Curriculum Vitae

Hieu Hanh LE, Dr.Eng.

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1. Profile

Hieu Hanh LE received the B.S, M.E, and Dr.Eng. degrees from Tokyo Institute of Technology in 2008, 2010, and 2015, respectively.

He was a researcher at Yokohama Research Laboratory of Hitachi Ltd.

He is interested in research on data engineering, information storage systems, privacy, information retrieval, and network engineering.

He is an ACM SIGMOD, IEEE CS, IEICE, DBSJ, JAMI member, and IPSJ senior member.

2. Work

(2023/04-) Associate Professor, Ochanomizu University

Interested in research on data engineering, medical data analysis, data humanity, information storage systems, information retrieval, and privacy.

(2019/04-2024/03) Visiting Lecturer, Tsukuba University

(2019/03-2023/03) Assistant Professor, Tokyo Institute of Technology

Interested in research on data engineering, information storage systems, information retrieval, and privacy.

(2017/02-2019/02) Adjunct Assistant Professor, Tokyo Institute of Technology

Interested in data engineering, information storage systems, and information retrieval research.

(2013/04-2017/02) Researcher, R&D Group, Hitachi Ltd.

Propose, design, and develop novel features for Storage Systems solutions. Interested in technologies for solutions, including data integration/analysis /backup/recovery, etc.

3. Awards

- JSAI Incentive Award, 2022

- Tokyo Institute of Technology, Best Teacher Award, 2021
- DEIM, Excellent Paper Awards, 2020
- ICDMA, Certificate of Merit Awards, 2018
- Hitachi R&D, Technical Awards, 2015
- DEIM, Excellent Interactive Awards, 2013
- IPJS, Student Encourage Awards, 2011
- IEICE, Student Research Awards, 2009

4. Grants

A) Principal Investigator

- JSPS Grant-in-Aid for Scientific Research (B), **Analysis of Branching Factors of Frequent Patterns from Multiple Sequence Databases** (2024/04-2027/03)
- JSPS Early-Career Scientists, **Secure, Precise and Fast Sequential Pattern Mining with Learning Data Distribution** (2021/04-2024/03)
- Kayamori, **標準診療指示列の最適化と個人情報の保護の両立を可能とする研究** (2019/01-2020/12)

B) Co-Investigator

- JSPS 科研費基盤研究（B），複数項目の値の変動に依存し動的に出現が変化する項目の予測の実現と評価 (2020/04-2023/03)
- NEDO, Next generation framework for real-time data processing (2018/09-2023/02)
- AMED, Disease decision logic in National Database (NDB) data analysis (2018/04-2019/03)
- JST-MOST, Reliable tamper-resistance with data integrity and privacy for heterogeneous IoT devices (2015/04-2019/03)

5. Main Publications

A) Journals

[j10] **Hieu Hanh Le**, Tatsuhiro Yamada, Yuichi Honda, Takatoshi Sakamoto, Ryosuke Matsuo, Tomoyoshi Yamazaki, Kenji Araki, Haruo Yokota, *Methods for Analyzing Medical-order sequence Variants in Sequential Pattern Mining for Electronic Medical Record Systems*, ACM Transactions on Computing for Healthcare, vol. 4, no.1, pp.3:1-3:28, 2023.

[j9] Berjab Nesrine, **Hieu Hanh Le**, Haruo Yokota, *Recovering Missing Data via Top- k Repeated Patterns for Fuzzy-based Abnormal Node Detection in Sensor Networks*, IEEE Access, Vol. 10, pp. 61046-61064, 2022**.**

[j8] Daiki Morooka, Takamitsu Shioi, Satoshi Hikida, **Hieu Hanh Le,** Yokota

Haruo, *メニーコア環境での HTAP 実現に向けた OLTP 性能とデータ鮮度重視の動的負荷分散*, 日本データベース学会和文論文誌, Vol. 20-J, No. 8, 2022.

[j7] Takayuki Fukatani, **Hieu Hanh Le**, Haruo Yokota, *Lightweight Dynamic Redundancy Control with Adaptive Encoding for Server-based Storage, ACM Transactions on Storage*, Vol.17, Iss. 4, pp. 28:1-28:38, 2021.

