HYSTON KAYANGE

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Seoul, South Korea | Visa Type: Job Search (D-10)

Objective

Machine Learning researcher with over two years of experience and three publications, specializing in deep learning, feature selection, and hybrid modeling. Seeking to apply advanced research skills and technical expertise to develop innovative AI-driven solutions for healthcare, fitness, recommender systems, and the broader AI industry.

Experience

- **Assistant Researcher** — Seoul, South Korea
  System Software Lab, Soongsil University — Sept 2022 – Feb 2025

  - Contributed to the *"XR Twin-based Rehabilitation Training Content Technology Development"* project (IITP/MSIT-funded, Project No. 2022-0-00218), focusing on AI-driven rehabilitation technologies.
  - Performed data preprocessing, analysis, and visualization of physiological signals for exercise pattern detection.
  - Developed a hybrid ML model combining Dynamic Bayesian Networks (DBNs) and LSTMs for heart rate prediction (5.1 BPM MAE) and personalized fitness recommendations.
  - Led research on probabilistic and adaptive feature selection (ProAdaFs) for deep recommender systems (DeepFM, DCN, Wide & Deep), improving AUC to 0.8088.
  - Authored 3 peer-reviewed papers (1 journal, 2 conferences) on personalized health recommendations and feature selection.
  - Supported development of an edge-computing platform for real-time health recommendations in XR environments.

ICT Officer — Mzuzu, Malawi
United Civil Servant SACCO — Sept 2021 – Aug 2022

- Managed Fintech systems and network infrastructure, ensuring 99.9% uptime across operations.
- Automated reporting workflows, reducing manual processing time by 60%.

Education

- **MSc in Computer Science and Engineering** — Seoul, South Korea, GPA: 4.14/4.50
  Soongsil University — Sept 2022 – Feb 2025

  - Thesis: "A Multi-Model Machine Learning Framework for Personalized Fitness Recommendations Using DBNs and LSTMs"

- **BSc in Information Communication Technology** — Lilongwe, Malawi, GPA: 3.30/4.0
  Daeyang University — Sept 2017 – Sept 2021

Skills

- **Machine Learning:** Deep Learning, Neural Networks, Decision Trees, Gradient Boosting, SVMs, Dynamic Bayesian Networks, LSTMs

- **Programming:** Python (Pandas, NumPy, Scikit-learn, TensorFlow, Keras, PyTorch), Java, C++

- **Databases:** MySQL, MongoDB

- **Tools and Platforms:** Jupyter, Docker, GitHub, AWS (SageMaker)

- **Research:** Data Analysis, Data Cleaning, Visualization, Model Evaluation, Literature Review

Projects

- **Compound Classification Project (Dec 2024)**

  - Designed a Random Forest Classifier to categorize chemical compounds using Lipinski descriptors and Morgan fingerprints, achieving 88% accuracy and 0.926 ROC-AUC.
  - Tools: Python, RDKit, Scikit-learn, SMOTE

- **Hybrid Model for Heart Rate Prediction (July – Oct 2024)**

  - Built a hybrid ML framework combining Dynamic Bayesian Networks and LSTMs for personalized fitness recommendations, with a 5.1 BPM mean absolute error.
  - Tools: Python, PyTorch, Jupyter

- **Mthandizi: Communication Tool for the Deaf (Nov 2020 – June 2021)**

  - Developed a real-time sign language translation system with 87% accuracy using TensorFlow and OpenCV, featuring a PyQt5 interactive UI.
  - Tools: Python, TensorFlow, OpenCV, PyQt5

Publications

C.1 H. Kayange et al. (2024). "ProAdaFs: Probabilistic and Adaptive Feature Selection in Deep Recommendation Systems." *ICOIN Conference*, Vietnam. DOI

C.2 H. Kayange et al. (2023). "Deep Adaptive Feature Selection in Deep Recommender Systems." *Korean Society of Information Science*, Jeju Island. DOI

J.1 H. Kayange et al. (2024). "A Hybrid Approach to Modeling Heart Rate Response for Personalized Fitness Recommendations." *Electronics*, Vol. 13, Issue 19. DOI

- **Google Scholar Profile:** Google Scholar

Languages

- **English:** Native

- **Korean:** Beginner (Currently learning)