Thangarajah Akilan
Ph.D., EIT

Contact Information ....

Department of Software Engineering
Lakehead University
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🌐 LU-SE, in Linkedin
Ⓡ Google scholar, **RG** RG

Research Fields ....

Artificial intelligence, Machine-/Deep- learning, Computer vision, Image processing, Natural language processing, and Large-scale data analysis.

Education ....

University of Windsor (UWin) , Canada   📅 Jan. 2014 – May 2018
Ph.D. in Electrical and Computer Engineering
<u>Thesis</u>: Video foreground localization from traditional methods to deep learning.

Asian Institute of Technology (AIT) , Thailand   📅 Aug. 2011 – May 2013
MEng. in Microelectronics and Embedded Systems
<u>Thesis</u>: Design of a 20-GHz low noise amplifier in 0.18-μm TSMC technology for automotive collision avoidance application.

Curtin University (international campus in Malaysia)   📅 Jun. 2007 – Jul. 2011
BEng. in Computer Systems
<u>Final project</u>: FPGA implementation of Hermite-Rodriguez functions for UWB Systems.

Taylor's University College , Malaysia   📅 Jan. 2006 – Jun. 2007
Ontario Secondary School Diploma

Technical Skills ....

- **Programming:** Python and OpenCV for Computer Vision, Deep Learning and Machine Learning, Kotlin, and C++.
- **DL-ML Tools/Software:** Keras, MatLab, Scikit-learn, TensorFlow, Caffe.
- **Others:** SciLab, Mathcad, Maple, analog-circuit simulation tools (PSPICE, ADS) and Cadence Design Systems for VLSI design. Verilog and VHDL coding for FPGA, Experience in programming microcontrollers and microprocessors (ex. HCS12, FriendlyARM, Arduino).

Work Experience ....

1. **Assistant Professor (Tenure Track)** – Department of Software Engg.   📅 Aug. 2020 – Present
   Lakehead University, Canada
2. **Assistant Professor (LTA)** – Department of Computer Science   📅 Sep. 2019 – Jun. 2020
   Lakehead University, Canada
3. **Sessional Instructor** – Department of Computer Science   📅 Jul. 2019 – Aug. 2019
   Lakehead University, Canada.
4. **Researcher (Postdoc)** – Dept. of Electrical and Computer Engineering   📅 Jul. 2018 – Jun. 2020
   Centre for Computer Vision and Deep Learning Laboratory, University of Windsor, Canada.
   Full-time: Jul. 2018 to Jun. 2019, and Part-time: Jul. 2019 to Jun. 2020.
5. **Research Assistant** – Dept. of Electrical and Computer Engineering   📅 Jan. 2014 – Jun. 2018
   Centre for Computer Vision and Deep Learning Laboratory, University of Windsor, Canada.
6. **Graduate Teaching Assistant** – Dept. of ECE   📅 Jan. 2014 – May 2018
   University of Windsor, Canada.
7. **Teaching Assistant & Research Assistant** – AIT & SIIT   📅 Sep. 2013 – Dec. 2013
   Thammasat, Thailand.

8. **Co-researcher** – NECTEC   📅 May. 2013 – Aug. 2013
   The National Electronics and Computer Technology Center (NECTEC), Thailand.

SUPERVISION ....

BASc.

1. S. Davey, C. Silver, A. M. Velasquez   📅 2021 – 2022
   BASc. degree project – Thermopile Sensor-based Elderly Fall Detection and Warning System for Ensuring Fast Medical Aid, Dept. of Software Engineering, Lakehead University.
   Note: One of the **winners** of the 2022 Undergraduate Student Conference Poster and Oral Competition, Lakehead University.

2. M. Martin, N.T. Merin, C. Parmar   📅 2021 – 2022
   BASc. degree project – People Counting and Temperature Prediction for Automatic AC Controller System Towards Energy Saving Smart Home, Dept. of Software Engineering, Lakehead University.

3. F. Kharadi, S. McKenna, E. Trudel   📅 2020 – 2021
   BASc. degree project – Fake News Detector Using Computer Vision and Natural Language Processing, Dept. of Software Engineering, Lakehead University.

4. R. Friesen, N. Ahmed, W. Bugden, K. Dabhi   📅 2020 – 2021
   BASc. degree project – MRI Brain Tumor Segmentation Using Deep Convolutional Neural Network, Dept. of Software Engineering, Lakehead University.

5. P. Stoppel, P. Curle, M. Tommasini   📅 2021 – 2021
   BASc. technical project – Vision-Based Occupancy Tracker for Public Safety, Dept. of Software Engineering, Lakehead University.