[j6] Berjab Nesrine, **Hieu Hanh Le**, Haruo Yokota, *A Spatiotemporal and Multivariate Attribute Correlation Extraction Scheme for Detecting Abnormal Nodes in WSNs*, IEEE Access, Vol. 9, pp. 135266-135284, 2021.

[j5] Takayuki Fukatani, **Hieu Hanh Le,** Yokota Haruo, *サーバーベースストレージにおける更新頻度を考慮した冗長化手法の提案と評価*, 日本データベース学会和文論文誌, Vol. 18-J, No. 15, 2020.

[j4] Muneo Kushima, Yuichi Honda, **Hieu Hanh Le**, Tomoyoshi Yamazaki, Kenji Araki, Haruo Yokota, *Extraction and Graph Structuring of Variants By Detecting Common Parts of Frequent Clinical Pathways*, Transactions on Engineering Technologies. IMECS 2018, pp. 207-218, 2019.

[j3] **Hieu Hanh Le**, Satoshi Hikida, Haruo Yokota, Accordion: *An Efficient Gear-Shifting for a Power-Proportional Distributed Data-Placement Method*. IEICE Transactions 98-D(5), pp. 1013-1026, 2015.

[j2] **Hieu Hanh Le**, Satoshi Hikida, Haruo Yokota, *NDCouplingHDFS: A Coupling Architecture for a Power-Proportional Hadoop Distributed File System*. IEICE Transactions 97-D(2), pp. 213-222, 2014.

[j1] Satoshi Hikida, **Hieu Hanh Le**, Haruo Yokota, *耐故障ストレージのディスク回転状況を考慮した省電力化手法におけるシステム構成の影響評価*, 電子情報通信学会論文誌D, Vol. J96-D, No. 5, pp. 1105-1117, 2013.

B) International Conference/Workshop Papers

[c27] Miwa Sugitani, Ryosuke Matsuo, Tomoyoshi Yamazaki, Kanji Araki, Masato Oguchi, Haruo Yokota, **Hieu Hanh Le**, *Statistical Analysis and Visualization of Medical Instruction Patterns in Multimedia-Rich Electronic Medical Records*, Proc. the 8th IEEE International Conference on Multimedia Information Processing and Retrieval, MIPR 2025 (accepted).

[c26] Keigo Oshio, Gen Tsuchiyama, **Hieu Hanh Le**, Mayumi Kuno-Mizumura, Shuhei Tsuchida, *The Influence of Teachers' Verbal Communication on Students' Emotions in Dance Classes*, Proc. the 46th annual Conference of the

International School Psychology Association, ISPA 2025 (accepted).

[c25] Miwa Sugitani, Ryosuke Matsuo, Tomoyoshi Yamazaki, Kenji Araki, Masato Oguchi, Haruo Yokota, **Hieu Hanh Le**, *Extracting and Visualizing Frequent Medical Instruction Patterns with Statistical Insights from Multi-Institutional Electronic Medical Record Data*, Proc. of the 38th IEEE International Symposium on Computer-Based Medical Systems, CBMS 2025 (accepted).

[c24] Hieu Hanh Le, Yuki Yasumitsu, Ryosuke Matsuo, Tomoyoshi Yamazaki, Haruo Yokota, *A Clustering-based Sequence Variants Analysis Method for Electronic Medical Records of Multimedical Institutions*, Proc. the 7th International Conference on Multimedia Information Processing and Retrieval, MIPR 2024, pp. 653-659.

[c23] Zhitai Zhao, Yuki Yasumitsu, **Hieu Hanh Le,** Tomoyoshi Yamazaki, Kenji Araki, Haruo Yokota, *Analysis of Transitions in Differences between Frequent Medical-order Sequences for COVID-19,* Proc. the 36th IEEE International Symposium on Computer-Based Medical Systems, CBMS 2023, pp. 666-67.

[c22] Nesrine Berjab, **Hieu Hanh Le**, Haruo Yokota, *Trust Assessment Model based on Hierarchical Decision-making Process in IoT Sensor Networks*, Proc. the 18th European Dependable Computing Conference, EDCC 2022, pp. 33-40 (full paper acceptance rate 37.1%).

