

# Huy Quang Duong

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## Summary

I have 9-year experience in working in industry as well as in doing research in academia. I am good in Mathematics and in Programming.

## Education

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| Ph.D. Norwegian University of Science and Technology, Norway   | 2021 (expected) |
| M.Sc. Computer Science, Hunan University, China                | 2016            |
| B.S. Computer Science, Hanoi University of Technology, Vietnam | 2004            |

## Working Experience

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|--|----------------|
| Research Fellow, PhD, NTNU, Norway   | 2017 – Present |
| <ul style="list-style-type: none"><li>– Develop novel techniques and efficient algorithms for detecting events in various type of data. Results of this work are several proposed algorithms and papers in top conferences and journals.</li><li>– Teaching Assistant (TDT4310-Intelligent Text Analytics and Language Understanding): Give presentation, prepare exercises and solutions, grade solutions (Python).</li><li>– Programming Languages: Java, C++, MatLab, Python.</li></ul> |                |
| CSC Master Student, Hunan University, China  | 2014 – 2016    |
| <ul style="list-style-type: none"><li>– Taking Courses (Score 91.94/100): e.g. Algorithm Analysis and Design, Discrete Mathematics, Intelligent Optimization Algorithm, Advanced Artificial Intelligence, Program Language, Advanced Computer Organization, Advanced Data structure and Algorithm.</li><li>– Develop kHMC algorithm for mining top-k high utility itemsets (published in Knowledge-Based Systems).</li></ul>   |                |
| Senior Software Engineer, Military Bank, Vietnam   | 2013 – 2014    |
| <ul style="list-style-type: none"><li>– Develop enterprise applications (e.g. HR) and business processing management (BPM) (e.g. appraisal process, loan process) using software-AG product, service monitoring tool. Advising and fixing some vulnerabilities and flaws of applications and systems.</li><li>– Platform: Web-Based Application &amp; Services.</li><li>– Tools and Techniques: Software-AG, SQL-Server, PHP, C-Sharp.</li></ul>   |                |
| Solution Architect, Team Leader, VTCMobile, Vietnam  | 2011 – 2013    |

- Build Back-End framework and services for applications and games on mobile platform. Analyze and design databases and develop backends, restful services using C-Sharp, SQL-Server, NoSQL-MongoDB, OAuth.

Researcher, CDIT, Vietnam

2006 – 2011

- Propose solutions and develop applications for Vietnam Post.
- Platform: Window & Web Based Applications.
- VB.Net, C-Sharp, SQL-Server, Oracle.

Developer, Vinacomm, Vietnam

2004 – 2006

- Build content management system for news and financial (stock) service system. Build indicator, candle, pattern recognition and rebuild system with new technology, e.g. C-Sharp, NoSQL-Redis.

Outsource, Vingroup, Vietnam

2008 – 2011

- Build HR system, Booking online, Member Management System, Real Estate Management.
- Platform: Window & Web Based Applications, C-Sharp, DevExpress, SQL-Server.

## Honors and Awards

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| 1. National award in Mathematics for high school student                           | 1999        |
| 2. Full CSC Scholarship for Master degree  | 2014 – 2016 |
| 3. Selected for Best Papers of the Industrial Conference on Data Mining Conference | 2016        |
| 4. PhD Fellowship  | 2017–2021   |

## Research Interest

Data Mining, Algorithm Analysis, Optimization.

Machine Learning and Artificial Intelligent

Event Detection in Tensor and Graph Data.

## Programming Languages

Java/JavaScript

- Implemented the algorithms in following papers: MUST, CCPD, IncCHUI, CLS-Miner, ULB-Miner, kHMC, KOSHU algorithms

C/C++/C-Sharp

- Used when working in industry (C-Sharp) and implemented the algorithm in top-rank-k paper (C++).

Matlab/Python/CSS/NoSQL

- Matlab is used to implement Sketch paper. Python is used in preprocessing data in MUST and in teaching of TDT4310.

