Isaac Osei Agyemang

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Professional Profile

I am a computer science-oriented individual with the knowledge, experience, and skills to help add value to your institution/organization. I possess good knowledge of computer science, information communication and technology, as well as modern academic and office management tools, enabling me to achieve both internal and external objectives. I possess good collaboration skills and a good work ethic. My interests/research domains include machine learning, deep learning, computer vision, robotics, structural health monitoring, and medical imaging.

Education

Ph.D. Information and Communication Engineering, University of Electronic Science and Technology of China — Sep. 2019 – June 2023

MEng. Computer Science and Technology, University of Electronic Science and Technology of China — Sep. 2017 – June 2019

BSc. Computer Science, Christian Service University College — Sep. 2012 – May 2016

Certifications: Advance Google Analytics | Redis Search | Redis Stream | Redis for Java Developers | Redis for Python Developers

Academic Awards:

- Sichuan High-level Foreign Talent Certificate, Science and Technology Department of Sichuan Province, China, 2024.
- Academic Achievement Award (first prize), University of Electronic Science and Technology of China, 2021-2022.
- Excellent International Student of UESTC (fourth prize), University of Electronic Science and Technology of China, 2021-2022.
- Academic Achievement Award (third prize), University of Electronic Science and Technology of China, 2017-2018.

LinkedIn profile: Click here

Google Scholar profile: Click here

Research Interest:

- Deep Learning • Machine Learning • Computer Vision • Structural Health Monitoring • Robotics

Academic Activities:

- Invited Speaker, Infrastructure and Civil Engineering Conference, *Hampton By Hilton Rome North Fiano Romano, Rome, Italy, 2023*
- Speaker: LaTex and Mendeley Tutorial, *University of Electronic Science and Technology of China, 2022*
- Speaker: Graduate Meet-Up, *University of Electronic Science and Technology of China, 2022*

Journal Reviews:

- Automation in Construction, *Elsevier*
- Journal of Building Engineering, *Elsevier*
- Displays, *Elsevier*
- Journal of Kind Suad University – Science, *Elsevier*
- Engineering Application of Artificial Intelligence, *Elsevier*

- Image and Vision Computing, *Elsevier*
- Applied Soft Computing, *Elsevier*
- Biomedical Signal and Processing & Control, *Elsevier*
- International Journal of Control, Automation, and Systems, *Springer*
- Machine Vision and Applications, *Springer*
- Connection Science, *Taylor, and Francis*
- Journal of Intelligent & Fuzzy Systems, *IOS Press*

Publications List (SCI Journals)

#	Title	Author Order	Journal Name	Year	Link
1	Structural damage detection via hierarchical structural damage information and volumetric assessment	1	Measurement	2025	Access paper
2	Multi-visual modality micro drone-based structural damage detection	1	Engineering Applications of Artificial Intelligence	2024	Access paper
3	Automated vision-based civil infrastructure health inspection and assessment post-construction	1	Automation in Construction	2023	Access paper Video link
4	Autonomous health assessment of civil infrastructure using deep learning and smart devices	1	Automation in Construction	2022	Access paper Video link
5	RPNet: Rotational pooling for efficient micro aerial vehicle trail navigation	1	Engineering Applications of Artificial Intelligence	2022	Access paper
6	Accelerating trail navigation for unmanned aerial vehicles: a denoising deep-net with 3D-NLGL	1	Journal of Intelligent & Fuzzy Systems	2022	Access paper Video link
7	Lightweight real-time detection of components via a micro aerial vehicle with domain randomization toward structural health monitoring	1	Periodica Polytechnica Civil Engineering	2022	Access paper
8	Learning-centered multi-modal federated learning complimented with filter rotation for clinical image diagnosis	3	Engineering Applications of Artificial Intelligence	2025	Access paper
9	Cov-fed: Federated learning-based framework for COVID-19 diagnosis using chest X-ray scans	3	Engineering Applications of Artificial Intelligence	2024	Access paper
10	Automated Valet Parking and Charging: A Dynamic Pricing and Reservation-Based Framework Leveraging Multi-Agent Reinforcement Learning	6	IEEE Transactions on Intelligent Vehicles	2024	Access paper
11	A Comprehensive Survey on Deep Graph Representation Learning Methods	3	Journal of Artificial Intelligence Research	2023	Access paper
12	Cov-Fed: Federated learning-based framework for COVID-19 diagnosis using chest X-ray scans	3	Engineering Applications of Artificial Intelligence	2023	Access paper
13	ADCGNet: Attention-based Dual Channel Gabor Network Towards Efficient Detection and Classification of Electrocardiogram Images	4	Journal of King Saud University-Computer and Information Sciences	2023	Access paper
14	VBlock: A blockchain-based tamper-proofing data protection model for Internet of Vehicles networks	9	Sensors	2022	Access paper
Papers under review					
1	Mitigating noisy data with Bayesian refinement for damage detection and measurement	1	Engineering Applications of Artificial Intelligence	2025	-