6. O.Y. AlSaeedy, A.A. Jafri, J. Thakkar   📅 2021 – 2021
   BASc. technical project – Higher Education Enterprise Resource Planning (ERP) System, Dept. of Software Engineering, Lakehead University.

PhD. and MASc.

7. Saket Deshmukh, PhD.   📅 2022 – Present
   Advanced Automation System for Human Capital Hiring and Retention, Dept. of Software Engineering, Lakehead University.

8. Nusrat Jahan, MASc. thesis Topic - Self-Supervised Learning for Image Segmentation   📅 2022 – Present
   Dept. of Software Engineering, Lakehead University.

9. Christopher Silver, MASc. thesis Topic - Attention-based Graph Neural Network for Surveillance Applications   📅 2022 – Present
   Dept. of Software Engineering, Lakehead University.

10. D. Ajaybhai Patel, Dhrumil Patel, J. Sai Kasturi, R. Ravidutt Saxena   📅 2022 – Present
    MASc. project – Graph Neural Network-based Medical Image Semantic Segmentation, Dept. of CS, Lakehead University.

11. A. Hamid Ali, H. Parmar, K. Narula   📅 2022 – Present
    MASc. project – Graph Convolutional Neural Network-based Object Detection and Tracking, Dept. of CS, Lakehead University.

12. H. Siavash, MASc. thesis   📅 2021 – Present
    Regression Modelling for Industrial Applications, Dept. of Software Engineering, Lakehead University.

13. G. Kevin, MASc. thesis   📅 2021 – Present
    Deep Learning-based Intracarnial Hemorrhage Segmentation, Dept. of Software Engineering, Lakehead University.

14. A. Muhammad, MASc. thesis (EXC)   📅 2021/5 − 2021/12
    A Machine Learning System for IoT Anomaly Detections, Dept. of ECE, Lakehead University.
    EXC - An exchange student (2021 Summer - Fall) from Deggendorf Institute of Technology, Germany.

15. G. Taluja, R. Chadha, J. Sandhu, E. Johnson   📅 2019 − 2020
    MASc. project − Visual-based SLAM using deep neural network, Dept. of CS, Lakehead University.

16. R. Salaria, M. Hemanthkumar Patel, D. Sanaboina, B. Hirpara   📅 2019 − 2020
    MASc. project − Video Surveillance Anomaly Detection, Dept. of CS, Lakehead University.

17. N. Kumar Patel, A. Pandya, V. Kumar Patel, C.R. Samuel Rajkumar   📅 2019 − 2020
    MASc. project − MRI Segmentation for Cancer Cell Detection, Dept. of CS, Lakehead University.

18. A. Thiagarajan, S. Thirumeni, B. Venkatesan, S. Guruswamy   📅 2019 − 2020
    MASc. project − Image Captioning, Dept. of CS, Lakehead University.

19. Bhavin P., Harshit P., Manthan K., Nidhi P.   📅 2019 − 2020
    MASc. project − Audio to sign language translation, Dept. of CS, Lakehead University.

20. S.T. Varma, B. Simranjit Kaur, R.S. Boddu, A. Bardhan   📅 2019 − 2020
    MASc. project − Socio-economic analysis via satellite image processing, Dept. of CS, Lakehead Uni.

21. D. Shah, R. Mehta, Nishi Patel, Surya Y.   📅 2019 − 2020
    MASc. project − Detection and clustering of duplicate defect report, Dept. of CS, Lakehead Uni.

Co-Supervision ....

1. Mahmood Al-Matary, Jack Smeeton, and Abdullah Qureshi   📅 2019
   UG Capstone − Lane Detection with Deep Learning, Dept. of ECE, University of Windsor
2. Daniel Manzon, Shawn Smith, and Cole Mawlam   📅 2019
   UG Capstone − Line Following Forklift with Deep Learning, Dept. of ECE, University of Windsor
3. Zifeng Wang, Kaipeng Zhang, and Chenglin Huang   📅 2019
   UG Capstone − Passenger Behavior Monitoring System for Autonomous Public Transportation and
   Robo-Taxis, Dept. of ECE, University of Windsor
4. Zheshuo Zhang, Shihan Liu, Chao Ding, and Menghai Hu   📅 2018
   UG Capstone − Deep-learning-based traffic sign detection for an autonomous vehicle using Raspberry
   Pi and Movidius Neural stick, Dept. of ECE, University of Windsor
5. Yiren Luo Lin, Tzu-yang Lin, and Zhehao Xu   📅 2018
   UG Capstone − Lane segmentation for autonomous driving using deep learning, ECE, Uni. of Windsor

Academic Advisor/Mentoring ....

