
Dr. Cao Tien Dung

Dean - School of Information Technology - Tan Tao University.

Lecturer of Computer Science.

HoChiMinh City, Vietnam



Project role

Lecturer/Data Scientist/ Data Architecture

Background

Dean - School of Engineering - Tan Tao University.

Lecturer of Computer Science.

Dung has been working and teaching at TTU for over 15 years. He is experienced in using Machine Learning/Deep Learning, Computer Vision, Predictive Analytics (especially with time series data such as customer data) and Graph Analytics. Besides, He gained experiences with object detection and recognition as well as tracking (face, vehicle, license plate, people, ...). He has developed strong knowledge in Big Data (Spark - SparkSQL, Hadoop, Hive, Streaming solutions, i.e., Kafka, ...), with distributed system deployment (Web service, API, ...).

Dr Dung Cao also delivered various Data Science, GenAI, AI agents, Python Programming for Data Science/ML, Machine Learning/ Deep Learning courses in Oil and Gas/Industries (Clients: PVEP, Viettel Net, LG CNS)

Experience

Education

- Jun 2008 – Dec 2010: PhD in Computer Science, University of Bordeaux 1, France.
- Oct 2005 – Oct 2007: M.S in Computer Science, IFI, Hanoi, Vietnam.
- Sep 1998 – Jul 2002: B.S in Math & Computer Science, HCMUS, HCM city, Vietnam

Work experiences

- Jun 2008 – Present: School of Engineering - Tan Tao University.
- Dec 2007 - May 2008: Vega Corporation
- Oct 2005 - May 2006: Vietsoftware
- 2003 - 2005: HTL Company

Key Highlight Digital Transformation Projects

- Consultant for Digital Transformation and IT Master Plan for Vietsovpetro.
- Consultant for Digital Transformation project for BienDong POC.
- Marketplace for Federated Machine Learning, Collaboration with Hong Linh Truong (Aalto University - Finland), Tram Truong-Huu (Singapore Institute of Technology) (2022 – 2024)
- A Federated Deep Learning Framework for Privacy Preservation and Communication Efficiency (2019 - 2021).
- Encrypted Network Traffic Classification using Deep Learning (2020 - 2021).
- Develop a Face and License Plate Recognition for the parking of TTU's Dormitory using camera and deep Learning (2021-2022).
- Define and develop a marketplace for real-time human-sensing data (2015).
- Model and define test approaches for applications/services deployed in the Clouds.
- Join to the SEAWEEED project, funded by USAID within the PEER program, as a data scientist (https://sites.nationalacademies.org/PGA/PEER/PEERscience/PGA_084078).

Research Projects

- A Marketplace for Edge Federated ML (2022 - 2024), <https://soeai.github.io/EADRAN>

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- Encrypted Network Traffic Classification using Deep Learning (2020 - 2021), <https://soeai.github.io/MAppGraph>
 - A Federated Deep Learning Framework for Privacy Preservation and Communication Efficiency (2019 - 2021), <https://soeai.github.io/FedPC>
 - A Marketplace for Realtime Human-Sensing Data (2015-2016), <http://dungcao.github.io/marsa>

Professional Activities

- Program co-chair: ISSA-DW'2016
- Member of program committees: ICIW 2011, ICIW 2012, ICIW 2013, ICIW 2014, INTECH 2014, ACOMP 2014, ICIW 2015, ACOMP 2015, ICIW 2016, ACOMP 2016, SOCA 2016 , SOCA 2019, CBDCom2020, iThing2020, iThings2021.
- Journal reviewer: Information and Software Technology, Computers and Electronics in Agriculture. Journal of System Architecture, PLOS ONE, Integration.
- Journal Academic Editorial Board: PLOS ONE.

PUBLICATIONS

2026

[J11] Le-Kim-Thuy Nguyen, Tan-Thanh-Giang Nguyen, Tien-Dung Cao, Nhat-Minh Phan, T. Kim-Chi Huynh, Minh-Tien Pham, Thanh-Hoang Nguyen, Cao-Hien Nguyen, Tran Thi Huong Giang, Tran Thi Kim Chi, Tran Nguyen Minh An, Dan-Quynh Pham, Thanh-Danh Nguyen, "[Colorimetric detection of ampicillin using a gold nanoparticle–aptamer sensor: Integrating portable readout and smartphone-based online machine learning](#)", *Journal of Environmental Chemical Engineering*.

