AGHOGHOMENA AKASUKPE

Oshawa, ON, Canada | L1G 4X9
Cybersecurity & AI Researcher | Machine Learning Engineering | Penetration Testing
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PROFESSIONAL SUMMARY

An AI and Cybersecurity Engineer with deep expertise in the end-to-end machine learning lifecycle, from developing deep learning models and LLM agents to deploying secure, production-ready systems. I leverage this background, alongside a strong foundation in full-stack development, to bridge the gap between AI innovation and practical security. My specialized focus is on Agentic AI security, adversarial machine learning (AML), and hands-on penetration testing. Certified in AWS Machine Learning Specialty and CompTIA Security+, and actively pursuing advanced offensive security credentials (OSWE, OSEP, CISSP) to secure the future of intelligent systems.

EDUCATION

Masters of Science, Computer Science — **January 2025 - Present**
Ontario Tech University — ***Oshawa, ON, Canada***

- **Area of Specialization:** Networking and IT Security
- **Research Focus:** Cyber Security, Artificial Intelligence, Machine Learning and Deep Learning
- **Supervisor(s):** Professor Miguel Vargas Martin (Link Here) and Dr. Li Yang (Link Here)
- **Teaching Assistant Positions:** INFR2141U (Object-Oriented Programming in Python, Winter 2025)

Bachelor of Science, Computer Science — **September 2019 - June 2023**
Babcock University — ***Ogun state, Nigeria***

- **CGPA:** 4.88 / 5.0 (Summa Cum Laude)
- **Class Rank:** Top 1%

EXPERIENCE

CyberSecurity & AI Researcher (Graduate) - Full time - Onsite — **January 2025 - Present**
Ontario Tech University — **Oshawa, ON, Canada**

- Conducted groundbreaking research on adversarial machine learning (AML), focusing on model poisoning and evasion attacks, and developed novel defense strategies to enhance cybersecurity posture of critical systems.
- Spearheaded experimental research on leveraging Large Language Models (LLMs) for financial auditing, exploring the integration of LLM agents within complex multi-agent auditing frameworks.
- Collaborated with multidisciplinary teams, including three faculty advisors, to explore cutting-edge advancements in adversarial attacks and defenses, contributing to the broader cybersecurity research community.
- Curated and critically reviewed 50+ technical papers on AML, delving into topics like LLM penetration testing, federated learning, and defensive mechanisms against data poisoning and evasion techniques.
- Contributed to the development of a framework for secure machine learning models in adversarial environments, focusing on scalability and robustness in high-stakes industries.

Software Engineer (Healthcare) - Full time - Hybrid — **Sep 2023 - Nov 2024**
Cavista Technologies Limited — **Dallas, Texas, United States**

- Analyzed and translated Health Care Claim Professional (837) Companion Guides to inform the development of parsing engine code, enhancing support for diverse patient claim data segments.
- Integrated custom models and parsers with EdiWeave to process and interpret complex patient claim data files, expanding system capabilities and ensuring accurate data handling.
- Conducted comprehensive test case mocking and testing using NSubstitute, Fluent Assertions, and Xunit, ensuring robust and reliable code quality through thorough unit and integration testing.
- Optimized SQL queries in Entity Framework, leveraging Language Integrated Query (LINQ) syntax and utilizing AsNoTracking for improved performance. Conducted in-depth query analysis with LINQPad to identify and resolve

inefficiencies.

- Collaborated with Quality Assurance (QA) Engineers to conduct post-deployment ticket testing across development, staging and production environments utilizing tools like Kibana to analyze logs in each unique environment.
- Implemented techniques such as Lazy Caching and Pseudo-random string generation to handle race conditions, leading to an 80% improvement in processes.
- Contributed to backlog refinement, prioritization, and estimation on various Jira Software, story point estimation and other product issues, optimizing the team's ability to deliver value incrementally.

Full-stack Engineer - Full time - Remote **Aug 2021 - Aug 2023**
Azul Nigeria **Lagos State, Nigeria**

- Worked on setting up Eloquent models to define and refine the structure of the Laravel application's backend data.
- Integrated and utilized background processing tools to manage asynchronous tasks, such as sending emails and processing background jobs, improving application responsiveness.
- Designed and implemented RESTful APIs using Laravel and PHP to facilitate seamless data exchange between the frontend and backend systems.
- Optimized database queries, managed migration and implemented indexing using the Facade library and MySQL to enhance the performance and scalability of the application.
- Implemented user authentication and authorization using PHP and JWT (JSON Web Tokens) to secure the applications content management system and manage user roles.
- Conducted thorough compatibility testing across various devices and screen sizes, ensuring a fully mobile-optimized experience that met rigorous quality and usability standards.
- Spearheaded the implementation of advanced front-end features using TypeScript, Next.js, React.js, and Tailwind CSS, focusing on optimizing user experience, engagement, and performance across diverse platforms.