Publications List (EI Conferences)

#	Title	Author Order	Conference Name	Year	Link
1	Towards Fully Synthetic Training: Exploring Data Augmentations for Synthetic-to-Measured SAR in Automatic Target Recognition	2	2025 IEEE AI IoT Congress (AIIoT), World	2025	Access paper
2	Enhanced deep convolutional neural network for building component detection towards structural health monitoring	1	International Conference on Pattern Recognition and Artificial Intelligence (PRAI)	2021	Access paper
3	Bridging the Digital Divide: Securing Information and Computer Systems in an Unequal World	3	Implications of Information and Digital Technologies for Development 2024	2024	Access paper
4	On salient concrete crack detection via improved Yolov5	1	18th International computer conference on wavelet active media technology and information processing (ICCWAMTIP)	2021	Access paper
5	Accelerating classification on resource-constrained edge nodes toward automated structural health monitoring	1	18th International computer conference on wavelet active media technology and information processing (ICCWAMTIP)	2021	Access paper
6	SCAF-DG: A Spatial-Channel Attention Fusion for Domain Generalization in Multicenter Medical Image Denoising	7	International Conference on Pattern Recognition and Artificial Intelligence (PRAI)	2023	Access paper
7	Investigating vision transformer models for low-resolution medical image recognition	4	18th International computer conference on wavelet active media technology and information processing (ICCWAMTIP)	2021	Access paper
8	Multimodal melanoma detection with federated learning	6	18th International computer conference on wavelet active media technology and information processing (ICCWAMTIP)	2021	Access paper
9	Federated approach for lung and colon cancer classification	6	19th International computer conference on wavelet active media technology and information processing (ICCWAMTIP)	2022	Access paper
10	Wb-Proxshare: a warrant-based proxy re-encryption model for secure data sharing in IOT networks via blockchain	9	19th International computer conference on wavelet active media technology and information processing (ICCWAMTIP)	2022	Access paper
11	Efficient 3D residual network on MRI data for neurodegenerative disease classification	4	Thirteenth International Conference on Graphics and Image Processing (ICGIP 2021)	2022	Access paper

Professional Experience

Associate Researcher/Lecturer, Stirling College, Chengdu University-University of Stirling (Sino-British Joint College) — Sep. 2024 – present

RESPONSIBILITIES

- Design and deliver data science-related courses, including machine learning, data analysis, and programming, ensuring alignment with industry standards and academic rigor.
- Guide and mentor undergraduate students in their academic journey, including project work, thesis writing, and fostering innovative research ideas.
- Act as module leader and review and regularly update course content and materials.
- Develop and apply innovative and appropriate teaching techniques and material that create interest, understanding, and enthusiasm amongst students.
- Set, mark, and assess work and examinations and ensure high-quality feedback is provided to students.
- Work closely with colleagues across disciplines to integrate data science methodologies into diverse applications and foster innovative solutions.
- Conduct advanced research in structural health monitoring, leveraging deep learning and computer vision techniques to address industry challenges and enhance knowledge in the field.
- Publish research findings in journals and present at international conferences, contributing to the broader scientific community.
- Actively participate in workshops, seminars, and professional gatherings to stay abreast of advancements in data science and structural health monitoring.
- Stay updated on emerging trends and technologies in computer science, integrating these advancements into teaching and research initiatives.

Postdoctoral Researcher, Perception and Intelligent Control @ University of Electronic Science and Technology of China — June 2023 – Sep. 2024

RESPONSIBILITIES

- Conducting cutting-edge research in computer science, specifically focusing on the application of microrobots in industrial applications.
- Collaborate with faculty members and research partners to identify and develop research projects in line with the center's objectives.
- Assist in supervising and mentoring graduate and undergraduate students, providing guidance and support for their research projects.
- Engage in interdisciplinary collaborations with other research groups within the university.
- Assist in organizing academic events, such as workshops and seminars, to promote knowledge exchange and collaboration.
- Assist in teaching relevant courses or conducting guest lectures in areas related to machine learning, deep learning, computer vision, and robotics.
- Maintain a strong professional network by actively engaging with researchers and experts in the field and staying updated by attending conferences, workshops, and journal reviews.

