HENDRIK TAMPUBOLON

Ph.D. Candidate

Department of Computer Science and Information Engineering (CSIE)
National Taiwan University of Science and Technology
No. 43 號, Section 4, Keelung Rd, Da'an District, Taipei City, 106
LinkedIn | d10715806@gapps.ntust.edu.tw | hendrik.gian@gmail.com | Github|

I am comfortable with working related to Machine Learning, Deep Learning on Computer Vision applications, Predictive Modeling, Data Analysis, Data Science, Database Design, Web Apps Development, Edge-Fog-Cloud Computing, and IoT Apps Development. However, I am also open to facing new role challenges in the job offered.

Education background

2018-Present Doctoral Degree in Computer Science and Information Engineering
National Taiwan University of Science and Technology, Taiwan
Advisor: Prof. Kai-Lung Hua, Ph.D. | Co-Advisor: Prof. Chao-Lung Yang, Ph.D. (*Will be graduated in July 2023*)

2014-2017 MS in Computer Science and Information Engineering
National Chung Cheng University, Taiwan
Thesis: Supervised Deep Learning for Traffic Flow Prediction
Advisor: Prof. Pao-Ann Hsiung, Ph.D.

2007-2012 BS in Information Technology
University of Sumatera Utara (USU), Indonesia
Thesis: Learning Management System Development on Facebook Apps
Academic Advisor: Prof.Dr. Opim Salim Sitompul, M.Sc.|Thesis Advisor: M Anggia Muchtar, S.T., MMIT

Portfolio

Skeleton-Based HAR/HIR EFCC

Develop Secure and Privacy-Preserving Human Interaction Recognition with Edge-Fog-Cloud Computing

- *Front-End: TypeScript and NodeJS for UI design which user can be interact with the systems*
- *Back-End: PyTorch for Skeleton Based Action Recognition and TensorFlowJS for Human Pose Estimation*
- *Security: Lightweight Symmetric Encryption and MFA were applied*

- *Jetson Nano deploy at the Edge for Data aqusition of human action video streaming*
- *PoseNet deploy at the Fog Layer to extract Human Skeleton Sequence Data*
- *STGCN-PAM deploy at the Cloud Layer (AWS) to recognize the HAR/HIR based on the skeleton data receipt from the Edge*

Code:skeleton-ar-efcc

Handbell Project

Data Analysis and Visualization from Industrial Sensors, Streaming, Anomaly Detection. I use Angular for UI design and Ploty JavaScript Lib for Streaming Data Visualization. Ngix and Flask and Pyhon were deployed in container on AWS Cloud.
Code: The code is private due to confidential issue of the Handbell Company

SimLab Color

Develop Image Processing to imitate what artists (Human Labor) did to edit the images before it is printing.
*Code: SimsLab-Color (*It contains Full-Stack development, however some confidential data were not published due to the company NDA)

SimsLab HMI

Human-Robot coordination and system integration

- *working on the SOP situation video of assembly line, using the openpose and mediapipe*
- *Use therbling label to do the training*
- *identify the action and therbling of human bodies in the vIdeo.*

Code:HMI

Jakarta Smart City (JSC) Project

This project is a cooperation between JSC and NTUST which contains very Big Raw Data from Jakarta City. I develop CapsuleNet Model for Network-Wide-Road Traffic prediction at once.
Code: Upon Request

Skill Sets

Programming		*Scripting*	
Python	90%	JavaScript	90%
PHP	80%	CSS	95%
C++	*75%*	*HTML5*	*95%*
R	*80%*	*TypeScript*	*80%*

Software & Tools

Databases

- *MySQL*
- *PostgreSQL*
- *MongoDB*
- *SQL Server*
- *Oracle*
- *SQLite*

Front-End

- *AngularJS*
- *React*
- *Bootstrap*

Cloud

- *AWS*
- *GCP*
- *AlibabaCloud*

Web

- *Django*
- *NodeJS*

ML & AI

- *PyTorch*
- *Jupyter Lab*

- *Drupal*
- *Ngix*
- *Apache*
- *phpMyAdmin*
- *TensorFlow*
- *Keras*
- *Onnx*
- *Colab*

Container

- *Docker*
- *Kubernetes*

IDE

- *VsCode*
- *Notepad++*
- *Rstudio*

Languages

Indonesian	100%
Batakness	100%
English	*90%*
Chinese	*30%*

Professional experiences

08/2017- 08/2021 Lecturer
Department of Information Systems, Krida Wacana Christian University, Jakarta, Indonesia

06/2017-10/2017 Technology Advisor
Satuplatform, Jakarta, Indonesia

04/2013-02/2014 Project Administrator (H3I/Huawei Project *Acquisied by Indosat Indonesia*)
PT.Masindo Utama Nusantara (North Sumatera Region), Medan, Indonesia

