Philip Chikontwe

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Jincheon, Daegu,
Republic of South Korea

A self-motivated and passionate research scientist with extensive experience across different tasks in both medical image processing and computer vision. I am eager to further my knowledge of algorithmic design for vision systems tailored for medical image understanding, and able to pick up novel concepts outside my domain. My career goal is to assume a role which allows me to take responsibility for the analysis and interpretation of medical data towards building improved predictive and diagnostic processes.

EDUCATION

Ph.D	Daegu Gyeongbuk Institute of Science and Technology (DGIST), South Korea Mechatronics and Robotics Engineering, Research Area: Weakly Supervised Learning for Medical Image Analysis Thesis: "*Weakly Supervised Representation Learning for Histopathology Image Analysis*" Advisor: Sang Hyun Park	2019-2023
MS	Chonbuk National University, South Korea Computer Science and Engineering, Thesis: "*An Approach for Jointly Learning Pedestrian Identity and Attributes using Deep Multi-Task Pyramid Networks*" Advisor: Hyo Jong Lee	2016-2018
BS	Universite Mentouri de Constantine, Algeria Computer Science and Software Engineering, Thesis Project: "*A web-based system for student internship management*"	2012-2015

EXPERIENCE

Research Experience

Post-doc Researcher	Daegu Gyeongbuk Institute of Science and Technology (DGIST), Korea Research Area: Low/Zero-shot visual-language learning for medical image analysis Supervisor: Sang Hyun Park	2023/4 - Present
Research Assistant	Daegu Gyeongbuk Institute of Science and Technology (DGIST), Korea Research Area: Designing neural network algorithms for medical image analysis Supervisor: Sang Hyun Park	2019/2 – 2023/2
Post-Master Researcher	Daegu Gyeongbuk Institute of Science and Technology (DGIST), Korea Research Area: Designing neural network algorithms for histopathology image retrieval, understanding and segmentation.	2018/8-2019/2

Supervisor: Sang Hyun Park

Research Assistant	Chonbuk National University, Korea Research Area: Designing neural network algorithms for pedestrian detection in image or video, face recognition for surveillance and general object recognition. Supervisor: Hyo Jong Lee	2016-2018

Others

- Served as MICCAI-Prime Workshop Session Chair (2022)
- Reviewer for IEEE Transactions in Image Processing & IEEE Transactions in Medical Imaging
- Reviewer for IEEE CVPR, NeurIPS & IEEE Transactions on Neural Networks and Learning Systems
- Served as MICCAI Conference (2022) Reviewer (**Honorable Mention**)
- Served as a teaching assistant for a graduate course. (DGIST – 2021).
- Served as a teaching assistant for an undergraduate course. (Chonbuk National University – 2018)
- Served as coordinator for the global korean studies (GKS) program for Africans. (Chonbuk National University – 2017)
- Participated in the Seoul IT & Technology trade show consisting of both universities and companies. (2017)

HONORS AND AWARDS

DGIST	Best Research(er) Award	2022
DGIST & Korean Government	Recipient of the DGIST Graduate study scholarship.	2019
National Institute for International Education (NIIED), Korea	Award for Excellent Academic Achievement	2017
Chonbuk National University	Award of recognition as the Global Korean Studies (GKS) coordinator for African undergraduate students	2017
National Institute for International Education (NIIED), Korea	Recipient of the Korean Government Scholarship Program (KGSP) for Graduate studies.	2015
Ministry of Education, Scholarships Committee, Zambia	Recipient of the Zambian Government Joint Scholarship Program with Algeria for undergraduate studies.	2012

LANGUAGES/SKILLS

English	IELTS (Proficient) – Score (8.0)	2017
Korean	Korean Literature / TOPIK (Intermediate) – Level 4	2016
French	French Literature Certificate (Intermediate)	2013