2025

[DATASET] Binh Nguyen, Cat Le, Loc Vu, Quynh Nguyen, Ha-Hieu Pham, Phuong Anh Vu, Thuan Huynh, Cao Tien Dung, Nghiem Diep Tuong, Byung-Woo Hong, "[TN-Mammo: A Multi-view Mammography Dataset for Breast Density Classification](#)", *PhysioNet*.

[C17] Tien-Dung Cao, Hoang-Duc Le, "Client Selection of Federated Learning by Cost-Performance Analysis", The 20th International Conference on Intelligent Systems and Knowledge Engineering (ISKE), Nov 21-23, 2025. Shunde, China.

[C16] Phuong-Anh Vu, Kim-Tinh Phan, Cao-Dien Nguyen, Tien-Dung Cao, Trieu Phong Le, and Ngoc-Thai Nguyen, "[Domain Adaptation of Federated Learning by Data Generation and Server Feedback](#)", The 18th Multi-Disciplinary International Conference on Artificial Intelligence (MIWAI), Dec 3-5, 2025. Ho Chi Minh City, Vietnam.

[J10] Tien-Dung Cao, Nguyen T. Vuong, Thai Q. Le, Hoang V.N. Dao, Tram Truong-Huu, "[Asyn2F: An Asynchronous Federated Learning Framework with Bidirectional Model Aggregation](#)", IEEE Transactions on Emerging Topics in Computing. Vol. 13, Oct.-Dec. 2025, pp. 1618-1632.

[J9] Nhon Dang, Tien-Dung Cao, Trung Vu Hieu Nguyen, Thanh-Long Nguyen, Dien Nguyen, Mai-Lam Nguyen, "[AI Acceptance among Vietnamese University Students: Key Influencers and Perspectives](#)", International Journal of Information and Education Technology. 2025 Vol.15(12), pp. 2755-2769.

[J8] Tien-Dung Cao, Hong-Tri Nguyen, Minh-Tri Nguyen, Tram Truong-Huu, Hong-Linh Truong, "[EADRAN: An Edge Marketplace for Federated Learning](#)", Future Generation Computer Systems. Vol 175, Feb 2026, 108046.

[C15] Tien-Dung Cao, Ngan T.T. Pham, Hoang-Duc Le, Binh T. Nguyen "[Detecting Data Modification in Marketplace of Federated Learning](#)", The 17th International Conference on Machine Learning and Computing (ICMLC), Feb 14- 17, 2025. Guangzhou, China.

Preprint

Cuong V. Nguyen, **Tien-Dung Cao**, Tram Truong-Huu, Khanh N. Pham, Binh T. Nguyen, An Empirical Study on GANs with Margin Cosine Loss and Relativistic Discriminator, <https://arxiv.org/abs/2110.11293>

Journals/Magazines & Proceeding of Intl. Conferences/Workshops (by Review) DBLP Google Scholar, Scopus_2022

[C14] **Tien-Dung Cao**, Hong-Linh Truong, Tram Truong-Huu, Minh-Tri Nguyen, "Enabling Awareness of Quality of Training and Costs in Federated Machine Learning Marketplaces", 15th IEEE/ACM International Conference on Utility and Cloud Computing.

[J6] Hong-Linh Truong, Tram Truong-Huu, **Tien-Dung Cao**, "[Making Distributed Edge Machine Learning for Resource-Constrained Communities and Environments Smarter: Contexts and Challenges](#)", Journal of Reliable Intelligent Environments.

[J5] **Tien-Dung Cao**, Tram Truong-Huu, Hien Tran, Khanh Tran "[A Federated Deep Learning Framework for Privacy Preservation and Communication Efficiency](#)", Journal of Systems Architecture, Special Issue on Cyber Security for Internet of Things, Volume 124, March 2022, 102413.

2021

[C13] Thai-Dien Pham, Thien-Lac Ho, Tram Truong-Huu, **Tien-Dung Cao**, Hong-Linh Truong, "[MAppGraph: Mobile-App Classification on Encrypted Network Traffic using Deep Graph Convolution Neural Networks](#)", Annual Computer Security Applications Conference - ACSAC'2021.

2019

[C12] Tran Anh Tuan, **Tien-Dung Cao**, Tram Truong-Huu, "[DIRAC: A Hybrid Approach to Customer Demographics Analysis for Advertising Campaigns](#)", The 2019 6th NAFOSTED Conference on Information and Computer Science (NICS).

2018

[C11] **Tien-Dung Cao**, Dinh-Quyen Nguyen, Hien Duy Tran, "[Exploring Message Correlation in Crowd-Based Data Using Hyper Coordinates Visualization Technique](#)", in Predictive Econometrics and Big Data, **Studies in Computational Intelligence** Vol 753, Springer (Invited paper from TES'2018).