1. Mohil Kartikbhai Patel   📅 2022 − TBA
   MASc. project − Topic: Graph Neural Network-based Visual Perception, Computer Science, Lakehead
   University, Canada
2. Humaira Naimi   📅 2020 − 2021
   MASc. thesis − Traffic Lights Detection and Status Classification Using Deep Learning for Automotive
   Applications, Dept. of ECE, University of Windsor, Canada
3. Dario Morle   📅 2019
   Intern project − Optimal Neural Network for Hand-written Digit Recognition, Intern, Dept. of ECE,
   University of Windsor, Canada
4. Jonathan Grebe   📅 2019
   Intern project − Deep learning-based activity recognition for manufacturing floors, ECE, Uni. of Windsor, Canada

GRADUATE COMMITTEE MEMBERSHIP

1. Jiawei Dong, MASc. thesis - Peak Load Ensemble Prediction and Multi-agent Reinforcement Learning for DER Demand Response Management in Smart Grids, Lakehead Uni. - Internal examiner 📅 2022
2. Bushra Mughal, PhD. thesis - Efficient Channel Allocation Schemes for Multi-band Relay Networks, Lakehead University - Internal examiner 📅 2022
3. SeyedNima Khezr, PhD. thesis - Towards a Blockchain-based Trustful Mechanism for IoT-Enabled Data Trading Systems, Lakehead University - Internal examiner 📅 2022
4. Eduardo Reis, PhD. thesis - Accelerating Convolutional Neural Network Using Discrete Orthogonal Transforms, Lakehead University - Internal examiner 📅 2021
5. Tim Heydrich, MASc. thesis - Lightweight Deep Learning for Monocular Depth Estimation, Lakehead University - External examiner 📅 2021
6. Yik Lun Chow, MASc. thesis - Non-supervised Machine Learning Approaches For Clustering and Segmentation, Lakehead University - External examiner 📅 2021
7. Mengze Li, MASc. thesis - Data-driven traversability estimation for mobile robot navigation, Lakehead University - External examiner 📅 2021
8. Robert Hertel, MSc. thesis - Modality-Specific Transfer Learning for COVID-19 Diagnosis Based on X-ray Imaging, Lakehead University - Internal examiner 📅 2021
9. Dhivya Chandrasekaran, MSc. thesis - Exploiting semantic similarity models to automate transfer credit assessment in academic mobility, Lakehead University - External examiner 📅 2021
10. Andrew Fisher, MSc. thesis - Development of Simulation and Machine Learning Solutions, Lakehead University - External examiner 📅 2020
11. Shiqi Wang, MSc. thesis 📅 2020 − Present
Feature Learning Boosts Network Performance, Lakehead University - External examiner
12. Adhri Nandini Paul - Online Sequential Learning with Non-iterative Strategy for Feature Extraction, Classification and Data Augmentation, MSc. thesis, Lakehead University - External examiner 📅 2020
13. Reecha V. B., Malvik R. P., Aravind K., MSc. project, Lakehead University 📅 2019 − 2020

TEACHING

Regular Courses
1. Deep Learning, COMP5421 (Grad), Lakehead University.
2. Project Research/Writing, COMP-9800-GC (Grad), Lakehead University.
3. Digital Signal and Image Processing, ESOF-4559 (UG), Lakehead University.
4. Degree Project, ESOF-4969 (UG), Lakehead University.
5. Applied Computational Intelligence, ESOF-4011 (UG), Lakehead University.
6. Database Systems, ESOF-3765 (UG), Lakehead University.
7. Technical Project, ESOF-2918 (UG), Lakehead University.
8. Large Scale Data Analytics, ESOF 0151 (UG), Lakehead University.
9. Big Data Machine Learning Models, ESOF 5052 (Grad), Lakehead University.
10. Computer Programming I, COMP 1411 (UG), Lakehead University.
11. Mobile Computing Technology, COMP-2430 (UG), Lakehead University.
12. Cloud Computing, COMP-4312 (UG), Lakehead University.
13. Project, COMP-5800 (Grad), Lakehead University.

Special Topics
14. Natural Language Processing, ESOF-5036 (Grad), Lakehead University.
15. Topics in Natural Language Processing, COMP-5413 (Grad), Lakehead University.

