

Ahonakpon Guy GBAGUIDI

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RESEARCH PROFILE	M.S. student in Engineering Artificial Intelligence at Carnegie Mellon University’s College of Engineering. My current research direction is robotics, with interest in robot perception, reasoning, human-robot interaction, embodied intelligence, and reliable AI systems for African contexts. My prior research combined forecasting and optimization for renewable-powered telecommunications infrastructure, and led to a first-author publication. I am seeking robotics research advising and project opportunities that can develop into rigorous, reproducible work.
EDUCATION	Carnegie Mellon University, College of Engineering, Kigali, Rwanda M.S. in Engineering Artificial Intelligence (MS EAI), expected May 2028 Completed English Enhancement Program, CMU-Africa campus, June 23 – July 22, 2026 Selected planned coursework: Robotics: Principles and Practice(18-799-L), Reinforcement Learning(04-751), AI System Design(04-652), Introduction to Machine Learning for Engineers(18-661), Data, Inference, and Applied Machine Learning(18-785), Trustworthy AI(24-784), Applied Stochastic Processes(18-751), Introduction to Deep Learning(11-785), Foundations of Materials Science and Engineering(27-676-RW), University of Abomey-Calavi, Institute for Training and Research in Computer Science, Abomey-Calavi, Benin B.Sc. in Software Engineering, December 2024 - GPA: 16.20/20 (A+), First Class Honours - Thesis: “Optimized Energy Supply Strategies for Green Telecommunications Networks: An AI and Multi-Objective Optimization Approach” - Advisor: Professor Eugène C. Ezin - Scholarship: Mastercard Foundation Scholars Program (Fully Funded) Selected coursework: Matrix Algebra and Applications, Mathematical Analysis, Discrete Mathematics, Probability, Statistical Inference, Differential Equations, Algorithms, Advanced Data Structures, Operations Research, Graph Theory, Software and Hardware Security
PUBLICATION	Gbaguidi, A. G. & Ezin, E. C. (2026). “Machine Learning-Driven Energy Optimization for Sustainable Telecommunications: A Multi-Algorithm Benchmark.” <i>DMPedia Lecture Notes in Multidisciplinary Research</i>, IMPACT26, 419–429. DOI: 10.65890/dmp.lnmr.IMPACT26.78.
RESEARCH EXPERIENCE	Institut de Formation et de Recherche en Informatique, University of Abomey-Calavi, Abomey-Calavi, Benin Undergraduate Researcher January 2024 – December 2024 - Built an end-to-end framework combining AutoGluon forecasting with six optimization approaches: NSGA-II, particle swarm optimization, dynamic programming, greedy heuristics, mixed-integer linear programming, and simulated annealing for hybrid solar-grid-diesel-battery telecom sites - Evaluated the framework on an ITU AI for Good dataset covering 10 sites; achieved R^2 scores of 0.92 for solar-generation forecasting and 0.96 for load forecasting - Benchmarked feasibility, objective quality, energy mix, and runtime; the best domain-specific strategy achieved 100% feasibility, 68% solar utilization, and zero diesel use in simulation - Analyzed sensitivity to prediction error and found that 20% forecast error degraded the optimization objective by 800% - Produced an undergraduate thesis and a first-author publication from the research

PROFESSIONAL EXPERIENCE	Tekbot Robotics , Cotonou, Benin <i>Robotics Mentor, UCAO-TECH</i> March 2025 – January 2026 - Selected as a TRC 2025 robotics junior engineer; lead and mentor the UCAO-TECH team, representing Université Catholique de l’Afrique de l’Ouest, and advise university teams from Benin and the surrounding subregion - Provide technical and methodological direction in ROS, computer vision, software engineering, requirements, resource planning, programming, integration, and validation
	PhytoV , Cotonou, Benin <i>Full-Stack Developer, Backend and AI</i> February 2025 – December 2025 - Designed APIs and data services using Python, FastAPI, PostgreSQL, React.js, and AWS S3 - Integrated language-model and natural-language-processing components and deployed AI functionality through tested REST APIs with more than 90% code coverage
	Rintio , Cotonou, Benin <i>Backend Software and Data Engineer Intern</i> August 2023 – November 2023 - Processed large travel-pattern datasets using Apache Spark and MinIO - Built a FastAPI/JWT authentication service with 97% test coverage and integrated MongoDB and PostgreSQL data pipelines
SELECTED PROJECTS	TRC 2025 Robotics Mentoring (2025): Mentored university robotics teams on ROS, computer vision, integration planning, testing, and technical documentation Morabaraba Game AI (2022): Co-developed a Python game-playing agent using minimax-style search and strategy switching; won 1st place in the Mify Artificial Intelligence Contest Facial Analysis, Age Estimation, and OCR System (2025): Developed computer-vision models for a national GovTech challenge; placed third (tie) in the ANIP Benin Kaggle Challenge Landmark Classification and Tagging (2024): Fine-tuned ResNet and VGG models with transfer learning in PyTorch, achieving 70% classification accuracy
TECHNICAL SKILLS	Robotics and AI: ROS, computer vision, reinforcement learning, robot perception, human-robot interaction, search-based reasoning, experimental benchmarking Machine Learning: PyTorch, TensorFlow, Scikit-learn, Keras, JAX, AutoGluon, Hugging Face Transformers Programming: Python, C, C++, SQL, Java, JavaScript, Dart, $\LaTeX$ Data and Scientific Computing: Pandas, NumPy, Matplotlib, Seaborn, Jupyter, Apache Spark Systems and Tools: Linux, Git, Docker, AWS, PostgreSQL, MongoDB, MySQL, Elasticsearch
LEADERSHIP & SERVICE	Poster Judge, Deep Learning Indaba 2025: Evaluated research posters and provided feedback to presenters Co-Lead, Events Commission, iSHEERO (2023–Present): Organize AI and data-science events for Beninese and African professionals Millennium Fellow and Global Admissions Reviewer (2024): Led the Zero Plastic Waste project and reviewed 57 university applications from Africa, Europe, and Asia Baobab Platform Ambassador, Mastercard Foundation Scholars Community (2024–Present): Support a community of more than 300 scholars in Benin Student Award Leader – Duke of Edinburgh International Award (November 2023–Present): Peer mentorship and program guidance
SELECTED HONORS	ANIP Benin Kaggle Challenge, 3rd place (tie), computer vision and OCR (2025) Deep Learning Indaba, fully funded participant, Kigali, Rwanda (2025) Innovation Crunch Time, selected participant, AI-powered flood prediction (2025) AWS AI & ML Scholarship Program, two-time scholarship recipient with Udacity (2023, 2024) Mastercard Foundation Scholars Program, full undergraduate scholarship (2021–2024) Fiscathon, DGI Benin, BOAD, and GIZ, 1st place, Tax Accessibility category (2023) Mify Artificial Intelligence Contest, 1st place (2022)
LANGUAGES	Mahi (native), French (C2), English (TOEFL iBT 84), Mandarin (A1)