

Lakpa Dorje Tamang (Jack)

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EDUCATION

Deakin University

Ph.D in Information Technology

Research Interests: Data Distribution Shifts, Out-of-Distribution Detection

Geelong, Victoria, Australia

Jul. 2023 – Jun 2026 (Expected)

Changwon National University

Masters Degree in Information and Communication Engineering; **GPA: 4.50/4.50**

Research Interests: Display Field Communication, Data Embedded Steganography

Changwon, South Korea

Sep 2019 – Jul 2021

Kathmandu University

Bachelors Degree in Electrical and Electronics Engineering; **GPA: 2.89/4.00**

Research Project: Dynamic Frequency Planning on Cellular Networks

Dhulikhel, Nepal

Jul 2014 – Jul 2018

SKILLS

Programming Languages: Python, MATLAB, LaTeX

Technologies: Linux, Pytorch, OpenCV, Keras, TensorFlow, Git, 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, S. Aryal, R. Dazeley, “Margin Bounded Confidence Scores to Enhance Out of Distribution Detection Performance” *Submitted to European Conference on Machine Learning and Practices of Knowledge Discovery in Databases (ECML PKDD) 2024*
- **L.D. Tamang**, M.R Bouadjenek, S. Aryal, R. Dazeley, “A Review on Data Distribution Shifts Handling Techniques”, *Submitted to IEEE Trans. on Pattern Analysis and Machine Intelligence*
- **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.
- D. Neupane, **L.D. Tamang**, N.D. Huynh, M.R Bouadjene, S. Aryal, “HUMS2023 Data Challenge Result Submission”, arXiv preprint:2307.03871

EXPERIENCE

Intelligence Design

Busan, South Korea

AI Research Engineer

Sep 2021 – Jun 2023, Full-time & Jun 2023 – Dec 2023, Freelance 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, 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, 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

- 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, and assignment assessments of course named Human Aligned Artificial Intelligence for Master's Degree students *course code: SIT799*, School of IT, Deakin University) (Sep 2023 – Oct 2023)

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

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

AWARDS & ACHIEVEMENTS

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 extensive 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)

ORGANIZATIONS

Nepal Engineers Association <i>Non-Professional Membership</i>	<i>Sep 2018 – Present</i>
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Institute of Electrical and Electronics Engineers (IEEE) <i>Deakin Student Member</i>	<i>Aug 2023 – Present</i>
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Australian Computer Society (ACS) <i>General Member</i>	<i>Aug 2023 – Present</i>
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REFERENCES

References available upon request.