Pre-University Course Instructor, University of Electronic Science and Technology of China — May 2022 – April 2023

RESPONSIBILITIES

- I taught the foundation of computer science at the undergraduate and graduate levels; this covers the following:
    - Machine learning
    - Deep Learning
    - Data structures and algorithms
    - Database

- Programming (Python)

- Curriculum Development: Developed and updated the curriculum for the courses taught; this included choosing appropriate teaching materials/textbooks, designing course syllabi, and developing learning outcomes.
- Assessment and Evaluation: Developed and administered assessments to evaluate student learning and progress. This included creating exams, quizzes, and assignments, grading, and providing student feedback.
- Mentoring and Advising: Provided guidance and support to students, including academic advising, research directions, and mentorship.
- Professional Development: Engaged in professional development activities, such as attending workshops, seminars, and conferences, to keep up-to-date with the latest developments in computer science education and pedagogy.

Online Course Instructor, UTEL University — Feb. 2022 – May 2023

RESPONSIBILITIES

- I taught data science and operations research curricula for early data science careers at the graduate level. I continuously revised the curricula based on up-to-date data science and operations research developments. My secondary responsibilities included the development of course curricula for undergraduates.
- I fostered a collaborative learning environment, thus encouraging students to work together and share their knowledge and experiences. I made use of group projects and assignments to promote collaboration and team-building.
- I provided timely and constructive feedback; thus, I regularly assessed student performance and provided timely and constructive feedback. The feedback focused on specific improvement areas and offered actionable steps for students.
- Created a positive and fun classroom environment that encouraged learning and student interaction.
- Created a community of learners; I encouraged students to participate in online forums and other community-building activities. I fostered a sense of community among the students and promoted a culture of sharing and learning.
- Continuously evaluated my teaching effectiveness; regularly evaluated my teaching effectiveness and made adjustments as needed. I also solicited feedback from students and colleagues to ensure I delivered the best possible learning experience.
- Developed long-term teaching plans aligned with UTEL University curriculum and student progress goals.

Post-Graduate Teaching/Research Assistant, University of Electronic Science and Technology of China — Sep. 2019 – April 2023

RESPONSIBILITIES

- I researched deep/machine learning drone applications for structural health monitoring; this also involved coordinating with industry partners to identify feasible research opportunities to develop real-world applications.
- I collaborated with faculty and lab members to prepare publications, publish articles and papers, and present research at conferences and seminars. This included but was not limited to assistance in conducting experiments, data analysis, and troubleshooting of some experimental equipment.
- Taught relevant subjects to graduate and undergraduate students toward their research/academic careers. I assisted in revising curriculum development to incorporate new research findings and technologies when tasked.
- Monitored graduate/undergraduate progress against targets and implemented recovery plans for those who needed them. In addition, I mentored undergraduates in their research projects and aided them in developing their research and writing skills.
- As part of the doctoral training, I participated in professional development programs such as seminars and training sessions to keep up with new developments within the computer science discipline. In addition, I did take on leadership roles such as lead project manager.

Research Intern, Intel Corporation (China) — Oct. 2019 – Dec 2019

RESPONSIBILITIES

- Conducted literature reviews related to assigned research tasks.

- Together with the attached research team, we developed a new optimized analytical method for data analysis.
- Reported research findings to Intel Handler. I reported interesting insights and trends I came across during several data analytics tasks to my Intel Handler.
- I collaborated with other Intel research teams to share knowledge and learn from experts in the field.

Back-End Support Developer, WeWork, China

Feb. 2019 – May 2019

RESPONSIBILITIES

- Provided support for web services by troubleshooting technical issues reported by clients and resolving them on time. This involved diagnosing problems with the back-end infrastructure, analyzing logs and metrics to identify the root cause of issues, and implementing fixes to prevent similar issues from recurring.
- Assisted clients within the WeWork space with technical-related issues about their start-ups. This included guiding clients through setting up and configuring web applications, providing technical advice on software architecture and design, and ensuring clients had a smooth experience with their technology stack.
- Collaborated with the front-end development team to ensure seamless back-end infrastructure integration with the user interface. This involved developing APIs, creating databases, and optimizing the application's performance.
- Maintained documentation for the back-end infrastructure and provided training to clients on how to use the system efficiently. This ensured that clients clearly understood the system's capabilities and could effectively leverage it for their business needs.
- I conducted regular back-end infrastructure testing to identify potential vulnerabilities and implemented appropriate security measures to safeguard the system from potential threats. This ensured that the system remained secure and protected against potential attacks.
- Participated in code reviews and provided constructive feedback to improve the quality of the codebase. This helped ensure the codebase was maintainable and scalable in the long run.

System Support Analyst (Intern), Redis

Jul. 2018 – Oct. 2018

RESPONSIBILITIES

- Assisted the Redis System Support Analyst in resolving system issues by troubleshooting and diagnosing problems.
- Participated in system upgrades and maintenance activities and documented system issues and resolutions clearly and concisely.
- Collaborated with other team members to resolve complex system issues and analyzed data to identify patterns and trends that could impact system performance.
- Created and maintained system documentation, including procedures, manuals, and user guides; this helped provide end-user support and training on system functionalities and processes.
- Assisted with system testing, quality assurance, and performance tuning.
- I stayed up-to-date with industry trends and best practices related to system support and analysis.
  I took the initiative to suggest process improvements and innovations to optimize system performance and user experience.

