Anthony Okala

IT Consultant & Software Engineer

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Professional Summary

With over 10 years of expertise in automation, software development, machine learning, and safety-critical systems. Specializing in Java, Python, JavaScript, TypeScript, PHP, and modern frameworks such as React, Django, Spring Boot, and Laravel. Expert in UiPath, KNIME Analytics, and Power Automate.Fluent in English, German, and French.

Professional Experience

Freelance Work

OKAS FLD - Drive & Delivery Services

Business Website Project | 2025

Modern business website for OKAS FLD (drive & delivery services). Built with Next.js (App Router), TypeScript, and Tailwind; responsive, SEO optimized, and i18n (DE/EN/FR). Deployed from GitHub to Render.com with a custom domain via AWS Route 53.

Next.js • React • TypeScript • Tailwind CSS • GitHub • Render.com • AWS Route 53

- [illegible] DNS management

ASOK SE - Enterprise Web Application

ASOK SE SARL | 2024

Comprehensive web application aimed at enhancing enterprise advertisement. Integrated multiple technologies to provide a seamless user experience for businesses to promote their products and services.

HTML • CSS • JavaScript • Docker • GitHub • Python • Django

- [illegible]

Local Jenkins Container in VS Code Dev Container

Private Project | 2024

Professional CI/CD development environment with Jenkins configured for Django projects using VS Code Dev Containers. This setup provides a fully configured Jenkins environment with Docker support.

Jenkins • Docker • VS Code • Python • Django • CI/CD • DevOps

- [illegible] Docker support

Vivantes Humanitas Web Application

Friend's Project | 2023 - 2024

Django-based web application for Vivantes Humanitas e.V., enabling efficient management of volunteer registrations and activity tracking.

Python • Django • HTML • CSS • JavaScript

- [illegible] volunteer registrations and activity tracking

Pentak SARL International - Enterprise Web Application

Pentak SARL International | 2021 - 2022

Web application using Laravel/Lumen to manage business operations for a friend's company.

PHP • Laravel • Lumen • PHP-Blade • HTML • CSS • JavaScript

- [illegible] for a friend's company

Offer Comparison Web Application

Own Initiative | 2020 - 2021

Laravel/Lumen-based application to compare online offers, allowing users to make informed purchasing decisions.

PHP • Laravel • Lumen • HTML • CSS • JavaScript • Git • GitHub • SQLite

- [illegible] to make informed purchasing decisions

Restaurant Management Application

Initiative with Friends | 2019 - 2020

Laravel/Lumen-based system to streamline restaurant operations, including inventory tracking and order management.

PHP • PHP-Blade • Framework • Git • GitHub • Zoom

- [illegible] tracking and order management

Hairstyle Business Web Application

Initiative with Friends | 2018 - 2019

Express.js web application to support a friend's hairstyle business by enabling appointment booking and customer management.

Express.js • HTML-TWIG • Framework • MySQL • npm • ngrok • Git • nodemon • babel-node.js

- [illegible] appointment booking and customer management

CSK Student Association Web Application

Own Initiative | 2016 - 2017

Web application for the CSK student group at TU Clausthal, facilitating event management and communication among members.

Node.js • TypeScript • HTML • CSS • Ionic Cordova • Git

- [illegible] management and communication among members

Private Tutoring in Computer Science

Own Initiative | 2014 - Present

Conducted private tutoring sessions to help students master programming languages and databases, focusing on practical problem-solving and real-world application.

Java • C++ • PHP • Python • SQL • NoSQL • Neo4j • ArangoDB

- [illegible] databases such as SQL and NoSQL (Neo4j, ArangoDB)

Professional Work

IT Consultant - Vehicle Technology & Planning

DB Regio AG | August 2023 - Present

• Developed automation solutions using Python and UiPath, achieving 80% reduction in manual effort with a goal to reach 99% automation

• Built and deployed RPA robots using UiPath Orchestrator, enabling seamless task automation and improving team productivity

• Collaborated with cross-functional teams to design and implement robust software solutions, improving system efficiency and client satisfaction

• Utilized Agile (SCRUM) to manage and deliver projects on time, ensuring continuous improvement and client alignment

- Employed version control with Git and GitLab, ensuring smooth collaboration and code integrity

• Leveraged VBA (Visual Basic for Applications) to automate complex and time-consuming Excel processes, significantly improving efficiency and accuracy

Python • UiPath • RPA • VBA Excel • Git • GitLab • Agile • SCRUM

Software Developer

Achelos GmbH | August 2021 - August 2023

• Developed tools in Java and C++ to manage virtual machine connections, automating configuration, file upload, and data processing tasks

• Integrated JUnit for unit and integration testing, improving code quality and reducing bugs in production