Journals

1. Siavash H., Abdullah M.I, **Akilan T.**, *et al.*, Accurate Flow Regime Classification and Void Fraction Measurement in Two-Phase Flowmeters Using Frequency-Domain Feature Extraction and Neural Networks, Separations, 9(7), 2022. (IF 2.777 / h5-index 19)

2. Mohammed N.R.C., Wandong Z., and **Akilan T.**, ANOVA-based Automatic Attribute Selection for Heart Disease Prognosis, IEEE Journal of Biomedical and Health Informatics, 2022 [To Be SUBMITTED].

3. Peter S., Ayman A., **Akilan T.**, Marko J., Yash G., Intelligent Real-Time Facemask Detection System with Hardware Acceleration for COVID-19 Mitigation, Health Care, 10(5), 2022. (IF 2.645 / h5-index 41)

4. Wandong Z., Wu Q.M.J., Yang Y., **Akilan T.**, Fast Domain Transfer Learning Using Random Layer Freezing and Feature Refinement Strategy, IEEE Transactions on Cybernetics, 2022. [SUBMITTED]

5. Wandong Z., Wu Q.M.J., Yang Y., **Akilan T.**, HKPM: A Hierarchical Key-Area Perception Model for HFSWR Maritime Surveillance, IEEE Transactions on Geoscience and Remote Sensing, 60, 2021. (IF 5.855 / h5-index 93)

6. Zhang H., Song Y., Chen Y., Zhong H., Liu L., Y Wang, **Akilan T.**, Wu Q.M.J., MRSDI-CNN: Multi-Model Rail Surface Defect Inspection System Based on Convolutional Neural Networks, IEEE Transactions on Intelligent Transportation Systems, 2021.

7. Wandong Z., Wu Q.M.J., Yang Y., **Akilan T.**, Will Z., Li Q.Z., A Fast Sea-target Detection Using Spatial-frequency Analysis and ANOVA-based Feature Fusion, Geoscience and Remote Sensing Letters, 2021. (IF 3.83 / h5-index 63).

8. Siavash H., Taylan O., Abusurrah M., **Akilan T.**, et al., Application of Wavelet Feature Extraction and Artificial Neural Networks for Improving the Performance of Gas–Liquid Two-Phase Flow Meters Used in Oil and Petrochemical Industries, Polymers, 13(21), 2021. (IF 4.329 / h5-index 74).

9. Wandong Z., Wu Q.M.J., Yang Y., **Akilan T.**, " Multimodel Feature Reinforcement Framework Using Moore-Penrose Inverse for Big Data Analysis", IEEE Trans. on Neural Networks and Learning Sys., 2020. (IF 8.793 / h5-index 107).

10. Wandong Z., Wu Q.M.J., Yang Y., **Akilan T.**, Hui Z., A Width-growth Model with Subnetwork Nodes and Refinement Structure for Representation Learning and Image Classification, IEEE Trans. on Industrial Informatics, 2020 (IF 9.112 / h5-index 90).

11. **Akilan T.**, Wu Q.M.J. and Wandong Z., "Video Foreground Extraction Using Multi-view Receptive Field and Encoder-Decoder DCNN for Traffic Surveillance Applications", IEEE Trans. on Vehicular Technology, 68 (10), 2019 (IF 5.379 / h5-index 104).

12. **Akilan T.** and Wu Q.M.J., "sEnDec: An Improved Image to Image CNN for Foreground Localization", IEEE Trans. on Intelligent Transportation Sys., 2019 (IF 6.319 / h5-index 92).

13. Yang Y., Wu Q.M.J., Feng X., **Akilan T.**, "Recomputation of dense layers for the performance improvement of DCNN," IEEE Trans. Pattern Analy. Machi. Intelli., 2019 (IF 17.861 / h5-index 131).

14. **Akilan T.**, Wu Q.M.J., et al., "A 3D CNN-LSTM Based Image-to-Image Foreground Segmentation", IEEE Trans. on Intelligent Transportation Sys., 21 (3), 2019 (IF 6.319 / h5-index 92).

15. Safaei A., Wu Q.M.J., Yimin Y., **Akilan T.**, "System-on-a-Chip (SoC)-based Hardware Acceleration for an Online Sequential Extreme Learning Machine (OS-ELM)," IEEE Trans. Computer-Aided Design of Integrated Circuits and Systems, 38 (11), 2019 (IF 2.168 / h5-index 47).

16. **Akilan T.** and Wu Q.M.J., "Effect of fusing features from multiple DCNN architectures in image classification", IET Image Processing, 12 (7), 2018 (IF 1.995 / h5-index 29).

17. **Akilan T.** and Wu Q.M.J., "Fusion-based Foreground Enhancement for Background Subtraction using Multivariate Multi-model Gaussian Distribution", Information Sciences, 430–431, 2018 (IF 5.910 / h5-index 102).