Graduate Teaching/Research Assistant, University of Electronic Science and Technology of China

Nov. 2017 – Jan. 2019

RESPONSIBILITIES

- Modeled, developed, and implemented new research methods and techniques to simulate and solve complex problems in multi-agents and robotics systems. Some of the problems included corporative multi-agent mobile robots, data sharing in large mobile unmanned underwater vehicles, and navigation of mobile robots in non-convex environments.
- Collaborated with research members and experts in robotics and multi-agents to design and execute interdisciplinary research projects. Some of this project included using a genetic fuzzy tree to control multi-agents.
- Disseminated new knowledge orally/written to research members and provided feedback and suggestions to help improve research output. I assisted in the writing and publication of scientific findings as well.

- Assisted undergraduates with learning difficulties and supervised their mini-projects; this involved mentoring and aiding undergraduates to develop their critical thinking skills and encouraging their research interests.
- I carried out teaching assistantship duties, which included recapping/re-iterating assigned courses, conducting, and organizing lab sessions and field experiments.
- Engaged in outreach activities to promote the research and findings of the multi-agent systems and robotics research group to the wider community.

IT Officer (National Service Personnel), Ghana Armed Forces

Sep. 2016 – Aug. 2017

RESPONSIBILITIES

- Assisted in setting up the K8 flight simulator for pilot training: I worked closely with the K8 squadron team responsible for the K8 flight simulator, assisting in updating and configuring software and hardware components required to ensure smooth and efficient pilot training.
- Developed and implemented a web platform to meet the needs of Ghana Armed Forces Air Force Base. I was involved in designing, developing, and implementing a web platform that served as a one-stop shop for all information related to the Ghana Armed Forces Air Force Base. The platform included features such as an online portal for accessing base resources and services and a blog for sharing news and updates.
- Maintained internet and intranet connections and troubleshot computers. I was responsible for ensuring that the internet and intranet connections were up and running at all times. I also provided technical support for computers within the attached military unit, troubleshooting and resolving issues promptly.
- I was responsible for other minor IT-related works within the attached military unit. I was tasked with various other IT-related duties as needed, such as setting up new user accounts, providing training on software and hardware systems, and ensuring that all equipment and software were properly licensed and up to date.

Teaching Assistant, Christian Service University College

Aug. 2014 – Apr. 2016

RESPONSIBILITIES

- Reviewed lessons taught to students to ensure clarity of content.
- Worked with groups of students for remedial teaching and reinforced the learning process by identifying areas of weakness and providing additional support.
- Assisted lecturers with various tasks, including grading assignments, developing recovery plans for failing students, tracking student attendance and class schedules, and providing timely feedback on student progress.
- As an assistant leader on research projects, I conducted research studies, analyzed data, and presented findings to the academic community.
- Conducted review sessions for exams and quizzes, clarifying concepts, answering student questions, and providing examples and practice problems to help students prepare for assessments.
- Developed and delivered workshops on academic skills, including time management, note-taking, and effective study strategies.

ICT Support (Intern), Sinapi Aba Savings and Loans

May. 2014 – Jun. 2014

RESPONSIBILITIES

- Provided second-line support for ICT issues, such as troubleshooting and resolving hardware and software problems, and assisted with system upgrades and updates.
- I was responsible for configuring and installing new hardware and software, such as printers, scanners, and applications, and ensuring they worked properly.
- Monitored and maintained computer systems, including checking for viruses, updating anti-virus software, and performing regular system backups.
- Assisted with administrating network accounts and user access, including creating new accounts, modifying existing accounts, and resetting passwords.
- Collaborated with other members of the ICT team to ensure that all ICT-related issues were resolved promptly and efficiently.

- Provided end-user training and support, including answering questions about software and hardware and assisting with basic computer skills.
- I participated in project teams to support the development and implementation new ICT solutions.

Competencies

- **Business:** Project management | Staff development | Operations management | Leadership | Process improvement
- **Administration:** Business support | Communication
- **Soft/Technical skills:** Windows operating system | Programming languages (e.g., Python, Java, HTML, PHP, CSS, SQL, etc.) | Redis | Microsoft Office | TensorFlow | Keras | Pytorch

Interests and Mentoring Work

- **Interests:** Running | Football | Public speaking | Reading | Site seeing
- **Mentoring:** Student advisor | Coaching

References

- **Prof.** Daniel Acheampong
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- **Prof.** Alex Kumi Yeboah
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