Lakpa Dorje Tamang (Jack)

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EDUCATION

Deakin University   Geelong, Victoria, Australia
Ph.D in Information Technology   Jul. 2023 − Jun 2026 (Expected)
Research Interests: Out-of-Distribution Detection, Domain Generalization

Changwon National University   Changwon, South Korea
Master of Science (Information and Communication Engineering); **GPA: 4.50/4.50**   Sep 2019 − Jul 2021
Research Interests: Display Field Communication, Data Embedded Steganography

Kathmandu University   Dhulikhel, Nepal
Bachelors Degree in Electrical and Electronics Engineering; **GPA: 2.89/4.00**   Jul 2014 − Jul 2018
Research Project: Dynamic Frequency Planning on Cellular Networks

SKILLS

Programming Languages: Python, MATLAB, LaTeX
Technologies: Linux, Pytorch, OpenCV, Keras, TensorFlow, Git, GitHub, Azure, SLURM
Methodologies: Object Oriented Programming, Functional Programming
Other Skills: Independent Research, Professional Writing, Presentation and Communication, Problem Solving

PUBLICATIONS

- **L.D. Tamang**, M.R Bouadjenek, Richard Dazeley, Sunil Aryal, "Margin-bounded Confidence Scores for Out-of-Distribution Detection" *IEEE Conference in Data Mining, Abu Dhabi, UAE, 2024.*

- **L.D. Tamang**, "Towards Making Effective Machine Learning Decisions Against Out-of-Distribution Data" *ACM Conference on Information Retrieval and Knowledge Management CIKM, Boise, Idaho, USA, 2024.*

- **L.D. Tamang**, M.R Bouadjenek, S. Aryal, R. Dazeley, "Handling Out-of-Distribution Data: A Survey", Under Review at *IEEE Trans. on Knowledge, Data and Engineering*

- **L.D. Tamang**, B.W. Kim, "Super-resolution ultrasound imaging scheme based on symmetric series convolutional neural network", *Sensors* 22(8), 3076

- **L.D. Tamang**, B.W. Kim, "Spectral domain-based data embedding mechanism for display to camera communication" *Electronics*, 10(4), 468.

- **L.D. Tamang**, B.W. Kim, "Deep D2C-Net: Deep learning-based display to camera communications", *Optics Express*, 29(8), 11494-11511.

- **L.D. Tamang**, B.W. Kim, "Deep learning approaches to colorectal cancer diagnosis: A survey", *Applied Sciences*, 11(22), 10982.

- **L.D. Tamang**, B.W. Kim, "FVR-Net: Finger vein recognition with convolutional neural network using Hybrid pooling", *Applied Sciences*, 12(15), 7538.

- **L.D. Tamang**, B.W. Kim, "Optical Camera Communication for Vehicular Applications: A Survey", *IEIE Transactions on Smart Processing and Computing*, 10(2), 136-145.

- N. Maharjan, **L.D. Tamang**, B.W. Kim, "Dense D2C-Net: dense connections network for display-to-camera communications" *Optics Express*, 31(19), 31005-31023

- **L.D. Tamang**, B.W. Kim, "Exponential Data Embedding Scheme for Display to Camera Communications", *2020 International Conference on Information and Communication Technology (ICTC)*, 1570-1573, Jeju, South Korea.

- **L.D. Tamang**, M.T. Kim, S.J. Kim, B.W. Kim, "Tumor-Stroma Classification in Colorectal Cancer Patients with Transfer Learning based Binary Classifier", *2021 International Conference on Information and Communication Technology (ICTC)*, 1645-1648, Jeju, South Korea.

- **L.D. Tamang**, B.W. Kim, "Real-time Optical Wireless Communications with Kiosk Display and Off-the-shelf Camera", *International Conference on Future Information and Communication Engineering*, 12(1), 133-136.

EXPERIENCE

Intelligence Design
Busan, South Korea

AI Research Engineer   *Sep 2021 − Jun 2023, Hybrid Full-time & Jun 2023 − Dec 2023, Remote Part-time*

- Developed a deep learning based Korean sign language detection model using single Long short-term memory (LSTM) model, ensemble with multiple LSTM models, and a hybrid model along with convolutional neural network (CNN) and classified 52 words in real time with over 80 % accuracy.
- Developed an action recognition system to recognize Korean traditional dance motions with 95 % of accuracy in real time and integrated mechanical robot to perform along with the dance moves.
- Used a deep learning-based 3D motion capture (MoCap) system to capture 3D poses from the RGB video of K-pop dances and retargeted the generated motion into an animated character, and a hardware toy.
- Developed a real-time time series model for anomaly detection using the data collected from ship engine sensors and deployed it into production in Azure container instance (ACI) using Azure Machine Learning and Azure DevOps.
- Used TensorFlow object detection API, YOLO and developed object detection system for solving different real time object detection related tasks.
- Used Graph convolutional networks for modeling spatial and temporal dynamics of human motion for recognizing variety of dance actions performed in real time scenario.
- Researched and assisted on documenting technical proposal for different types of Generative AI technologies, especially large language models such as GPT-4 to find prospective application in the field of AI based fashion design.