Conferences

18. Siavash H., Amir Mohammad S., and **Akilan T.**, Deep Neural Network Modeling for Accurate Electric Motor Temperature Prediction, IEEE CCECE, 2022, (h5-index 20) [SUBMITTED].

19. Apurva P., Catherine S., Nisargkumar P., Vaibhavkumar P., and **Akilan T.**, Multi-channel MRI Embedding: An Effective Strategy for Enhancing Brain Tumor Segmentation, IEEE Applied Imagery Pattern Recognition Workshop (AIPR), 2021, (h5-index 13).

20. Humaira N., **Akilan T.**, and Mohammad A.S. Khalid, Fast Traffic Sign and Light Detection using Deep Learning for Automotive Applications, Western New York Image and Signal Processing Workshop, 2021.

21. Sree Teja B., Ananya B., Ramya S., Simranjit K., and **Akilan T.**, Remote Sensing-based Socioeconomic Analysis using Task-driven Transfer Learning and Regression, IEEE International Conference on Aerospace Electronics and Remote Sensing Technology (ICARES), 2021.

22. Bhavinkumar P., Harshit P., Manthan K., Nidhi P., and **Akilan T.**, ES2ISL: An Advancement in Speech to Sign Language Translation using 3D Avatar Animator, IEEE CCECE, 2020 (h5-index 20).

23. **Akilan T.**, Edna J., Gaurav T., Japneet S., Ritika C., Multi-modality Feature Fusion for SLAM, IEEE CCECE, 2020 (h5-index 20).

24. **Akilan T.**, Amitha T., Bharathwaaj V., Sowmiya T., and Sanjana G.C., Image Captioning with Complementary Visual and Textual Cues, IEEE International Conference on Systems, Man and Cybernetics (SMC), 2020 (h5-index 29).

25. **Akilan T.**, Dhruvit S., Nishi P., and Rinkal M., Efficient Detection of Duplicate Bug Report using LDA-based Topic Modeling and Classification, IEEE International Conference on Systems, Man and Cybernetics (SMC), 2020 (h5-index 29).

26. **Akilan T.**, Wu Q.M.J., Safaei A., and Jie H., "New Trend in Video Foreground Detection Using Deep Learning", IEEE Inter. Midwest Sympo. on Circuits and Systems (MWSCAS), 2018 (h5-index 17).

27. **Akilan T.** and Wu Q.M.J., "Double Encoding - Slow Decoding Image to Image CNN for Foreground Identification with Application Towards Intelligent Transportation", IEEE Inter. Conf. Green Computing and Communication (GreenCom), 2018 (h5-index 15).

28. Safaei A., Wu Q.M.J., Yang Y., and **Akilan T.**, System-on-a-chip (SoC)-based hardware acceleration for extreme learning machine, IEEE International Conference on Electronics, Circuits and Systems (ICECS), 2017 (h5-index 11).

29. **Akilan T.**, Wu Q.M.J., and Jiang W., and Safaei A., "A feature embedding strategy for high-level CNN representations from multiple convnets", IEEE GlobalSIP Symposium on Sparse Signal Processing and Deep Learning, 2017.

30. **Akilan T.**, Wu Q.M.J., and Jiang W., "A Late fusion approach for harnessing multi-CNN model High-level features", IEEE International Conf. on Sys., Man, and Cybernet., 2017 (h5-index 29).

31. Safaei A., Wu Q.M.J., and **Akilan T.**, "System-level design for human detection in 3D scenes", IEEE International Conference on Systems, Man, and Cybernetics, 2017 (h5-index 29).

32. **Akilan T.**, Wu Q.M.J., Yang Y. and Safaei A., "Fusion of transfer learning features and its application in image classification", IEEE Canadian Conf. on Electri. and Comput. Engg., 2017 (h5-index 20).

33. **Akilan T.**, Wu Q.M.J. and Jie H., "A unified threshold updating strategy for multivariate Gaussian mixture model-based moving object detection", International Conference on High Performance Computing and Simulation (ICHPCS), 2016 (h5-index 17).

34. **Akilan T.**, Wu Q.M.J., Asutosh K.S., Mandon B. and Adib K.C., "Video foreground detection in non-static background using multi-dimensional color space"[1], Proc. 4th Int. Conf. on Eco-friendly Computing and Commu. Sys., Procedia Computer Science, 2015 (IF 2.09/h5-index 84).

