
# Kwabena Adu (PhD)

Rank: Lecturer
Department of Information Technology and Decision Sciences
University of Energy and Natureal Resources
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## Personal Information

**Gender**: Male
**Religion**: Christianity
**Nationality**: Ghanaian

## Education

•**University of Electronic Science and Technology of China** *Sept. 2018 - June 2022*
*PhD Software Engineering*
Thesis: Deep Learning and Its Application in Typical Medical Imaging

•**University of Electronic Science and Technology of China** *Sept. 2016 - July 2018*
*MEng Software Engineering*
Thesis: Memristive Neural Network for Breast Cancer Classification

•**University of Education Winneba, Kumasi-Campus, Ghana** *Sept. 2011 - July 2015*
*BSc Information Technology*
Project: Campus Announcement System: A Case Study of University of Education Winneba, Kumasi-Campus

•**Osei Tutu Secondary School, Atwima - Akropong, Ghana** *Sept. 2002 - June 2005*
*Senior Secondary School Certificate*

## Experience

•**University of Energy and Natural Resources** *September 2022 to date*
*Lecturer* Sunyani
– Responsibilities:Teaching, Research, service, and supervision of PhD, MPhil, MSc, and BSc Thesis

•**University of Energy and Natural Resources** *November 2021 to September. 2022*
*Assistant Lecturer* Sunyani
– Responsibilities: Teaching, Research, service, and supervision of BSc Thesis

## Publications

•**Selected Publication** *2019 to date*
*Peer Reviewed Journal Articles*

– Yu, Y., Yang D., Tang Q., Wang X., Yang N., Cheng M., Zhong Y., **Adu, K.**, Favour, E. Neural image caption generator based on crossbar array design of memristor module. Neurocomputing, 2023
– Opoku, M., Weyori, B.A., Adekoya, F.A, **Adu, K.** SFFT-CapsNet: Stacked Fast Fourier Transform for Retina Optical Coherence Tomography Classification using Capsule Networks. International Journal of Advanced Computer Science and Applications(IJACSA), 14(9), 2023.
– Opoku, M., Weyori, B.A., Adekoya, F.A, **Adu, K.** CLAHE-CapsNet: Efficient Retina Optical Coherence Tomography Classification using Capsule Networks with Contrast Limited Adaptive Histogram Equalization. (**Accepted for Publication**)
– Mensah, P. K., Akoto-Adjepong, V., **Adu, K.**, Ayidzoe, M. A., Bediako, E. A., Nyarko-Boateng, O. CCMT: Dataset for Crop Pest and Disease Detection. Data in Brief, 109306.
– **Adu, K.**, Walker, J., Mensah, P. K., Ayidzoe, M. A., Opoku, M. (2023). SqueezeCapsNet: enhancing capsule networks with squeezenet for holistic medical and complex images. Multimedia Tools and Applications, 1-30.
– Abdullah, M. A., Yu, Y., **Adu, K.**, Imrana, Y., Wang, X. (2023). HCL-Classifier: CNN and LSTM based hybrid malware classifier for Internet of Things (IoT). Future Generation Computer Systems, 142, 41-58.
– Mensah, P. K., Ayidzoe, M. A., Opoku, A. A., **Adu, K.**, Weyori, B. A., Nti, I. K. (2022). Uncertainty Estimation Using Variational Mixture of Gaussians Capsule Network for Health Image Classification. Computational Intelligence and Neuroscience, 2022.
– **Adu, K.**, Mensah, P. K., Ayidzoe, M. A., Appiah, O., Quayson, E., Ninfaakang, C. B. (2022). GC3558: An open-source annotated dataset of Ghana currency images for classification modeling. Data in Brief, 45, 108616.
– **Adu, K.**, Yu, Y., Cai, J., Asare, I., & Quahin, J. (2022). The influence of the activation function in a capsule network for brain tumor type classification. International Journal of Imaging Systems and Technology, 32(1), 123-143.

