# Espoir Kabanga

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## Profile Summary

I am an experienced computer scientist with a passion for leveraging machine learning, deep learning, data science, and data analytics to drive innovation and solve complex challenges.

## Professional Experience

**Ghent University Global Campus**                                                                 *Incheon, Republic of Korea*
Teaching and Research Assistant                                                                            *August 2019 - Currently*

As a teaching assistant, I am responsible for supervising two practical courses: Informatics, covering Python programming and Unix, and Bioinformatics, where I oversee the application of deep learning for the analysis of biological sequences. In my role as a research assistant, I contribute to the development of interpretable multitask models capable of learning simultaneously from various biological tasks. These models have the potential to significantly enhance our understanding of complex biological systems and facilitate the discovery of new biological knowledge. Additionally, as a research assistant, I also supervise senior students in completing their final projects.

**Brain and Research Innovation, Ltd.**                                                              *Seoul, Republic of Korea*
Researcher and Software Developer                                                                  *August 2018 - August 2019*

I was involved in a project called 'Reader's Eye,' where I served as one of the lead developers of software designed to detect autism, dyslexia, and ADHD using an eye tracking device and a machine learning algorithm. The 'Reader's Eye' software is now in use in several primary and secondary schools as well as private academies in South Korea.

**Information Security Gifted Education Center - Daegu Univeristy**                   *Daegu, Republic of Korea*
Visiting Lecturer                                                                                  *April 2018 - September 2022*

I was responsible for teaching the fundamentals of artificial intelligence and computer security to graduating students from various middle and high schools across South Korea.

**Daegu Univeristy**                                                                                     *Daegu, Republic of Korea*
Research Assistant                                                                                        *March 2018 - July 2018*

After completing my master degree, I was employed as a full-time research assistant at Daegu University's Ubiquitous Computer and Security Lab, where I continued to conduct research on innovative deep learning techniques for the detection and classification of malicious software.

## Education

**Daegu University**                                                                                     *Daegu, Republic of Korea*
Master in Computer and Information Engineering                                              *March 2016 - February 2018*

As a member of the Ubiquitous Computer and Security Lab, I conducted research on the application of deep learning algorithms for the classification and prediction of malicious software (malware). My research work has been published in international journals and presented at international conferences.

**Bangalore University**                                                                                              *Bangalore, India*
Bachelor in Computer Applications                                                                       *May 2012 - April 2015*

First class honor

## Language Skills

| | |
|---|---|
| **English** | Professional |
| **French** | Native |
| **Korean** | Professional |
| **Swahili** | Native |
| **Lingala** | Native |

## Technical and Interpersonal Skills

| | |
|---|---|
| **Programming** | Python (Pandas, TensorFlow, NumPy, Scikit-learn. etc.), PHP, C/C++, HTML/CSS, JavaScript, SQL, C#. |
| **Data and Analytics** | Data analysis and organization, machine learning and deep learning, data visualization. |
| **Research and Project Management** | Reasearch and innovation, project and results management. |
| **Interdisciplinary and Collaboration** | Interdisciplinary collaboration, cross-cultural communication. |
| **Inerpersonal Skills** | Time management, teamwork, problem solving, listening and communication skills. |

## Other Activities

### Ghent University Global Campus
*Incheon, Republic of Korea*

Assistant Academic Personnel (AAP) Representative
*2020 - 2021*

As AAP Representative, I worked to rebuild and strengthen trust and communication between the AAP community and the leadership of Ghent University Global Campus. I actively participated in various decision-making meetings and offered solutions to daily challenges and concerns raised by AAP members. Through these efforts, I contributed to the well-being and overall satisfaction of the AAP community.

### DECOC - www.decoc-elites.org
*Republic of Korea*

Vice President of the General Assembly
*2019 - 2023*

As the Vice President of the General Assembly of DECOC (Dynamique de l'Elite Congolaise en Corée du Sud), it was my responsibility to assist in the management and supervision of DECOC's activities, as well as the maintenance and oversight of the organization's assets and liabilities.

### IGC African-Origin Community
*Incheon, Republic of Korea*

Representative
*2020 - Currently*

Since 2020, I have launched the African-Origin Community at IGC (Incheon Global Campus), a community focused on sharing information about life in the Songdo region to help individuals of African origin integrate more easily and have a more enjoyable experience in Songdo. I have also organized various activities for the community, including excursions across South Korea and group dinners. Through these efforts, my aim is to support the integration and well-being of individuals of African origin at IGC.

### Daegu Vision Youth Club
*Daegu, Republic of Korea*

7th President
*June 2018 - June 2019*

The Daegu Vision Youth Club is a volunteer organization located in Daegu, South Korea. Comprised mainly of African students, the club is dedicated to providing free English, French, and African culture lessons to the local community. In addition to language instruction, the club also engages in activities such as visits to retirement homes in the Daegu area.

## Publications

Towards Interpretable Multitask Learning for Splice Site and Translation Initiation Site Prediction
Espoir Kabanga, Arnout Van Messem, Wesley De Neve
*Proceedings of the 18th Conference on Computational Intelligence Methods for Bioinformatics  Biostatistics (CIBB 2023)*, 2023

Extractivism and Conflict: Comparative Study of Serbia and the DRC
Borislava Manojlovic, Espoir Kabanga
*The Journal of Social Encounters* 7 (2023). 2023

Discovering Biomarker Proteins and Peptides for Parkinson's Disease Prognosis Prediction with Machine Learning and Interpretability Methods
Ho-min Park, Espoir Kabanga, Dongin Moon, Minjae Chung, Jiwon Im, Yujin Kim, Arnout Van Messem, Wesley De Neve
*bioRxiv* (2023). Cold Spring Harbor Laboratory, 2023

Translation Initiation Site Prediction Using Deep Learning and Synthetic Datasets
Yunseol Park, Espoir Kabanga, Jasper Zuallaert, Hyunjin Shim, Arnout Van Messem, Wesley De Neve
*29th Conference on Intelligence Systems for Molecular Biology / 20th European Conference on Computational Biology (ISMB/ECCB 2021)* (2021). 2021

Malware Images Classification Using Convolutional Neural Network
Espoir K. Kabanga, Chang Hoon Kim
*Journal of Computer and Communications* 6 (2018). 2018

Classifying malware using convolutional gated neural network
Chang Hoon Kim, Espoir K. Kabanga, Sin-Jae Kang
*2018 20th International Conference on Advanced Communication Technology (ICACT)*, 2018

Efficiency-Based Comparison on Malware Detection Techniques
Chang Hoon Kim, Kabanga E. Kamundala, Sinjae Kang
*2018 International Conference on Platform Technology and Service (PlatCon)*, 2018

## Invited Speaker

Le présent et le futur de l'intelligence artificielle
*Groupe d'Echanges Scientifiques pour l'Innovation dans les Technologies, Université Libre des Pays des Grans Lacs, Goma (R.D.Congo)*, 2023

AI, Cybersecurity and Anomaly Detection
*Korea System Assurance, Inc., Seoul*, 2022

The Intersection of Artificial Intelligence and Cybersecurity
*State University of New York, Korea (SUNY Korea), Songdo*, 2022

Deep Learning for Splice Site Detection
*Summer school, Machine Learning for Bioinformatics, HSE University, Russia (online)*, 2021