• Collaborated in an Agile environment, using JIRA for issue tracking and sprint planning to meet project deadlines efficiently

• Streamlined development workflows with Jenkins and Maven for automated build, testing, deployment, and CI/CD pipelines

- Managed package dependencies using Maven-Nexus for efficient artifact storage and distribution

• Utilized Git and GitLab for version control and source code management, with occasional use of Sourcetree for enhanced git workflow visualization

• Proficient in VS Code and Eclipse for efficient coding, debugging, and project management across various programming languages

• Fostered team communication and collaboration through MS Teams, ensuring smooth project communication and coordination

Java • C++ • Spring Boot • JUnit • Jenkins • Maven • Git • JIRA

RPA Developer

DB Regio AG | August 2021 - June 2022

• Automated data processing tasks using Python and VBA Excel, cutting processing time by at least 30%

• Developed and deployed RPA robots with UiPath, streamlining business workflows and improving task accuracy and efficiency

• Worked with Agile methodologies (SCRUM) to manage automation tasks, ensuring timely delivery and client satisfaction

• Collaborated remotely with teams via MS Teams and GitLab to ensure smooth communication and version control

Python • VBA Excel • UiPath • RPA • Agile • SCRUM

Working Student - Software Developer

Eves-IT | June 2018 - February 2021

• Developed tools in Java, Spring MVC, Spring Boot and JavaFX, optimizing internal processes for automotive clients such as Volkswagen AG

• Created database solutions with Oracle SQL and Flyway for seamless data management across multiple systems

• Implemented automated testing frameworks using JUnit and TDD principles, significantly reducing bugs before and after deployment

• Collaborated in an Agile environment, managing development cycles using JIRA for task tracking, Bitbucket for source control management, Bamboo for CI/CD, SonarQube for QA, Miro for digital team kanban board, Zoom and MS Teams for remote collaboration

• Used Confluence for documentation, ensuring that all project details were clearly documented and easily accessible to the entire team

• Managed project dependencies and packages using Maven Artifactory, ensuring smooth version control and efficient package distribution

• Leveraged IntelliJ IDEA and Eclipse as integrated development environments (IDE) to improve code quality and development speed

• Optimized client workflows by delivering customized software solutions on time, significantly improving operational efficiency

Java • Spring Boot • Spring MVC • JavaFX • Oracle SQL • JUnit • JIRA • Bamboo

Academic Work

Master's Thesis: End-to-End Learning System for Autonomous Drone Navigation

Technical University of Clausthal | 2018 - 2024

This project aimed to revolutionize autonomous drone flight by implementing a cutting-edge end-to-end (E2E) learning approach. Conducted within the AirSim simulation environment, the work achieved Level 4 autonomous navigation capabilities, integrating advanced spatial awareness, core navigation, and expanded features such as non-planar flight paths.

Supervisors: Prof. Dr. Andreas Rausch, Dr. Adina Aniculaesei

• Designed and implemented an autonomous drone navigation system using Python, TensorFlow, and AirSim simulation

- Achieved level-4 navigation capabilities, including spatial awareness and non-planar movement

- Delivered a scalable and efficient solution for drone navigation

• Unlike traditional modular methods, the E2E system directly learns the mapping between inputs and outputs, enabling seamless and efficient navigation in complex environments

• This innovative approach highlights a significant leap in autonomous aerial systems, setting the foundation for smarter and more adaptive drone technologies

Python • TensorFlow • Keras • AirSim • Pandas • Scikit-learn • Git • GitLab • Machine Learning • Autonomous Systems

Master's Project: Safeguarding Safety-Critical Systems

Technical University of Clausthal | 2018 - 2024

This project focused on analyzing safety-critical systems, with a particular emphasis on drones. As inherently safety-critical systems, drone development demands adherence to specialized methodologies, rigorous safety standards, and tailored development processes.

Supervisors: Prof. Dr. Andreas Rausch, Dr. Adina Aniculaesei

• Conducted an extensive literature review on safety-critical systems, focusing on unmanned aircraft systems

- Analyzed and documented industry standards and laws for system development

• The work primarily involved an in-depth literature review of relevant standards, laws, and safeguarding practices associated with the design and development of unmanned aircraft systems

• By exploring the regulatory and technical frameworks, this study provides valuable insights into the processes necessary to ensure the reliability and safety of these advanced systems

Literature Review • Safety Standards • Markdown • LaTeX • Excel • Research • Documentation

Bachelor's Thesis: Software Architecture Management in the Automotive Sector

Technical University of Clausthal | 2013 - 2018

This project centers on Model-Driven Software Development (MDSD), a cutting-edge approach to achieving highly automated software creation. The primary objective was to design and develop a customized tool that supports Model-Driven Architecture (MDA), a pivotal aspect of MDSD, by generating tailored software architecture models derived from a metamodel.