[c21] Yuqing Li, **Hieu Hanh Le**, Ryosuke Matsuo, Tomoyoshi Yamazaki, Kenji Araki, Haruo Yokota, *Comparison of Sequence Variants and the Application in Electronic Medical Records*, Proc. the 33rd International Conference on Database and Expert Systems Applications Part II, DEXA 2022, pp. 117-130 (full paper acceptance rate 23.9%).

[c20] Takayuki Fukatani, **Hieu Hanh Le**, Haruo Yokota, *Delayed Parity Update for Bridging the Gap between Replication and Erasure Coding in Server-based Storage,* Proc. the twelfth International Workshop on Accelerating Analytics and Data Management Systems Using Modern Processor and Storage Architectures (ADMS 2021) in conjunction with the 47th International Conference on Very Large Data Bases, VLDB 2021, pp. 1-9.

[c19] Hieu Hanh Le, Yutaka Horino, Tomoyoshi Yamazaki, Kenji Araki, Haruo Yokota, *Sequential Pattern Mining of Large Combinable Items with Values for a Set-of-items Recommendation*, Proc. the 34th IEEE International Symposium on Computer-Based Medical Systems, CBMS 2021, pp 56-61.

[c18] Yunfan Li, Nesrine Berjab, **Hieu Hanh Le**, Haruo Yokota, *Centralized Trust Scheme for Cluster Routing of Wireless Sensor Networks*, Proc. 2019

International Workshop on IoT Big Data and Blockchain (IoTBB'2019) in conjunction with the 2019 IEEE International Conference on Big Data, IEEE Big Data 2019, pp. 5239-5248.

[c17] **Hieu Hanh Le**, Tatsuhiro Yamada, Yuichi Honda, Masaaki Kayahara, Muneo Kushima, Kenji Araki, Haruo Yokota, *Effects of Mining Parameters on the Performance of the Sequence Pattern Variants Analyzing Method Applied to Electronic Medical Record Systems*, Proc. 21st International Conference on Information Integration and Web-based Applications & Services, iiWAS 2019, pp. 127-135 (acceptance rate 48%).

[c16] Takayuki Fukatani, **Hieu Hanh Le**, Haruo Yokota, *Lightweight Dynamic Redundancy Control for Server-based Storage*, Proc. 38th International Symposium on Reliable Distributed Systems, SRDS 2019, pp. 295-304 (acceptance rate 26.5%).

[c15] Satoshi Hikida, **Hieu Hanh Le**, Haruo Yokota, *Energy Efficient Data Placement and Buffer Management for Multiple Replication*, Proc. 30th International Conference on Database and Expert Systems Applications Part II, DEXA 2019, pp. 19-29 (short paper acceptance rate 21.7%).

[c14] **Hieu Hanh Le**, Tatsuhiro Yamada, Yuichi Honda, Masaaki Kayahara, Muneo Kushima, Kenji Araki, Haruo Yokota, *Analyzing Sequence Pattern Variants in Sequential Pattern Mining and its Application to Electronic Medical Record Systems*, Proc. 30th International Conference on Database and Expert Systems Applications Part II, DEXA 2019, pp. 393-408 (full paper acceptance rate 20.4%).

[c13] **Hieu Hanh Le**, Muneo Kushima, Kenji Araki, Haruo Yokota, *Differentially Private Sequential Pattern Mining considering Time Interval for Electronic Medical Record Systems*, Proc. 23rd International Database Engineering & Applications Symposium, IDEAS 2019, pp. 95-103 (acceptance rate 38%).

[c12] Nesrine Berjab, **Hieu Hanh Le**, Chia-Mu Yu, Sy-Yen Kuo, Haruo Yokota, *Hierarchical Abnormal-node Detection using Fuzzy Logic for ECA Rule-based Wireless Sensor Networks*, Proc. 23rd IEEE Pacific Rim International Symposium on Dependable Computing, PRDC 2018, pp. 289-298.

[c11] Nesrine Berjab, **Hieu Hanh Le**, Chia-Mu Yu, Sy-Yen Kuo, Haruo Yokota, *Abnormal-node Detection Based on Spatio-temporal and Multivariate-attribute Correlation in Wireless Sensor Networks*, Proc. 16th IEEE International Conference on Dependable, Autonomic and Secure Computing, DASC 2018, pp. 568-575 (acceptance rate 39%).