2016

[J4] **Tien-Dung Cao**, Huu-Hanh Hoang, Hiep Xuan Huynh, Binh-Minh Nguyen, Tran-Vu Pham, Quang Tran-Minh, The-Vu Tran, Hong-Linh Truong, "[IoT Services for Solving Critical Problems in Vietnam: A Research Landscape and Directions](#)", **IEEE Internet Computing**, Vol 20, No. 5, Sep/Oct 2016, pp. 76-81.

[J3] **Tien-Dung Cao**, Tran-Vu Pham, Quang-Hieu Vu, Hong-Linh Truong, Duc-Hung Le, Schahram Dustdar, "[MARSA: A Marketplace for Realtime Human-Sensing Data](#)", **ACM Transactions on Internet Technology**, Vol 16, No 3, May 2016, pp. 16:1 - 16:21

[C10] **Tien-Dung Cao**, Hong-Linh Truong, "[Analyzing and Conceptualizing Monitoring and Analytics as a Service for Grain Warehouses](#)", in Recent Developments in Intelligent Information and Database Systems, **Studies in Computational Intelligence**, Vol 642, 2016, pp. 161–171, Springer, (Accepted paper from ACIIDS'2016)

2014

[J2] Sebastien Salva, **Tien-Dung Cao**. "[Proxy-Monitor: An integration of runtime verification with passive conformance testing](#)". **International Journal of Software Innovation**, Vol 2, No 2, April-June 2014, pp 20-42, IGI Global. (Invited, extension of SERA 2013)

2013

[C9] Sebastien Salva, **Tien-Dung Cao**. "[A Model-based testing approach combining passive conformance testing and runtime verification. Application to Web service compositions deployed in Clouds](#)". **Studies in Computational Intelligence**, Vol 496, 2014, pp. 99–116, Springer (Selected paper from *11th International Conference on Software Engineering Research, Management and Applications, SERA 2013*)

2012

[C8] **Tien-Dung Cao**, Kevin Chiew. "[Protecting Software as a Service in the Clouds by Validation](#)". The 1st International Workshop on Analytics Services on the Cloud, in conjunction with [ICSOC](#), Nov 12, 2012, Shanghai, China. (Springer-Verlag, LNCS 7759, pp. 35–46)

[J1] **Tien-Dung Cao**, Richard Castanet, Patrick Felix, Kevin Chiew. "[An Approach to Automated Runtime Verification for Timed Systems: Applications to Web Services](#)". **Journal of Software**, Vol 7, No 6, June 2012, pp 1338 – 1350.

2011

[C7] **Tien-Dung Cao**, Richard Castanet, Patrick Felix, Gerardo Morales. "[Testing of Web services: Tools and Experiments](#)", The 2011 IEEE Asia-Pacific Services Computing Conference, Dec 12 – 15, 2011, Jeju, Korea.

[C6] **Tien-Dung Cao**, Richard Castanet, Patrick Felix. "[Service Web: du test actif au test passif](#)". (short paper in French) CFIP2011, May 10 -13, Sainte-Maxime, France.

2010

[C5] **Tien-Dung Cao**, Trung-Tien Phan-Quang, Patrick Felix, Richard Castanet. "[Automated Runtime Verification for Web Services](#)", The 8th IEEE International Conference on Web Services, July 5 – 10, 2010 – Miami, Florida, USA.

[C4] Ana Cavalli, **Tien-Dung Cao**, Wissam Mallouli, Martins Eliane, Sadovykh Andrey, Sebastien Salva, Fatiha Zaidi. "[WebMov: A dedicated framework for the modelling and testing of Web Services composition](#)", The 8th IEEE International Conference on Web Services, July 5 – 10, 2010 – Miami, Florida, USA.

[C3] **Tien-Dung Cao**, Patrick Felix, Richard Castanet. "[WSOTF: An automatic testing tool for web services composition](#)", The 5th International Conference on Internet and Web Applications and Services, May 9 – 15, 2010 – Barcelona, Spain.

[C2] **Tien-Dung Cao**, Patrick Felix, Richard Castanet, Ismail Berrada. "[Online Testing Framework for Web services](#)", The 3rd IEEE International Conference on Software Testing, Verification and Validation, April 6 – 9, 2010, Paris, France.

2009

[C1] **Tien-Dung Cao**, Patrick Felix, Richard Castanet, Ismail Berrada. "[Testing Web services composition using the TGSE tool](#)", IEEE 3rd International Workshop on Web Services Testing (WS-Testing 2009), July 7, 2009, Los Angeles, CA, USA.