35. **Akilan T.**, Wu Q.M.J., B. Mandon and Adib K.C., "Vision-based registration for augmented reality: a short survey", IEEE Int. Conf. on Sig. and Image Process. Applicat. (ICSIPA), 2015 (h5-index 12).

36. Jie H., Guanghui W., Wu Q.M.J. and **Akilan T.**, "Label fusion for multi-atlas segmentation based on majority voting", Int. Conf. on Image Analy. and Recogni. (ICIAR), Lecture Notes in Computer

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[1]Best paper award in a particular track

37. Adib K.C., Daniel T., Simon L.B.Y., Gary C.W. and **Akilan T.**, "Design of full adder/subtractor using irreversible IG-A gate", IEEE Int. Conf. on Computer, Comm., and Control Technol. (I4CT), 2015

38. Nguyen T.M., **Akilan T.** and Wu Q.M.J., "Intelligent sensors for automotive factory automation", Ontario and Canada Research Chairs Symposium (poster), April 2015.

39. **Akilan T.**, Hsu H.M., Mongkol E. and Chumnarn P., "Design of 20-GHz low noise amplifier for automotive collision avoidance application", IEEE International SoC Design Conference (ISOCC), 2013.

40. **Akilan T.** and Yusoff M.A., "FPGA implementation of Hermite-Rodriguez functions for UWB systems", TENCON2011, Bali, Nov. 2011.

Articles

41. Asutosh K.S., **Akilan T.**, "What Does Future of Computer Technology Hold in Store? - Technical report", Borneo Post, 2011, http://www1.curtin.edu.my/campusnews/insight/2011/IN11_18.htm.

42. Ashutosh K.S., **Akilan T.**, King S.H. and Sing P., "The future of democratic elections lie in fault tolerance automatic voting machines (FTAVM) - Technical report", Curtin Insight, 2011, http://www1.curtin.edu.my/campusnews/insight/2011/IN11_01.htm.

ORAL PRESENTATIONS, WORKSHOPS, AND POSTER PRESENTATIONS ....

Presentations

1. Segmentation: From Conventional Methods to Deep Learning, Graduate seminar, Dept. CS, Lakehead University, 8-Nov-2019.

2. Video Foreground Localization from $C2D^2$ with Application Towards $ITaS^3$, Hangzhou Dianzi University, China, 15-Nov-2018 (invited).

3. Video Foreground Localization from C2D with Application Towards ITaS, Zhejiang University, China, 12-Nov-2018 (invited).

4. New trend in video foreground detection using deep learning, IEEE Inter. Midwest Sympo. on Circuits and Sys., 2018.

5. A Feature Embedding Strategy for High-Level CNN Representations from Multiple Convnets, IEEE GlobalSIP Symposium on Sparse Signal Processing and Deep Learning, 2017.

6. A late fusion approach for harnessing multi-CNN model high-level features, IEEE International Conference on Systems, Man, and Cybernetics, 2017.

7. Fusion of transfer learning features and its application in image classification, in IEEE Canadian Conference on Electrical and Computer Engineering, 2017.

Workshops

8. Python for deep learning: a practical approach, for IEEE Student Branch, University of Windsor, 2017.

9. PLC's in industry: a practical application oriented workshop, for Executive & Professional Education, AIT Extension, 2013.

Posters

10. Shane Davey, Christopher Silver, Angel Martinez Velasquez, Thangarajah Akilan, IoT and Thermopile Sensor-based Smart System for Elderly Fall and Fever Detection, Undergraduate Student Research Conference, Lakehead University, March, 2022.

11. Marko Javorac, Yash Gupta, Peter Sertic, Ayman Alahmar, Thangarajah Akilan, Face Mask Detection for COVID-19 Spread Prevention, Undergraduate Student Research Conference, Lakehead University, March, 2021.

12. Apurva Pandya, Catherine Rachel Samuel Rajkumar, Nisarg Patel, Vaibhavkumar Patel, and Thangarajah Akilan, "Enhancement of Brain Tumor Segmentation using Multi-Modality Learning", Graduate Student Poster Conference, Research and Innovation Week, March 2020.

13. Dhruvit Shah, Nishi Patel, Rinkal Mehta, Surya Yakkanti, and Thangarajah Akilan, "Detection of Duplicate Bug Report", Graduate Student Poster Conf., Research and Innovation Week, Mar. 2020.

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[2] Conventional to deep learning models
[3] Intelligent transportation and surveillance

14. Amitha Thiagarajan, Bharathwaaj Venkatesan, Sanjana Gurusamy, Sowmiya Thirumeni, and Thangarajah Akilan, "Multimodality Learning for Visual Captioning", Graduate Student Poster Conference, Research and Innovation Week, Mar. 2020.