Supervisors: Prof. Dr. Andreas Rausch, Arthur Strasser

• Built an eclipse standalone tool to support Model-Driven Architecture (MDA) for customized software solutions

• Utilized Java, Eclipse, and UML to address architectural challenges in the automotive industry

• Addressed the limitations of standardized frameworks like the Unified Modeling Language (UML) —which often lack flexibility or prove overly complex for specific architectural challenges—the tool is designed to meet the unique demands of the automotive industry

• By automating critical development steps and delivering architecture solutions optimized for real-world needs, this work demonstrates innovation in streamlining software development processes while driving efficiency and adaptability in safety-critical industries

Eclipse • GMF/EMF • Java • UML • Model-Driven Development • Automotive • Architecture

Bachelor's Project: Smart Beer Bar System

Technical University of Clausthal | 2013 - 2018

This project involved the development of a smart beer bar management system designed to enhance user experience and operational efficiency. The system allows users to log in, view personalized details such as beer consumption in liters, manage other users and their consumption data, and securely log out.

Supervisors: Benjamin Fischer, Yong Wang, Prof. Dr. Andreas Rausch

• Developed a cross-platform, real-time management system using C++, Qt, and SQLite, enabling seamless tracking of beer consumption, user data, and inventory

• Implemented user authentication and role-based access controls, ensuring data security and allowing different levels of user interaction (admin, user, guest)

• Optimized inventory management by automating consumption tracking, reducing manual efforts and providing real-time insights into stock levels and user behavior

• Built using C++, Qt, SQLite, and developed in Eclipse and Qt Creator on Ubuntu, the project demonstrates a seamless integration of modern technologies to create a user-friendly and efficient solution

C++ • Qt • SQLite • Eclipse • Qt Creator • Ubuntu • UML • Cross-Platform

Notable Project: Electric Vehicle Simulator

Technical University of Clausthal | 2013 - 2018

This project focuses on developing an electric vehicle simulator to address key challenges such as range limitations and high costs associated with electric cars. The simulator enables users to simulate a trip and receive an evaluation of their driving performance upon completion.

Supervisors: Meng Zhang

• Designed and integrated an interactive driver-simulator module using Java and OpenDS, allowing users to simulate electric vehicle trips and receive detailed performance evaluations

• Implemented a feedback loop to analyze energy consumption and optimize trip performance, helping to improve electric vehicle efficiency and user experience

• Collaborated with a cross-functional team to ensure the simulator aligned with the real-world specifications of electric vehicles, enhancing the accuracy of results and simulations

• Divided into several sub-projects, this programming internship specifically involved the implementation of a driver-simulator interaction, built using Java

Eclipse • Java • UML • OpenDS • Java SWT • Java Swing • Simulation

Notable Project: Parking Management System

Technical University of Clausthal | 2013 - 2018

This project addresses the growing challenge of finding parking in crowded urban areas while contributing to the advancement of autonomous driving by automating parking management. The goal was to create a real-time parking management system that allows users to easily monitor the availability of parking spaces.

Supervisors: Meng Zhang

• Developed a real-time parking management application for Android, using Python, TypeScript, and Java, enabling users to find available parking spots based on sensor data and user input

• Integrated data visualization tools for users to easily view parking availability and reservation status, improving the overall user experience

• Streamlined communication with backend servers to ensure up-to-date and accurate parking lot status, allowing efficient management of parking resources in high-demand areas

• The system was built using Python, TypeScript, and Java (Android), showcasing expertise in mobile development, backend services, and sensor data integration for autonomous systems

Java Android • Python • TypeScript • UML • Mobile Development • Backend Services

Notable Project: Graph Database Comparison

Technical University of Clausthal | 2013 - 2018

This project involved a comprehensive performance comparison between two leading NoSQL graph databases: Neo4j and ArangoDB. The objective was to assess the strengths and capabilities of each database to determine which offers superior performance for graph-based data management.

Supervisors: Gerrit Burmester, B.Sc.