[c10] <u>Hieu Hanh Le</u>, Haruo Yokota, *An Evaluation of Data Placement Methods for Multiple-gear Power-proportional Distributed File Systems,* Proc. International Conference on Parallel and Distributed Techniques and Applications, PDPTA 2018, pp. 73-79 (acceptance rate 21%).

[c9] Muneo Kushima, Yuichi Honda, <u>Hieu Hanh Le</u>, Tomoyoshi Yamazaki, Kenji Araki, Haruo Yokota, *Visualization and Analysis of Variants in Catheter Ablation's Clinical Pathways from Electronic Medical Record Logs*, IAENG International Conference on Data Mining and Applications, Proc. International Conference on Data Mining and Applications (ICDMA 2018), pp. 271-275.

[c8] <u>Hieu Hanh Le</u>, Henrik Edman, Yuichi Honda, Muneo Kushima, Tomoyoshi Yamazaki, Kenji Araki, Haruo Yokota, *Fast Generation of Clinical Pathways Including Time Intervals in Sequential Pattern Mining on Electronic Medical Record Systems*, Proc. International Conference on Computational Science and Computational Intelligence, CSCI 2017, pp. 1726-1731 (acceptance rate 19%).

[c7] <u>Hieu Hanh Le</u>, Satoshi Hikida, Haruo Yokota, *An Efficient Gear-shifting Power-proportional Distributed File System*, Proc. 36th International Conference on Database and Expert Systems Applications, DEXA 2015, pp. 153-161.

[c6] <u>Hieu Hanh Le</u>, Satoshi Hikida, Haruo Yokota, *Efficient Gear-shifting for a Power-proportional Distributed Data-placement Method*, Proc. 1st International Conference on Big Data, BigData 2013, pp. 76-84 (acceptance rate 17%).

[c5] <u>Hieu Hanh Le</u>, Satoshi Hikida, Haruo Yokota, *NameNode and DataNode Coupling for a Power-Proportional Hadoop Distributed File System*, Proc. 18th International Conference on Database Systems for Advanced Applications, DASFAA 2013, pp. 99-107 (acceptance rate 29%).

[c4] Satoshi Hikida, <u>Hieu Hanh Le</u>, Haruo Yokota, *A Power Saving Storage Method That Considers Individual Disk Rotation*, Proc. 17th International Conference on Database Systems for Advanced Applications, DASFAA 2012, pp. 138-149 (acceptance rate 27%).

[c3] <u>Hieu Hanh Le</u>, Satoshi Hikida, Haruo Yokota, *An Evaluation of Power-proportional Data Placement for Hadoop Distributed File System*, Proc. International Conference on Cloud and Computing, CGC 2011, pp.   752-759.

[c2] <u>Hieu Hanh Le</u>, Kenji Masui, Katsuyoshi Iida, *A Relative Bandwidth Allocation Method Enabling Fast Convergence in XCP*, Proc. IFIP Network of the Future 2010, pp. 217-228.

[c1] <u>Hieu Hanh Le</u>, Thitiporn Lertrusdachakul, Tetsutaro Watanabe, Haruo Yokota, *Automatic Digest Generation by Extracting Important Scenes from the*

Content of Presentations, Proc. DEXA 2008 Workshop, 2008, pp. 590-594.

C) Talks

[t6] <u>Hieu Hanh Le</u>, Seagaia Meeting 2023, COVID-19 に関する頻出医療時指示パターンの解析と可視化, 2023.

[t5] <u>Hieu Hanh Le</u>, SIGMOD 2020 国際会議報告, 第 37 回先端的データベースと Web 技術動向講演会, ACM SIGMOD 日本支部, 2020.

[t4] <u>Hieu Hanh Le</u>, *Time-Interval Sequential Pattern Mining for Electronic Medical Record Systems with considering Differential Privacy*, The Intelligent IoT Environment Workshop, 2019.

[t3] <u>Hieu Hanh Le</u>, *Data Placement Methods for Efficient Gear-shifting in Power-proportional Distributed File Systems*, The 3rd Japan-Taiwan International Engineering Forum, 2019.