15. Thangarajah Akilan, Edna Johnson, Gaurav T., Japneet Sandhu, and Ritika C., "A Hybrid Learner for Simultaneous Localization and Mapping", Graduate Student Poster Conference, Research and Innovation Week, Mar. 2020.

16. Manthan Khanvilkar, Nidhi Patel, Bhavin Patel, Harshit Patel, and Thangarajah Akilan, "ES2ISL : English Speech to Indian Sign Language Translator", Graduate Student Poster Conference, Research and Innovation Week, March 2020.

17. Disha Sanaboina, Mansi Patel, Bansari Hirpara, Ria Salaria, and Thangarajah Akilan, "Video Surveillance Unusual Activity Recognition", Graduate Student Poster Conference, Research and Innovation Week, Mar. 2020.

18. Sree Teja Buddaraju, Ananya Bardhan, Ramya Sri Boddu, Simranjit Kaur, and Thangarajah Akilan, "Predicting Poverty Using Satellite Image Processing", Graduate Student Poster Conference, Research and Innovation Week, Mar. 2020.

Research Grants

1. NSERC Discovery Grant (DG): $125,000.00, 2022/27.
2. Discovery Launch Supplement: $12,500.00, 2022/23.
3. SRC Research Development Fund (RDF): $7,000.00, Lakehead University, Canada, 2021.
4. VP Academic Start-up Fund: $10,000.00, Lakehead University, Canada, 2021.
5. LU - Faculty Dean Support: $5,000.00, Lakehead University, Canada, 2021.
6. SRC Publication Assistance Fund: $500.00, Lakehead University, Canada, 2021.

Honors and Achievements

1. A winner of the 2022 Undergraduate Student Conference Poster and Oral Competition, Lakehead University, Topic: IoT and Thermopile Sensor-based Smart System for Elderly Fall and Fever Detection, Role: Supervisor.

2. Start-up: The undergraduate project I supervised was successfully spin-off a Thunder Bay-based Start-up under a student's leadership (Christopher Sliver) through Ingenuity program of Lakehead University, 2022, Role: Mentor.

3. Contribution to Teaching Award Nomination by students, Lakehead University, Canada, 2022.

4. Contribution to Teaching Award Nomination by students and recommended by the Senate Teaching and Learning Committee, Lakehead University, Canada, 2021.

5. Conference travel grant, IEEE Int. Conf. SMC 2017, Banff, Canada, IEEE SMC Society, 2017.

6. Conference travel grant, IEEE Int. GlobalSIP 2017, Montreal, Canada, Grad Award, University of Windsor, 2017.

7. Graduate Scholar Award, Golden Key Premier Scholarship, 2016.

8. Graduate Student Society Scholarship, University of Windsor, Canada, Summer 2015 and 2016.

9. Research Assistantship Award, University of Windsor, Canada, 2014 Winter - 2018 Winter.

10. The Infineon graduation prize for outstanding student of MEng. in Microelectronic and Embedded Systems, AIT, May 2013.

11. Program for Academic Exchange (PAX) Student Scholarship, National Chung Hsing University, Taiwan, Aug. 2012 - Jan. 2013.

12. His Majesty King's Scholarship (Thailand) for MEng., AIT, Aug. 2011 - May 2013.

Other Awards

1. Best Paper Award, 4th Int. Conf. on Eco-friendly Computing and Commu. Sys., Dec. 2015.
2. WEHAYA Best Final Year Project in Electrical Engineering Award, Curtin University- Malaysia (CSM), June 2011.
3. Sarawak Open Source Competition Participation Certificate, 2011.
4. SHELL Best Engineering Student Award, CSM, 2010.
5. Vice Chancellor's List, Curtin University, Australia, Semester 2, 2010.
6. Finalists of the Freescale (Malaysia) and IEEE organized Smart-car competition, 2010.
7. Champions of CSM indoor Cricket tournament, Semester 2, 2010.
8. Dean's List Award for 7+ courses, CSM, 2009 - 2010.
9. Best Computer Systems Engineering Student Award, CSM, 2008.
10. Best Computer Systems Engineering Student Award, CSM, 2007.
11. Ontario Scholar Award, Taylor's University College, 2007.

PROFESSIONAL SERVICES ....