12/2010-10/2011 Web Developer – Freelance

Journal articles (Peer reviewed)

1. **Tampubolon, H.**, Yang, C.-L., Chan, A.S., Sutrisno, H., and Hua K.-L., (2019), Optimized CapsNet for traffic-jammed speed prediction using mobile sensor data under urban swarming transportation, *Sensors*, 19(23), 5277. [DOI]
   SCI, IF 2018: 3.301, Rank 23/84 in Chemistry, Analytical, 15/61 in Instruments and Instrumentation, 12/26 in Electrochemistry.
2. Yang, C.-L., Sutrisno, H., Chan, A.S., **Tampubolon, H.**, & Wibowo, B.S. (2021), Identification and analysis of weather-sensitive roads based on smartphone sensor data: A case study in Jakarta, *Sensors*, 21, 2405. [DOI]
   SCI, IF 2020: 3.576, Rank 26/87 in Chemistry, Analytical, 82/273 in Engineering, Electrical & Electronic, 14/64 in Instruments & Instrumentation
3. C. -L. Yang, **H. Tampubolon**, A. Setyoko, K. -L. Hua, M. Tanveer, W. Wei. "Secure and Privacy-Preserving Human Interaction Recognition of Pervasive Healthcare Monitoring," to appear in IEEE Transactions on Network Science and Engineering (IEEE TNSE), 2022.[DOI]
   SCI, IF 2021: 5.033, Rank 9/108 in Mathematics, Interdisciplinary Applications,

Rank 18/92 in Engineering, Multidisciplinary, Rank 4/132 in Mathematics, Interdisciplinary Applications (JCI), Rank 7/175 in Engineering, Multidisciplinary(JCI)

Conference proceedings (Peer reviewed)

1. C. -L. Yang, A. Setyoko, **H. Tampubolon** and K. -L. Hua, "Pairwise Adjacency Matrix on Spatial Temporal Graph Convolution Network for Skeleton-Based Two-Person Interaction Recognition," *2020 IEEE International Conference on Image Processing (ICIP)*, Abu Dhabi, United Arab Emirates, Oct. 25-28, 2020, *pp. 2166-2170, doi:10.1109/ICIP40778.2020.9190680.*
2. **H. Tampubolon** and P. -A. Hsiung, "Supervised Deep Learning Based for Traffic Flow Prediction," *2018 International Conference on Smart Green Technology in Electrical and Information Systems (ICSGTEIS)*, Bali, Indonesia, Oct.25-27,2018, pp. 95-100, doi:10.1109/ICSGTEIS.2018.8709102.
3. **H. Tampubolon**, A. Setyoko, and F. Purnamasari, "SNPE-SRGAN: Lightweight Generative Adversarial Networks for Single-Image Super-Resolution on Mobile Using SNPE Framework," *5th International Conference on Computing and Applied Informatics (ICCAI 2020)*, Medan, Indonesia, Dec. 1-2, 2020 doi: 10.1088/1742-6596/1898/1/012038.
4. N. Sevani, **H. Tampubolon**, J. Wijaya, L.Cuvianto, and A. Salomo. “A study of Convolution Neural Network Based Cataract Detection with Image Segmentation,” 2022 IEEE International Conference on Communication, Networks and Satellite (COMNETSAT), 2022 (*to be appeared*)

Invited talks

1. *Full Stack Development Kickstart*, at National Startup Summit 2018, Co-organized by Arrbey Consulting (Neo Soho Podomoro City), Jakarta, Indonesia, 6-8 February 2018.

Working papers

1. **H. Tampubolon**, C. -L. Yang, K. -L. Hua. Privacy-Preserving Child-Presence and Safety Detection in a Cars with mmWave Sensor
2. **H. Tampubolon**, C. -L. Yang, K. -L. Hua. ARCU-GAN: Generative Adversarial Network with Artist’s Rules Control Units for Fine Grained Image Editing

Courses offered

2017 Spring
Main Instructor INF313 Software Engineering(Undergraduate)
Department of Informatics, UKRIDA, Jakarta
SI2WP007 Database System (Undergraduate)
Department of Information System, UKRIDA, Jakarta
SI4205 System Information Engineering (Undergraduate)
Department of Information System, UKRIDA, Jakarta

2017 Fall
Co-Instructor – SI5405 Expert System (Undergraduate)
Department of Information System, UKRIDA, Jakarta
Main instructor: Cynthia Hayat

2015 Fall **Teaching Assistant – R Programming fo Data Science (in English - Graduate)**

Department of Computer Science and Inf. Eng. (CSIE), CCU, Chiayi ,Taiwan

- Delivered 14 weeks in-person practicum classes at CSIE CCU, Instructor: Prof. Pao-Ann, Hsiung, Ph.D.