Intelligent Information Systems Lab
Changwon, South Korea

Research Assistant   *Sep 2019 − Aug 2021, Onsite Full-time*

- Developed deep learning (DL) models for designing real-time display to camera communication system using deep convolutional neural networks (DCNN) and obtained peak signal to noise ratio (PSNR) of 31.14 dB and bit error rate (BER) of 0.
- Developed finger vein recognition system using convolutional neural networks (CNN) for biometric systems and achieved recognition accuracy up to 98.7 %.
- Developed super resolution (SR) model for ultrasound images using DCNNs and enhanced the visually quality to obtain 33.54 dB PSNR, and structural similarity index (SSIM) of 0.9191.
- Developed DL based classification system for colorectal cancer tumors using transfer learning method.

International Genesis Technology Nepal
Kathmandu, Nepal

Network Operation Center Engineer   *Apr 2019 − Jul 2019, Onsite Full-time*

- Monitored telecommunication network status (up/down) throughout the terai region of Nepal.
- Deployed technicians to the network sites for maintaining the network stability.

Kay Global
Riyadh, Saudi Arabia

Procurement Engineer   *Dec 2018 − Mar 2019, Remote Full-time*

- Performed procurements for heavy machinery electrical and mechanical equipments.
- Dealt with client's request to set up bidding and purchase of OEM products from around the world, especially across Europe, Middle East, and Asia Pacific regions.

PROFESSIONAL ACTIVITIES

Casual Academic Tutor/ Teaching Assistant: Organizing workshops online & on-campus, and assignment assessments of unit *Human Aligned Artificial Intelligence* for Master's Degree students *course code: SIT799*, School of IT, Deakin University) (July 2023 − Oct 2023)(July 2024 − Current)

Program Committee and Reviewer: Appointed as a program committee as well as reviewer for the Data science track ACS/IEEE International Conference on Computer Systems and Applications, 2023, 2024

Reviewer: Frontiers in Oncology, 2024

3MT Participant: Participant of Three Minute Thesis Competition, School of IT Heat, Deakin University, 20 June 2024.

Webinar Guest Speaker: Performed lecture on the topic "Diving into Deep Learning" for a Webinar organized by Fewa Academy, Kathmandu, Nepal, 2021.

Awards & Achievements

ACM SIGIR Travel Award: Recipient of ACM *Special Interest Group in Information Retrieval* (SIGIR) Travel Award of USD $1000 and Conference registration waiver for CIKM 2024, Boise, IDAHO, USA

AI4 Design Scholarship: Selected as a recipient of AI4 Design scholarship to carry out research activities by collaboration with research scientists from CSIRO's Data61, a governmental research entity of Australia. (*Project later collapsed with funding issues*) (Dec 2023 − Dec 2023)

Deakin University Postgraduate Research Scholarship: Merit-based scholarship provided by Higher Degree Research (HDR) to pursue extensice research activities for duration of PhD completion. (Jun 2023 − Jul 2026)

Graduate Research Assistance Scholarship: Selected as a merit-based scholarship recipient for conducting research work during Master's Degree (Sep 2019 − Aug 2021)

Changwon National University Smart Manufacturing Innovation Leading University Project Support: Recipient of the Scholarship Grant funded by Supervisory Panel. (Sep 2018 − Jun 2023)

Industry-Academic Cooperation Based Platform R&D Support: Recipient of the Scholarship Grant funded by Supervisory Panel (2020 − 2021)

National Research Foundation (NRF) of Korea Support: Recipient of the Scholarship Grant funded by Supervisory Panel. (2018 − 2021)

Patents

Method to Interact Robotic Media with Dancers, Patent no. 10-2690913, Inventor, *Korean Intellectual Property Office.*

Interacting Kinetic Sculptures with Motion Recognition based on Deep Learning, Patent no. 10-2690911, Inventor, *Korean Intellectual Property Office.*

Organizations

Nepal Engineers Association   *Sep 2018 – Present*
Non-Professional Membership

Institute of Electrical and Electronics Engineers (IEEE)   *Aug 2023 – Present*
Deakin Student Member

Australian Computer Society (ACS)   *Aug 2023 – Present*
General Member

Association of Computing Machinery (ACM)   *Jul 2024 – Present*
General Member

References

References available upon request.