- **Adu, K.**, Yu, Y., Cai, J., Owusu-Agyemang, K., Twumasi, B. A., & Wang, X. (2021). DHS-CapsNet: Dual horizontal squash capsule networks for lung and colon cancer classification from whole slide histopathological images. International Journal of Imaging Systems and Technology, 31(4), 2075-2092.
- **Adu, K.**, Yu, Y., Cai, J., Mensah, P. K., & Owusu-Agyemang, K. (2021). MLAF-CapsNet: Multi-lane atrous feature fusion capsule network with contrast limited adaptive histogram equalization for brain tumor classification from MRI images. Journal of Intelligent & Fuzzy Systems, 41(2), 3933-3950.
- **Adu, K.**, Yu, Y., Cai, J., Dela Tattrah, V., Adu Ansere, J., & Tashi, N. (2021). S-CCCapsule: Pneumonia detection in chest X-ray images using skip-connected convolutions and capsule neural network. Journal of Intelligent & Fuzzy Systems, 41(1), 757-781.
- Abra Ayidzoe, M., Yu, Y., Mensah, P. K., Cai, J., **Adu, K.**, & Tang, Y. (2021). Gabor capsule network with preprocessing blocks for the recognition of complex images. Machine Vision and Applications, 32(4), 91.
- Wang, X., Yu, Y., Cai, J., Yang, N., Shi, K., Zhong, S., **Adu, K.**.. & Tashi, N. (2021). Multiple mismatched synchronization for coupled memristive neural networks with topology-based probability impulsive mechanism on time scales. IEEE Transactions on Cybernetics.
- Wang, X., Yu, Y., Cai, J., Zhong, S., Yang, N., Shi, K., . **Adu, K.**.. & Tashi, N. (2021). Relaxed exponential stabilization for coupled memristive neural networks with connection fault and multiple delays via optimized elastic event-triggered mechanism. IEEE Transactions on Neural Networks and Learning Systems.
- Ayidzoe, M. A., Yu, Y., Mensah, P. K., Cai, J., **Kwabena, A.**, & Tashi, N. (2021). Feature amplification capsule network for complex images. Journal of Intelligent & Fuzzy Systems, 40(6), 10955-10968.
- Yu, Y., **Adu, K.**, Tashi, N., Anokye, P., Wang, X., & Ayidzoe, M. A. (2020). Rmaf: Relu-memristor-like activation function for deep learning. IEEE Access, 8, 72727-72741.

•**Conference** *2019*

*Peer Reviewed Conference Article*

- **Adu, K.**, Yu, Y., Cai, J., & Tashi, N. (2019, December). Dilated capsule network for brain tumor type classification via mri segmented tumor region. In 2019 IEEE International Conference on Robotics and Biomimetics (ROBIO) (pp. 942-947). IEEE.

## Funding, Grants, and Scholarships

**August 2022 to date:** (Team member) African Technology Policy Network (ATPS). Grant Number AFS-1233809296 for Detection of crop pest/diseases on the web and mobile using deep learning

**September 2018 to June 2022:** University of Electronic Science and Technology School Scholarship for PhD. Software Engineering, University of Electronic Science and Technology of China

**September 2016 to June 2018:** University of Electronic Science and Technology School Scholarship for MEng. Software Engineering, University of Electronic Science and Technology of China

## Work Experience

**September 2022 to date: Lecturer:** Department of Computer Science and Informatics, University of Energy and Natural Resources, Sunyani- Ghana

**November 2021 2018 to September 2022: Assistant Lecturer:** Department of Computer Science and Informatics, University of Energy and Natural Resources, Sunyani- Ghana

**September 2015 to August 2016: Teacher (National Service Personal** Banko D/A Junior High School

## Postgraduate Courses Taught

•**COMP705** Database Systems

•**COMP704** Computer Architecture

•**COMP707** Operating Systems

•**COMP804** Computer System Performance and Evaluation of Techniques

## Undergraduate Courses Taught

•Operating Systems

•Electronic Business

•System Analysis and Design

•Programming with Visual Basic

•Mobile Computing

•Web Design Technologies and Networks

•Information Systems

•Digital Electronics

## Positions Held

- **Examination Officer:** Department of Information Technology and Decision Sciences *2023*
- **Academic Board Member:** Department of Information Technology and Decision Sciences *2022*
- **Postgraduate Coordinator:** Department of Information Technology and Decision Sciences *2023*
- **Center Coordinator:** International Center of Excellence *2023*
- **Chairman:** Departmental Sports Committee *2022*
- **Member:** Departmental Undergraduate Projects Committee *2022*
- **Member:** Departmental Quality Assurance and Curriculum Development Committee *2022*
- **Member:** Departmental Digital Transformation, Innovation and Professional Dev. Committee *2022*
- **Member:** Departmental Undergraduate Projects Committee *2022*
- **Member:** Centre Creation Committee *2022*
- **Member:** Departmental Proposal, Research & Seminar Committee *2022*
- **Member:** Publicity Sub-Committee - STHISD Conference 2023 *2023*

## Technical Skills and Interests

**Languages**: English, Twi, and Chinese (Fair)
**Frameworks**: Python, Tensorflow, Keras
**Soft Skills**: Microsoft suit
**Research Interest**: Artificial Intelligence based deep learning, machine learning, and computer vision for application areas such as medical images, agriculture and complex images
**Hobbies/Interest**: Table tennis, Football, Bad minting, and volunteering

## Referees

**Dr. Baidenger Agyekum Twumasi**:
**Head of Department**
Department of Electrical and Electronic Engineering
Ho Technical University, Ho - Ghana
**Tel**: 233 244977861 / 209184669
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**Dr. Patrick Kwabena Mensah**:
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