• Conducted performance benchmarking between Neo4j and ArangoDB, writing Python scripts to evaluate query efficiency and scalability under various real-world scenarios

• Analyzed and presented findings to stakeholders, providing actionable insights to optimize database selection for different types of graph-based applications

• Developed custom testing scripts to simulate data workloads, ensuring that performance metrics were relevant to industry standards and real-world usage

• To achieve this, I developed and executed a series of benchmark tests using a custom Python script, enabling a detailed analysis of each database's efficiency and scalability

Neo4j • ArangoDB • Python • NoSQL • Graph Databases • Performance Testing

Research Assistant - Software Development and Automation

Technical University of Clausthal | April 2021 - 2022

• Built simulation tools using Python and ROS2 for monitoring security-critical drone systems, improving system reliability and performance

• Automated data collection and analysis for drone control systems using Python, ROS2 and Airsim, reducing the time required for experimental setups

• Collaborated with international teams to align research objectives with regulatory standards and safety protocols in the drone industry

• Collaborated remotely with local teams via BigBlueButton (BBB) and GitLab to ensure smooth communication and version control

Python • ROS2 • AirSim • Drone Systems • Research

Research Assistant

Technical University of Clausthal | 2014 - 2018

• Developed and maintained software solutions in Java for various research projects, automating workflows and improving the efficiency of data collection and analysis processes

• Utilized version control systems using Subversion (SVN), ensuring seamless collaboration and traceability of code changes between multiple research teams

• Extended MS Excel functionalities with VBA Excel to support colleagues in time registration and data management

• Designed and implemented modular applications using the MVC architecture pattern, ensuring scalability and maintainability of research tools

• Implemented automated testing using JUnit to ensure software stability, reducing bugs and errors and improving the reliability of research outputs

• Followed the V-Model XT method for software development, adhering to structured and systematic processes to meet project requirements and quality standards

• Collaborated with teams using SharePoint for documentation and Subversion (SVN) for version control, streamlining code management across multiple research projects

• Utilized Eclipse IDE for efficient development and debugging of Java-based research applications, accelerating the development cycle

• Automated Excel workflows with custom VBA macros, saving significant manual effort and improving the accuracy of time registration processes for team members

• Worked independently to deliver high-quality software solutions that supported various research initiatives, demonstrating strong problem-solving skills and self-management

Java • VBA Excel • MVC • JUnit • SVN • SharePoint • Research • Eclipse

Education

Master of Science in Computer Science
Technical University of Claustral | 2018 - 2024

Thesis: End-to-End Learning System for Autonomous Drone Navigation
Tools: Python, Pandas, TensorFlow, Keras, AirSim, Git, GitLab
Key Achievement: Developed an autonomous drone navigation system

Bachelor of Science in Computer Science
Technical University of Claustral | 2015 - 2018

Thesis: Software Architecture Management in Automotive Engineering
Tools: Java, Eclipse, UML, GMF/EMF
Key Achievement: Developed an automotive software architecture tool supporting Model-Driven Architecture for safety-critical systems.

High School Diploma
Gymnasium | 2005 - 2011

Focus: Mathematics, Physics, and Computer Science
Graduation: Graduated with honors and received the Outstanding Achievement in Mathematics award.

Technical Skills

Programming Languages
Python (95%) • Java (90%) • JavaScript (85%) • TypeScript (80%) • PHP (85%) • C++ (85%) • VBA Excel (90%)

Frameworks & Tools
UiPath (95%) • Django (90%) • Spring Boot (85%) • Next.js (80%) • React Native (80%) • Laravel (85%) • TensorFlow (75%)

Databases
PostgreSQL (90%) • MySQL (85%) • Oracle SQL (85%) • SQLite (85%) • Neo4j (75%) • ArangoDB (75%)

DevOps & Cloud
Git (95%) • Docker (85%) • Jenkins (80%) • Maven (90%) • AWS (70%) • CI/CD (80%)

Featured Projects

RPA Automation Solutions
Python • UiPath • VBA Excel

Developed comprehensive automation solutions using Python and UiPath, achieving 80% reduction in manual effort for data processing and visualization tasks.

OKAS FLD Business Website
Next.js • TypeScript • Tailwind CSS

Modern business website built with Next.js, TypeScript, and Tailwind CSS. Features responsive design, multi-language support, and professional UI/UX.

Vivantes-Humanitas Web Application
Django • Python • HTML • CSS

Django-based web application for Vivantes Humanitas e.V., enabling efficient management of volunteer registrations and activity tracking.

Pentak Sarl International Website
Laravel • PHP • CSS • JavaScript

Professional business website for Pentak Sarl International, featuring modern design, responsive layout, and comprehensive company information.

Autonomous Drone Navigation
Python • TensorFlow • AirSim

End-to-End Learning System for autonomous drone navigation using Python, TensorFlow, and AirSim simulation, achieving Level 4 navigation capabilities.

Software Architecture Tool
Java • Eclipse • UML

Custom software architecture tool supporting Model-Driven Architecture for automotive sector, improving development efficiency in safety-critical systems.

Cross-Platform Mobile Apps
React Native • TypeScript • Spring Boot

Full-stack, cross-platform mobile applications using TypeScript, React Native Expo, with Java Spring Boot, Python Django, and PHP Laravel backends.