Academic Activities

1. **External Member**, Search Committee, Dept. Civil Engg., Lakehead University 📅 2022/05 – 2022/06
2. **Department Representative**, Prospective Engg. Student and Family Reception 📅 May 24, 2022
3. **Department Representative**, March Break Open House 📅 March 14 - 18, 2022
4. **Department Representative**, Grade 11 Preview Day 📅 May 12, 2022
5. **Senate Academic Committee**, Lakehead University 📅 2022/07 – 2025/06
6. **Senate Academic Committee**, Lakehead University 📅 2021/09 – 2022/06
7. **Curriculum & Assessment Committee**, Faculty of Engg., Lakehead University 📅 2021/09 – Present

Editorial and Review Services

1. **Associate-editor**, Neurocomputing, Elsevier 📅 2022/03 – Present
2. **Associate-editor**, IEEE Trans. on Circuits and Systems for Video Technology 📅 2022/01 – Present
3. **Guest-editor**, Special Issue - Machine Vision Applications and Efficient Deep Learning Models for Resource-Limited Learning, Journal of Imaging 📅 2021/08 – Present
4. **Member of Topical Advisory Panel**, MDPI Journals, 📅 2021/08 – Present
5. **Editorial Board Member**, Computers, Materials & Continua, Tech Sci. Press 📅 2021/04 – Present
6. **Advisory Committee**, 11th Intl. Conf. on Soft Computing for Problem Solving (SocProS) 2022 📅 2022/01 – 2022/05
7. **Technical Committee**, Canadian Undergrad. Comput. Sci. Conf. 2019 📅 2019/03 – 2019/07
8. **Technical Program Committee**, 7th Intl. Conf. on Advances in Computing & Communications (ICACC) 2017 📅 2017/03 – 2017/08
9. **Technical Program Committee**, 6th Intl. Conf. on Advances in Computing & Communications (ICACC) 2016 📅 2016/03 – 2016/08
10. **Technical Committee**, 2020 2nd Intl. Conf. on Energy, Power, Environment and Computer Application (ICEPECA2020) 📅 2020/01 – 2020/11
11. **Reviewer**, IEEE Transactions on Artificial Intelligence 📅 2021/01 – Present
12. **Reviewer**, IEEE Transactions on Intelligent Transportation Systems 📅 2019/01 – Present
13. **Reviewer**, IEEE Transactions on Vehicular Technology 📅 2019/01 – Present
14. **Reviewer**, IET Image Processing 📅 2018/07 – Present
15. **Reviewer**, IEEE Transactions on Industrial Informatics 📅 2016/01 – Present
16. **Reviewer**, IEEE Transactions on Multimedia 📅 2016/01 – Present
17. **Reviewer**, 2020 IEEE Intl. Conf. on Systems, Man and Cybernetics (SMC) 📅 2020/03 – 2020/07
18. **Reviewer**, 62nd IEEE Intl. Midwest Sympos. Circu. and Sys. (MWSCAS) 📅 2019/03 – 2019/04

Other Leadership Activities, Membership, and Services

1. **Director of Outreach**, IEEE Winnipeg YP 📅 2022/01 – Present
2. **Secretary**, IEEE Winnipeg YP 📅 2021/01 – 2021/12

3. **Member**, Golden Key International Honor Society 📅 2015/09 – Present
4. **Member**, Ontario Society of Professional Engineers (OSPE) 📅 2014/05 – Present
5. **Member**, The Institute of Electrical and Electronics Engineers (IEEE) 📅 2012/03 – Present

6. **Secretary**, IEEE Windsor Section 📅 2018/01 – 2019/12
7. **Judge**, ACSIS Elementary School Science Fair, Windsor, Ontario 📅 2019/02
8. **Graduate Student Representative**, Department of Electrical and Computer Engineering, University of Windsor 📅 2015 – 2016
9. **Vice-chair**, Joint Chapter of Circuits & Systems and Computer Societies, IEEE Windsor Section 📅 2015/08 – 2017/08
10. **Vice-chair**, IEEE Student Branch, University of Windsor 📅 2014 – 2015
11. **Judge**, Windsor Regional Science, Technology, and Engineering Fair, Canada 📅 2015/03
12. **Chair**, Excellence Awards Judging Team - Junior, Canada Wide Science Fair 📅 2014/05
13. **Judge**, Interdisciplinary Awards Judging Teams, The Actuarial Foundation of Canada Award - Senior, Canada Wide Science Fair 📅 2014/05
14. **Volunteer** of Library Book Cleaning, Asian Institute of Technology (AIT), Thailand 📅 2012/01
15. **General Assembly Member of Student Union**, AIT 📅 2011 – 2012
16. **Head**, Newsletter-Publications, IEEE Student Branch, Curtin University, Malaysia 📅 2010/11

Should you need any further information, please do not hesitate to contact me.

Sincerely,

J. Akilan

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