Software Engineer - Internship - Hybrid **June 2021 - July 2021**
Asset and Resource Management Holding Company (ARM) **Lagos State, Nigeria**

- Leveraged Git version control and GitHub to streamline the entire Software Development Life Cycle, ensuring efficient tracking, versioning, and collaboration across all stages of application development.
- Reduced page styling time by 40%, by utilizing Tailwind CSS in the styling of components and major pages across the lifestyle web-application being worked on.
- Spearheaded the design and development of multiple web pages while adhering to the user interface specifications and brand guidelines.
- Collaborated with cross-functional teams and subject matter experts to ensure the core functionality of web applications aligned with product strategy, company goals, and business objectives.
- Optimized page load times by 50% through the implementation of Webpack and module bundling strategies, significantly reducing JavaScript file size and improving overall page speed.

Software Engineer - Internship - Hybrid **March 2021 - May 2021**
Azul Nigeria **Lagos State, Nigeria**

- Participated in the development of a mobile-optimized experience, working on frontend tasks and ensuring compatibility with various devices and screen sizes using Syntactically Awesome Style Sheets (SASS).
- Assisted in backend development tasks for the application using Django, including working on models, views, serializers, and APIs under the guidance of senior developers.
- Supported the integration of Celery for handling asynchronous and periodic tasks, gaining exposure to backend infrastructure and performance optimization.

PUBLICATIONS

- **A Per-Bag Suspicion-Based Bagging Strategy for Fighting Poisoning Attacks in Classification (August 2025):** We

propose a novel weight estimation approach to identify and down-weight anomalous training samples to improve the performance of Machine Learning systems affected by Data Poisoning attacks.
-> **Status:** Accepted (Not yet published)
-> **Conference:** 22nd Annual International Conference on Privacy, Security, and Trust (PST2025)
-> **Tools:** Scikit-Learn | PyTorch | Adversarial Machine Learning Toolkit

PERSONAL & ACADEMIC PROJECTS

- **CipherWhisperer (April 2025):** Cipher Whisperer is a software project that aims to decrypt and analyze cipher texts using a graph-based approach. The system takes in a text, extracts a single cipher text block from it and detects what suspected ciphers it matches with a probability of above 70% confidence level. Lastly the system calls the respective decryptors on the cipher text in an attempt to decrypt it correctly.
  -> **Link:** GitHub URL
  -> **Tools:** LangGraph | LangChain | Pandas | OpenAI | Scikit-Learn
- **Chestnut school management system (September 2023):** A futuristic school (student, staff, results, promotion) management system deployed on AWS and built to support over 100,000 students and faculty across various classes.
  -> **Link**: https://chestnutschool.com/
  -> **Tools**: Next.js | React Query | React.js | Tailwind CSS | Zustand | Vercel | Node.js | Express.js | Docker | Git
- **Adaptive Personalized E-commerce Recommender System (June 2022):** A full-stack e-commerce web application built with Django rest framework and React Javascript, featuring a content based recommendation system. The recommendation system uses product information to recommend similar products to a user.
  -> **Link**: Github URL
  -> **Tools**: React.js | Django.js | PostgreSQL | JavaScript | SCSS | Pickle | Scikit-Learn | Pandas | Numpy

SKILLS

Programming Languages:

- PHP, SQL, Typescript, JavaScript, C#, Python, Bash, Go, Java, C++, C

Technical Tools:

- **Cybersecurity:** Nmap, Metasploit, Ffuf, SQLMap, Burp Suite, Zed Attack Proxy (ZAP)
- **Continuous Integration/Continuous Deployment:** AWS CodePipeline, AWS CodeBuild, AWS CodeDeploy, Octopus Deploy, Teamcity, GitHub Actions
- **Infrastructure:** Cloud Formation, Terraform, Docker, Docker Compose, Kubernetes
- **Databases:** MySQL, PostgreSQL, Redis, MongoDB, AWS Redshift, AWS Aurora, AWS DynamoDB, AWS OpenSearch
- **User Interface Design:** Figma, Adobe XD
- **Version control:** Git, Stash, BitBucket
- **Vector Embeddings:** PyVector, ChromaDB, Pinecone
- **Others:** Wordpress, Kibana, Metabase, Postman, ReSharper, Elastic Search

High-Level Techniques:

- Microservices, Database Design, Unit Testing, Serverless, User Interface Design, Bash Scripting

Technical Frameworks:

- **Web Applications:** Selenium, Selenium Grid, Django Rest Framework, SASS, Django, ASP.NET MVC, ASP.NET Core, XUnit, React.js, Node.js, Next.js, FastAPI
- **Machine Learning:** Matplotlib, NLTK, Cosine Similarity, TF-IDF Vectorizer, Pickle, Ollama, LangChain, LangGraph, LlamaParse, LlamaIndex, Tensorflow, Pytorch, Keras, MXNet, HuggingFace Transformers