PUBLICATIONS

Journal Publications

- Kang Myeongkyun, Dongkyu Won, Miguel Luna, **Philip Chikontwe**, Kyung Soo Hong, June Hong Ahn and Sang Hyun Park. “Content preserving image translation with texture co-occurrence and spatial self-similarity for texture debiasing and domain adaptation”. Neural Networks (2023). (SCI, IF: 9.66, 5yr-IF: 10.72)
- Kang, Myeongkyun, **Philip Chikontwe**, Dongkyu Won, Miguel Luna, and Sang Hyun Park. "Structure-preserving image translation for multi-source medical image domain adaptation." Pattern Recognition (2023): 109840. (SCI, IF: 8.52, 5yr-IF: 10.48)
- An, Sion, Soopil Kim, **Philip Chikontwe**, and Sang Hyun Park. "Dual Attention Relation Network with Fine-Tuning for Few-Shot EEG Motor Imagery Classification." IEEE Transactions on Neural Networks and Learning Systems (2023). (SCI, IF: 10.4, 5yr-IF: 14.25)
- Soopil Kim, **Philip Chikontwe**, Sion An and Sang Hyun Park. “Uncertainty-aware semi-supervised few shot segmentation”. Pattern Recognition (2023). 109292. (SCI, IF: 8.52, 5yr-IF: 10.48)
- **Philip Chikontwe**, Hyun Jung Sung, Jaehoon Jong, Meejeong Kim, Heoungjeong Go, Soo Jeong Nam, and Sang Hyun Park. "Weakly Supervised Segmentation on Neural Compressed Histopathology with Self-Equivariant Regularization." Medical Image Analysis (2022): (SCI, IF: 13.82, 5yr-IF: 11.22)
- **Philip Chikontwe**, Yongbin Gao, and Hyo Jong Lee. "Transformation guided representation GAN for pose invariant face recognition." Multidimensional Systems and Signal Processing 32, no. 2 (2021): 633-649. (SCIE, IF: 2.03, 5yr-IF: 1.92)
- Kang Myeongkyun, Kyung Soo Hong, **Philip Chikontwe**, Miguel Luna, Jong Geol Jang, Jongsoo Park, Kyeong-Cheol Shin, Sang Hyun Park, and June Hong Ahn. "Quantitative assessment of chest CT patterns in COVID-19 and bacterial pneumonia patients: a deep learning perspective." Journal of Korean medical science 36, no. 5 (2021). (SCIE, IF: 2.153, 5yr-IF: 2.467)
- **Philip Chikontwe**, Miguel Luna, Myeongkyun Kang, Kyung Soo Hong, June Hong Ahn, and Sang Hyun Park. "Dual Attention Multiple Instance Learning with Unsupervised Complementary Loss for COVID-19 Screening." Medical Image Analysis (2021): 102105. (SCI, IF: 13.82, 5yr-IF: 11.22)
- **Philip Chikontwe***, Ullah, Ihsan*, Hongsoo Choi, Chang-Hwan Yoon, and Sang Hyun Park. "Synthesize and Segment: Towards Improved Catheter Segmentation via Adversarial Augmentation." Applied Sciences 11, no. 4 (2021): 1638. (SCIE,IF: 2.679, 5yr-IF: 2.736, * Co-first author)
- Jung, Euijin, **Philip Chikontwe**, Xiaopeng Zong, Weili Lin, Dinggang Shen, and Sang Hyun Park. "Enhancement of perivascular spaces using densely connected deep convolutional neural network." IEEE Access 7 (2019): 18382-18391. (SCIE, IF: 3.367, 5yr-IF: 3.671)
- Ullah, Ihsan, **Philip Chikontwe**, and Sang Hyun Park. "Real-time tracking of guidewire robot tips using deep convolutional neural networks on successive localized frames." IEEE Access 7 (2019): 159743-159753. (SCIE, IF: 3.367, 5yr-IF: 3.671)
- **Philip Chikontwe**, and Hyo Jong Lee. "Deep multi-task network for learning person identity and attributes." IEEE Access 6 (2018): 60801-60811. (SCIE, IF: 3.367, 5yr-IF: 3.671)

Conference Publications

- Kang Myeongkyun, **Philip Chikontwe**, Soopil Kim, Kyong Hwan Jin, Ehsan Adeli, Kilian Pohl and Sang Hyun Park. “One-shot Federated Learning on Medical Data using Knowledge Distillation with Image Synthesis and Client Model Adaptation”. International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI). 2023.

