HTML5, CSS3, Python

Frontend: React.js, Next.js, React Native, Redux, Tailwind CSS, Bootstrap

Backend: Node.js, Express.js, RESTful APIs, Drizzle & Prisma ORM

Databases: MySQL, MongoDB, Firebase, SQLite, Microsoft SQL Server

Frameworks & CMS: WordPress, CodeIgniter, .NET Framework

Tools & Platforms: Git, GitHub, cPanel, Expo, EAS Build, Stripe, Twilio, SMS Gateways, Visual Studio, VS Code

Methodologies: SOLID Principles, Agile/Scrum, MVC Architecture, ECS Pattern, Test-Driven Development

EXPERIENCE

AECI Explosives (formerly AEL Intelligent Blasting)

Western Region, Ghana

Software Developer

Sep 2017 – Aug 2024

- Architected and delivered 5+ enterprise-level internal systems serving 200+ employees across operations, safety, fleet management, and explosive production workflows using JavaScript, PHP, C#, Next.js and Node.js
- Designed and implemented high-performance PHP web applications with optimized resource allocation, improving system efficiency by 40% under heavy server traffic
- Developed custom middleware integrations connecting SAP ERP with third-party systems including TurnStar Morpho Biometric Access Control and ABLOY High Security Padlock cylinders, reducing manual processes by 60%
- Collaborated with cross-functional teams and stakeholders to gather requirements, architect solutions, and deliver projects aligned with business objectives

Freelance Software Developer

Ghana

Contract & Independent Projects

Aug 2015 – Aug 2024

- Developed multiple client projects including **E-Recruitment System**, **Employee Insurance Management**, **School Management Systems(3 versions)**, **Barber Shop Management**, e-commerce platforms, and logistics solutions
- Delivered annual IT training programs (3 months, August-November) to 500+ Ghana Prison Service personnel across 3 regions (Volta, Eastern, Greater Accra), covering Microsoft Office Suite, database management, and web technologies from 2021-2023

Graduate Projects

ShieldShare - VPN-backed Android Hotspot with Traffic Accounting | Android, VpnService API, Proxy Server

CS 7980: Research Capstone in Cybersecurity (Fall 2025)

- Leading development of Android application enabling secure hotspot sharing through VPN tunnels without root access using proxy-based architecture and VpnService API

- Implementing HTTP/HTTPS and SOCKS5 proxy server to route hotspot client traffic through VPN tunnel, solving Android's architectural limitation that bypasses VPN for hotspot traffic
- Designing per-user traffic metering system monitoring data consumption at proxy level with MAC-to-IP address mapping for device identification
- Conducting security evaluation including traffic leakage detection, DNS leak testing, and performance benchmarking of dual VPN+hotspot operations

TimeOasis - Leave Management SaaS Platform | React, Node.js, Express, MySQL, Prisma ORM
CS 5610: Web Development (Fall 2024)

- Architected full-stack multi-tenant SaaS platform with role-based access control supporting unlimited companies with isolated data
- Implemented secure authentication with JWT tokens, Stripe subscription management, and automated billing workflows
- Built RESTful API with 30+ protected endpoints and integrated external APIs (Nager.Date, Twilio, SMTP)
- Achieved 90%+ accessibility scores with comprehensive Jest unit testing and complete deployment documentation

Local Buzz - Hyperlocal Community App | React Native, Firebase, Google Cloud AI, Expo - *CS 5520: Mobile Application Development (Spring 2025)*

- Co-developed cross-platform mobile application with real-time community updates and geospatial filtering
- Integrated Google Cloud Natural Language API for automatic categorization and Firebase for real-time synchronization
- Implemented map view with custom markers, push notifications, and comprehensive Firebase security rules
- Published to real Android and iOS devices using Expo Application Services (EAS Build)

Pacman ECS Game Engine | TypeScript, Canvas API, Box2D Physics, ECS Architecture - *CS 5850: Building Game Engines (Summer 2025)*

- Engineered production-ready 2D game engine with Entity Component System architecture featuring 7 playable game variants
- Implemented advanced collision detection with spatial partitioning (QuadTree, SpatialGrid) for 200+ simultaneous entities
- Integrated Box2D physics engine with custom particle systems and performance-optimized rendering pipeline
- Built modular animation system and comprehensive audio system with position-aware sound effects

ACTIVITIES AND LEADERSHIP

Khoury College of Computer Science

Teaching Assistant for CS 5610 (Web Development)

Vancouver, BC

Jan 2025 – Apr 2025

University of Education, Winneba

Teaching Assistant (National Service)

Ghana

Aug 2014 – June 2015

Assisted in teaching undergraduate ICT courses, conducted programming lab sessions, and evaluated student assignments

Campus Volunteer

Student

Vancouver, BC

Jan 2025 –Current

Supported career fairs, student orientations, and campus events

CERTIFICATION & AWARDS

MINT Robotics Training Workshop (Company Certified)

LANGUAGE

Languages: English (Fluent), French (Fluent)