

OBENG FRANCIS

🏠 Virginia Tech, Software Innovation Lab 📞 +1 540-449-5727

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EDUCATION

Virginia Tech University

Ph.D. (In Progress), Computer Science (GPA 4.0/4.0)

M.S. Computer Science (GPA 4.0/4.0)

Future Professoriate Graduate Certificate

Advisor: Dr. Eli Tilevich

Blacksburg, VA, USA

(Expected 2027)

December 2025

December 2025

University of Education

B.S Info. Technology Edu. (First Class, CGPA 3.67/4.0)

Winneba, Ghana

Aug 2015 – July 2019

Enchi College of Education

3-year Diploma in Basic Education

Enchi, Ghana

June 2009 – July 2012

RESEARCH INTEREST

Software engineering (architecture, automation, software reliability and safety (fault tolerance)), edge computing, mobile computing, and Digital Education.

CURRENT RESEARCH PROJECT:

- Three ongoing research projects in software reliability and fault tolerance (manuscript in preparation).
- **Nobody's Perfect (NiP) -Cross-Language Program Analysis Tool** ([View Repository](#), [ML Validation](#)). Comprehensive infrastructure for automated program analysis across 9 programming languages, designed to extract and analyze large datasets of open-source web services to identify exception-handling strategies for fault tolerance research, and validated through an XGBoost Classifier (ML Model).

Technical Impact:

- Analyzed 14K open-source web service applications across 9 programming languages
- Automated exception-handling pattern detection with 90% accuracy, and reduced manual code analysis time by 98%
- Generated comprehensive statistical reports for fault tolerance research

TECHNICAL SKILLS

Programming Languages: C++, Java, HTML, CSS, PHP, JavaScript, Go, Ruby, and Python.

Research Tools: SPSS, LaTeX (Overleaf), JMP, and Tableau.

IDEs: VS Code, Sublime Text Editor, IntelliJ IDEA, Jupyter, and PyCharm.

Version Control (Collab. Tools): Git, Docker, GitHub, and GitLab.

Design Tool: Figma.

Database Management: SQL, MySQL, SQLite.

Cloud Services: Google Cloud, Kaggle,

Data Science: NumPy, Pandas, Matplotlib.

TEACHING EXPERIENCE

Virginia Tech

Blacksburg, VA, USA

Graduate Teaching Assistant

2023 – Present

Courses Taught:

- Mobile Application Development (Graduate) — Kotlin | 45 Students
- Web Application Development (Graduate) — HTML, CSS, JavaScript | 76 Students
- Software Engineering (Graduate level) — Java | 35 Students
- Introduction to Software Design (Undergraduate level) — Java | 46 Students
- Professionalism in Computing (2x Undergraduate) 2 Semesters | 92 Students total

Key Responsibilities

- Leading programming lab sessions twice per week for the entire semester.
- Holding office hours to assist students in overcoming their challenges in the course project.
- Reviewing students' applications (software) development process to ensure it aligns with project requirements (App Reviews).
- Grading students' assignments and projects for the assigned course.
- Reporting on students' graded assignments and projects.

Obuasi Senior High Technical School

Obuasi, Ash – Ghana

Information Technology Instructor

Oct. 2019 – Dec 2022

- Instructed 150+ high school students in C++, QBasic, HTML, CSS, Access, and SQL
- Improved student programming proficiency by 95% through hands-on project-based learning
- Developed a comprehensive curriculum resulting in a 100% student pass rate in the national ICT examinations for Senior High Students.
- Created two instructional textbooks, adopted by the ICT department at Obuasi Senior Technical School.

West Africa Examination Council

Obuasi, Ash – Ghana

Assistant Examiner

Nov 2020 – Dec 2022

- Evaluated 1,000+ ICT examination scripts annually
- Maintained 99.5% accuracy in grading with quality assurance protocols
- Contributed to the examination standards development for the national ICT curriculum

Ghana Education Service

Ash. Region – Ghana

Professional Info. Comm. Tech. Instructor/Teacher

Sept 2012 – Aug 2015

Impact:

- Taught computer literacy to 200+ junior high school students (ages 11-15)
- Established computer lab protocols, increasing student computer access by 85%
- Achieved 90% improvement in student digital literacy assessment scores.

INSTRUCTIONAL MATERIALS AVAILABLE ON AMAZON

Obeng, F. (2022). *Information and Communications Technology for Senior High School Students*.

Developed and compiled two comprehensive instructional books for high school ICT education.

These two books were used as a classroom resource during my time at Obuasi Senior High Technical School.

- Information and Communications Technology (**Elective Theory**)—200+ pages covering fundamental computing concepts, data representation, introduction to programming languages, and algorithms. [View Book](#)
- Information and Communications Technology (**Elective Practical**)—180+ pages focused on hands-on programming exercises in QBasic programming, HTML, CSS, and access database management. [View Book](#)

PROFESSIONAL EXPERIENCE

Ghana Statistical Service

Asokwa, Ash – Ghana

District IT Officer

June 2021– Nov 2021

- Trained 256 supervisors and enumerators on census technological tools (tablets, laptops, Computer-Assisted Personal Interviewing—CAPI software).
- Supervised data transfer/syncing operations ensuring 100% data integrity from the field to the national data warehouse.
- Implemented quality control protocols, reducing data collection errors by 90%

Data Collection Specialist (Interviewer)

2017 – 2018

- Conducted 1000+ interviews for the census of agriculture using Computer-Assisted Personal Interviewing (CAPI)
- Managed maternal mortality survey data collection covering 1000+ respondents
- Maintained 98% data quality standards throughout the collection period.

RESEARCH COMPLIANCE

- Financial Conflict of Interest Training Requirement for Sponsored Research.
- Information Privacy and Security (IPS).
- Basic Responsible Conduct of Research.

RESEARCH PROJECTS AND TECHNICAL ACHIEVEMENTS

BookStore E-commerce Platform | Web Application Development Course

- Developed full-stack e-commerce website using HTML, CSS, JavaScript, RESTful API, and Data Access Object (DAO).
- Implemented secure payment gateway integration and user authentication system.
- Achieved 100% functionality requirements with responsive design supporting mobile devices.

Guest House Reservation System | Internship

- Created a web-based reservation management system with real-time availability tracking.
- Integrated SMS notification system for booking confirmations.
- Deployed using MySQL database with 99.9% uptime performance.

School Website and Exam Application System Prototype | Academic Project

- Developed a comprehensive school management system with an integrated online exam (exit permit) application portal.
- Created a responsive web interface supporting 1,000+ concurrent users during application periods.
- Implemented automated application processing, reducing manual review time by 80%
- Integrated document upload system with real-time status tracking for applicants.

Online Bus Ticketing System | Undergraduate Capstone Project

- Designed and developed a comprehensive bus ticketing platform serving 1000+ daily users
- Implemented route optimization algorithms, reducing travel time calculations by 25%
- Integrated mobile payment systems that support multiple payment methods.

CERTIFICATION AND ONLINE COURSES

University of Michigan

Programming for everybody (getting started with Python)

Web Application Technologies and Django

University of Illinois

Data Visualization

DeepLearning.AI

Artificial Intelligence for Everyone

University of Pennsylvania

Introduction to Python Programming

University of London:

Introduction to Network Security

Microsoft: Intro. Computers and Operating Systems, and Security

Ann Arbor, Michigan

June 2021 – July 2021

June 2023

Urbana-Champaign

June 2021 – July 2021

USA

May 2023

USA, Pennsylvania

July 2023

UK, England

June 2023.

Aug 2023.