- Siwoo Nam, Jaehoon Jeong, Miguel Luna, **Philip Chikontwe** and Sang Hyun Park. “PROnet: Point Refinement using Shape-guided Offset Map for Nuclei Instance Segmentation.” International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI). 2023.
- **Philip Chikontwe**, Soopil Kim, and Sang Hyun Park. "CAD: Co-Adapting Discriminative Features for Improved Few-Shot Classification". IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR). 2022.
- **Philip Chikontwe**, Meejeong Kim, Soo Jeong Nam, Heounjeong Go, Hyun Jung Sung and Sang Hyun Park. "Feature Re-calibration based Multiple Instance Learning for Whole Slide Image Classification". International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI). 2022.
- Siwoo Nam, Myeongkyun Knag, Dongkyu Won, **Philip Chikontwe**, Byeong-Joo Noh, Heounjeong Go, Sang Hyun Park. “Weakly-Supervised TILs Segmentation Based on Point Annotations Using Transfer Learning with Point Detector and Projected-Boundary Regressor”. In International MICCAI Workshop on PRedictive Intelligence In Medicine, 2022.
- Won, Dongkyu, Euijin Jung, Sion An, **Philip Chikontwe**, and Sang Hyun Park. " Low-Dose CT Denoising Using Pseudo-CT Image Pairs." In International MICCAI Workshop on PRedictive Intelligence In Medicine, 2021.
- Kang, Myeongkyun, **Philip Chikontwe**, Miguel Luna, Kyung Soo Hong, June Hong Ahn, and Sang Hyun Park. "Mixing-AdaSIN: Constructing a de-biased dataset using Adaptive Structural Instance Normalization and texture Mixing." In International MICCAI Workshop on PRedictive Intelligence In Medicine, 2021.
- Kim, Soopil, Sion An, **Philip Chikontwe**, and Sang Hyun Park. "Bidirectional RNN-based Few Shot Learning for 3D Medical Image Segmentation." In Proceedings of the AAAI Conference on Artificial Intelligence, 2021.
- **Philip Chikontwe**, Meejeong Kim, Soo Jeong Nam, Heounjeong Go, and Sang Hyun Park. "Multiple instance learning with center embeddings for histopathology classification." In International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), 2020.
- An, Sion, Soopil Kim, **Philip Chikontwe**, and Sang Hyun Park. "Few-shot relation learning with attention for EEG-based motor imagery classification." In 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pp. 10933-10938. IEEE, 2020.
- Kim, Soopil, Miguel Luna, **Philip Chikontwe**, and Sang Hyun Park. "Two-step U-Nets for brain tumor segmentation and random forest with radiomics for survival time prediction." In International MICCAI Brainlesion Workshop, 2019.
- Ullah, Ihsan, **Philip Chikontwe**, and Sang Hyun Park. "Catheter synthesis in X-Ray fluoroscopy with generative adversarial networks." In International MICCAI Workshop on PRedictive Intelligence In MEdicine, 2019.
- Ullah, Ihsan, **Philip Chikontwe**, and Sang Hyun Park. "Guidewire tip tracking using U-Net with shape and motion constraints." In IEEE International Conference on Artificial Intelligence in Information and Communication (ICAIIC). 2019.
- **Philip Chikontwe**, and Hyo Jong Lee. "Towards robust face sketch synthesis with style transfer algorithms." In IT Convergence and Security 2017.
- **Philip, Chikontwe**, and Lee Hyo Jong. "Face sketch synthesis using conditional adversarial networks." IEEE International Conference on Information and Communication Technology Convergence (ICTC). 2017.
- **Philip, Chikontwe**, and Hyo Jong Lee. "Face sketch synthesis: A neural style approach." In Proceedings of the International Conference on Image Processing, Computer Vision, and Pattern Recognition (IPCV), Computer Engineering and Applied Computing (WorldComp), 2017.

Patents

- **Philip Chikontwe**, and Sang Hyun Park. "Multiple Instance Learning Method. " United States of America (US) Patent. 17236191.

REFEREES

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