CERTIFICATIONS

- HTB Certified Penetration Testing Specialist - (In Progress)
- CompTIA Security+ - (May 2025 - May 2028)
- AWS Certified Machine Learning - Specialty - (March 2025 - March 2028)
- LangGraph- Develop LLM powered AI agents with LangGraph - (Feb 2025)

- Certified in Cyber Security (ISC2) - (March 2024)
- (Home Health, Home Care, Hospice, Palliative Care) - Axxess - (March 2024)
- Foundational C# with Microsoft - (October 2023)
- Certified Secure Computer User (CSCU) - EC-Council University - (July 2021)

ARTICLES

- **Content-Based filtering recommendation system using Django, Scikit-learn and Django Rest Framework:** An article covering how to implement a full-stack scalable recommendation system in an e-commerce environment using Django and Django Rest Framework
  -> **Date Posted:** April 30th 2024
  -> **Link**: https://www.linkedin.com/pulse/content-based-filtering-recommendation-system-using-django-akasukpe-pzpcf
  -> **Tools**: Django | Django Rest Framework | Pickle | Scikit-Learn | Pandas | Numpy
- **Role-Based Access-Control using Next.js Middlewares:** An article covering a cleaner way to handle user authentication and authorization using the Next.js Framework.
  -> **Date Posted:** May 5th 2024
  -> **Link**: https://www.linkedin.com/pulse/role-based-access-control-using-nextjs-middlewares-akasukpe-kkt1f
  -> **Tools**: Next.js | React.js | TypeScript | Tailwind CSS | Npm | Git

HONORS & AWARDS

Dean's Graduate Scholarship **January 2025**
Issued by School Of Graduate and Postdoctoral Studies - Ontario Tech University
-> These are awarded to high-achieving full-time students entering a research-based master's or doctoral program with an average of A-minus (3.70/4.30) or greater.

School Dean's Award **July 2023**
Issued by Babcock University
-> Best graduating student in the School of Computing and Engineering Sciences.

Cavista Hackathon winner **March 2023**
Issued by Cavista Technologies
-> Collaborated with a team of three(3) developers and one(1) designer to build a software solution in a 24 hour coding marathon. Won a grand prize of ₦1,000,000.

REFERENCES (VERIFY ON LINKEDIN)

Brian Harrington **December 19, 2024**
Product Director at Axxess Dallas, Texas, United States

- AG served as a software engineer for our claims management solution, which he consistently delivered value through his intuitive questions and well-thought-out development approaches. He demonstrated exceptional communication skills and meticulously documents tasks, ensuring clarity and understanding for the entire team.
- AG takes a holistic approach to challenges and features, offering multiple solutions along with a clear analysis of their pros and cons. He actively participates in discussions, guiding the team toward optimal decisions. His dedication to reviewing items thoroughly and asking insightful questions reflects his commitment to fully understanding feature intent.
- One of AG's key contributions was mapping claim field differences between two different solutions of ours. This work facilitated seamless data communication and ensured the successful submission of information. Additionally, he excels in cross-functional collaboration, working effectively within his team and across departments.

Rajeshree Kathariya **December 16, 2024**
Senior Engineer at Cavista Dallas, Texas, United States

- I had the pleasure of working closely with Aghogomena- we called him AG, during his time at Cavista and I can confidently say he is an exceptional engineer who far exceeds expectations for someone at his level of experience.
- AG consistently demonstrated technical expertise and a strong problem-solving mindset. His ability to dive deep into complex challenges and deliver reliable solutions was truly impressive. In fact, his skills often rivaled those of more senior engineers.

- What set AG apart was not just his technical proficiency, but also his reliability and willingness to take on responsibility. Whether it was owning critical tasks, supporting teammates, or stepping up during high-pressure situations, he was always dependable. His proactive attitude and collaborative spirit made him a valuable asset to the team.
- I'm confident AG will excel in any role he takes on. He's the kind of engineer who doesn't just meet expectations but consistently raises the bar. Any team would be lucky to have him!

VOLUNTEERING

Software Developer **Apr 2022 - June 2023**
Babcock University Computer Club Babcock University

- Mentored fellow students in coding and problem-solving skills, fostering a collaborative learning environment.
- Created and maintained documentation for coding projects, ensuring knowledge transfer and future reference.

Co-Lead Blockchain Community **Nov 2022 - June 2023**
Google Developer Student Clubs Babcock University

- Mentored students interested in blockchain development, providing guidance on blockchain platforms, consensus algorithms, and distributed ledger technologies.
- Encouraged members to explore emerging trends and advancements in blockchain technology.

Student Tutor **June 2022 - June 2023**
The Catalyst Tutorial Babcock University

- Instructed students in programming courses, providing guidance on coding languages, algorithms, and problem-solving techniques.
- Offered constructive feedback on assignments and assessments, guiding students in areas of improvement.