## Publications

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1. Dam, T.-L., Ramampiaro, H., Nørnvåg, K. & **Duong, Quang-Huy**. Towards efficiently mining closed high utility itemsets from incremental databases. *Knowledge-Based Systems* **165**, 13–29 (2019).
2. **Duong, Quang-Huy**, Ramampiaro, H. & Nørnvåg, K. A Beter Density Guarantee of Dense Subtensor and Dense Subgraph Detection in Under Submission (2019).
3. **Duong, Quang-Huy**, Ramampiaro, H. & Nørnvåg, K. Multiple Dense Subtensor Estimation with High Density Guarantee in Under Submission (2019).
4. **Duong, Quang-Huy**, Ramampiaro, H. & Nørnvåg, K. Sketching Streaming Histogram Elements using Multiple Weighted Factors in The 28th ACM International Conference on Information and Knowledge Management, CIKM (2019).
5. Fournier-Viger, P. et al. Discovering Periodic Itemsets Using Novel Periodicity Measures. *Advances in Electrical and Electronic Engineering* **17**, 33–44 (2019).
6. **Duong, Quang-Huy**, Fournier-Viger, P., Ramampiaro, H., Nørnvåg, K. & Dam, T.-L. Efficient high utility itemset mining using buffered utility-lists. *Applied Intelligence* **48**, 1859–1877 (2018).
7. **Duong, Quang-Huy**, Ramampiaro, H. & Nørnvåg, K. Applying temporal dependence to detect changes in streaming data. *Applied Intelligence* **48**, 4805–4823 (2018).
8. **Duong, Quang-Huy**, Ramampiaro, H., Nørnvåg, K., Fournier-Viger, P. & Dam, T.-L. High utility drift detection in quantitative data streams. *Knowledge-Based Systems* **157**, 34–51 (2018).
9. Dam, T.-L., Li, K., Fournier-Viger, P. & **Duong, Quang-Huy**. An efficient algorithm for mining top-k on-shelf high utility itemsets. *Knowledge and Information Systems* **52**, 621–655 (2017).
10. Dam, T.-L., Li, K., Fournier-Viger, P. & **Duong, Quang-Huy**. CLS-Miner: efficient and effective closed high-utility itemset mining. *Frontiers of Computer Science*, 1–25 (2017).
11. Fournier-Viger, P. et al. PFP: discovering periodic frequent patterns with novel periodicity measures in *Proceedings of the 2nd Czech-China Scientific Conference 2016* (2017).
12. Dam, T.-L., Li, K., Fournier-Viger, P. & **Duong, Quang-Huy**. An efficient algorithm for mining top-rank-k frequent patterns. *Applied Intelligence* **45**, 96–111 (2016).
13. **Duong, Quang-Huy**, Liao, B., Fournier-Viger, P. & Dam, T.-L. An efficient algorithm for mining the top-k high utility itemsets, using novel threshold raising and pruning strategies. *Knowledge-Based Systems* **104**, 106–122 (2016).
14. Fournier-Viger, P., Lin, J. C.-W., **Duong, Quang-Huy** & Dam, T.-L. FHM + : Faster High-Utility Itemset Mining Using Length Upper-Bound Reduction in *International Conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems* (2016), 115–127.
15. Fournier-Viger, P., Lin, J. C.-W., **Duong, Quang-Huy** & Dam, T.-L. PHM: mining periodic high-utility itemsets in *Industrial conference on data mining* (2016), 64–79.

## Services

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### Teaching Assistant

Intelligent Text Analytics and Language Understanding (TDT4310), 2018S, 2019S.

### *Reviewer*

Knowledge-Based Systems

Artificial Intelligence Review

Information Sciences

International Conference on Data Mining (DMIN)

### Coursework

|                     |       |
|---------------------|-------|
| DT8116 – Web Mining | 2017S |
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| DT8801 – Advance Database Systems | 2017S |
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| DT8122 – Probabilistic Artificial Intelligence | 2019S |
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### Languages

Vietnamese, English, Chinese (basic), Norwegian (basic)