[t2] <u>Hieu Hanh Le</u>, *Sequential Pattern Mining on Electronic Medical Record Systems with considering Differential Privacy,* The 3rd Japan-Taiwan Workshop on Secure and Dependable IoT Systems, 2018.

[t1] <u>Hieu Hanh Le</u>, *An Approach for Differentially Private Pattern Sequence Mining in Electronic Medical Record Systems*, The 2nd Taiwan-Japan Workshop on Secure and Dependable IoT Systems, 2017.

D) Contributed Article

[ca1] <u>Hieu Hanh Le</u>, The latest database research topics from CIDR2019, DBSJ Newsletter, Vol. 12, No. 1, 2019.

E) Patents

[p5] Haruo Yokota, **<u>Hieu Hanh Le</u>**, 項目推薦システムおよびそのプログラム, 特願 2020-8364, 特開 2021-117528, 2020.

[p4] Yuko Matsui, Mitsuo Hayasaka, Christopher James Aston, Jonathan Smith, James Gibbs, Daniel Picken, Simon Crosland, **<u>Hieu Hanh Le</u>**, Data Storage System and Process for Providing Distributed Storage in a Scalable Cluster System and Computer Program for such Data Storage System, WO2018075041A1, US20190718, US20210323 (**Granted**), 2018.

[p3] Abhishek Johri, Mitsuo Hayasaka, **<u>Hieuhanh Le</u>**, Distributed Storage Systems, WO2018235132A1, US20201224, US20211130 (**Granted**), 2017.

[p2] <u>Hieu Hanh Le</u>, Mitsuo Hayasaka, Computer System and method for task assignment, WO2017212504A1, 2016.

[p1] **Hieuhanh Le**, Masanori Takata, Youji Nakatani, Hitoshi Arai, Hitoshi Kamei, Akiyoshi Tsuchiya, Atsushi Sutoh, 2016067320A1, US20171005, US20200519 (**Granted**), 2014.

6. Society Contributions

A) Academia Committee Membership
- Association for Computing Machinery (ACM)
- Institute of Electrical and Electronics Engineers (IEEE)
- The Database Society of Japan (DBSJ)
- The Institute of Electronics, Information and Communication Engineers (IEICE)
- Information Processing Society of Japan (IPSJ)
- Japan Association for Medical Informatics (JAMI)

B) Major Society Activities
- **(2022-)** IPSJ Special Interest Group on Database Systems, Organizing Committee
- **(2019-)** IEICE Data Engineering Research Group Committee

C) Major International Conference/Journal Services
- Australasian Database Conference (ADC): Local Co-chair (2024), Program Committee (2024)
- International Conference on Advanced Data Mining and Applications (ADMA): Program Committee (Industrial Track 2025)
- IEEE International Conference on BigData (BigData): Program Committee (2023-2025)
- IEEE International Symposium on Computer-Based Medical Systems (CBMS): Program Committee (2023-2025)
- International Conference on Database Systems for Advanced Applications (DASFAA): Program Committee (Industrial Track 2024-2025)
- International Conference on Database and Expert Systems Applications (DEXA): Program Committee (2023)
- IEEE International Conference on Data Engineering (ICDE): Program Committee (2026)
- IEEE International Conference on Data Mining (ICDM): Program Committee (2025)
- IEEE International Conference on Multimedia Information Processing and

Retrieval (MIPR): Demo Co-chair (2025)

D) Review/Sub-review for another Conferences and Journals

- Proceedings of the Very Large Data Bases Endowment (VLDB)
- International Conference on Extending Database Technology (EDBT)
- International Conference on Big Data Analytics and Knowledge Discovery (DaWaK)
- IEEE Pacific Rim International Symposium on Dependable Computing (PRDC)
- IEEE International Conference on Multimedia and Expo (ICME)
- IEEE International Conference on Big Data Computing and Communications (BIGCOM)
- International Congress on Big Data
- International Conference on High Performance Computing in Asia-Pacific Region (HPC Asia)
- Asia-Pacific Web Conference (APWeb)
- Asia-Pacific Software Engineering Conference (APSEC)
- IEEE Access
- IEICE Transactions on Information and Systems
- IPSJ Transactions on Databases
- Springer New Generation Computing

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