OBENG FRANCIS

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EDUCATION

Virginia Tech University   Blacksburg, VA, USA
Ph.D. (In Progress), Computer Science (GPA 4.0/4.0)   (Expected 2027)
M.S. (In Progress), Computer Science (GPA 4.0/4.0)   (Expected 2025)
Future Professoriate Graduate Certificate   (Expected 2025)
Advisor: Dr. Eli Tilevich

University of Education   Winneba, Ghana
B.S Info. Technology Edu. (First Class, CGPA 3.67/4.0)   Aug 2015 – July 2019

Enchi College of Education   Enchi, Ghana
3-year Diploma in Basic Education   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 Exact Application System Prototype | Academic Project

- Developed a comprehensive school management system with an integrated online exeat (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	Ann Arbor, Michigan
Programming for everybody (getting started with Python)	June 2021 – July 2021
Web Application Technologies and Django	June 2023
University of Illinois	Urbana-Champaign
Data Visualization	June 2021 – July 2021
DeepLearning.AI	USA
Artificial Intelligence for Everyone	May 2023
University of Pennsylvania	USA, Pennsylvania
Introduction to Python Programming	July 2023
University of London:	UK, England
Introduction to Network Security	June 2023.
Microsoft: Intro. Computers and Operating Systems, and Security	Aug 2023.