

# Huy Quang Duong

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## Summary I am looking for the full time positions.

I have 9-year experience in working in industry and nearly 6 years doing research in academia. I am good in Mathematics and in Programming.

## Education

Ph.D. in Computer Science, NTNU, Norway (ongoing defense)	Mar 2017 - Jun 2020 (expected)
M.Sc. in Computer Science, Hunan University, China	Sep 2014 - Nov 2016
B.S. in Computer Science, Hanoi University of Technology, Vietnam	Sep 1999 - Jun 2004

## Work Experience

### Research Fellow, NTNU, Norway

2017 – Present

– I am working in the MUSED (MULTi-Source Event Detection) project at NTNU. The project handles big data streams in a wide-range of applications, e.g. classification, change detection, fraud detection, network attack, and genetics applications. I developed novel techniques, foundation, and efficient algorithms for detecting events in various type of data. The outcome of my work is summarized as follows:

1. Propose a summary of dynamically allocated memory to optimize the memory usage in mining high profit product groups from customer database. The method is **6 times lesser memory consumption**, and **10 times faster** than the state-of-the-art methods.
2. Investigate the temporal dependence of data in a new statistical hypotheses for change detection. I propose auto-tuning learning models by projecting on a  $\ell_1$  space. **The method ranks the first** among the compared methods, capable of being integrated into MOA Framework.
3. Analyze the user activity behavior in social networks. I propose an evolving model to quickly adapt with the changes in user behaviors, which is more accurate in classification, and the error rate is **12 times better** than the existing methods.
4. Develop theoretical proofs for multiple dense subtensor detection with guarantee on the density in tensor data. I propose a new technique to detect **multiple dense subtensors** with a higher density guarantee. The method is **two million times more accurate** on density and **6.9 times faster**.
5. Propose novel proofs to provide a **better guarantee for the dense subgraph and subtensor detection** problem which have been utilized in tremendous applications such as fraud detection, event detection, and genetics applications. The method can **guarantee the density 70% more** than the state-of-the-art method.

### Senior Software Engineer, MB Bank, Vietnam.

2013 – 2014

– Developed enterprise applications (HR) and business processing management (BPM) (appraisal process, loan process) using software-AG product, Process Maker, service monitoring tool. Advised and fixed vulnerabilities and flaws of applications and systems.

– Platform & Techniques: Web Applications & Windows Services. Software-AG, SQL-Server, PHP, C#.

**Solution Architect, Team Leader, VTCMobile, Vietnam.****2011 – 2013**

– Built Back-End framework, designed and constructed MongoDB system (servers, slaves, log, shading & replicaset) services for applications and games on mobile platform. Analyzed, designed databases and developed backends, restful services using C#, SQL-Server, NoSQL-MongoDB, OAuth.

**Researcher, CDIT, Vietnam.****2006 – 2011**

– Designed solutions and developed applications for Vietnam Post, used in all post offices in all cities and provinces: Telecommunications service management, money transfer service management, parcel and package management, auto-update application.

– Platform & Techniques: Window & Web Based Applications. VB.Net, C#, SQL-Server, Oracle.

*At the same time, I held the position as outsource software engineer for Vingroup, Vietnam.*

– Built HR system, Booking online, Member Management System, Real Estate Management.

– Platform: Window & Web Based Applications, C#, DevExpress, SQL-Server.

**Software Engineer, Vinacomm, Vietnam (VCCorp).****2004 – 2006**

– Built content management system, news and financial (stock) service applications. Built indicator, candle, pattern recognition and rebuilt system with new technology, C#, MemCache, NoSQL-Redis.

## Honors and Awards

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|---|-------------|
| 1. <b>National award in Mathematics</b> , competition for every high school student.      | 1999        |
| 2. Full Scholarship from China Scholarship Council for Master degree                      | 2014 – 2016 |
| 3. <b>Selected for Best Papers</b> of the Industrial Conference on Data Mining Conference | 2016        |
| 4. PhD Fellowship, NTNU, Norway   | 2017–2021   |

## Skills

– **Programming:** C#, Java, C++, Matlab, Python, PHP, Javascript, RDBMS (SQL Server, Oracle, MySQL), NoSQL (MongoDB, Redis), Git.

– **Data Science:** Data Mining (MOA), Machine Learning (scikit-learn, Keras, PyTorch, TensorFlow), SQL (SQL Server, Oracle, MySQL), Pandas, Numpy, Scipy, Matplotlib.

– **Research:** Event Detection, Dense SubTensor Detection, Dense Subgraph Detection, Network Analysis, Pattern Mining, Sketching, Optimization, Data Mining and Knowledge Discovery, Statistical Analysis.

## Publications

– 13 peer-reviewed scientific articles.

– For more details, please see my Google Scholar: <https://scholar.google.com/>

## Languages

Vietnamese (native), English (fluent), Norwegian (basic), Chinese (basic).