Huy Quang Duong

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Summary

I have 10-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 a member of Data and Artificial Intelligence group, and 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 ℓ_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

1. **National award in Mathematics**, competition for every high school student. 1999
2. Full Scholarship from China Scholarship Council for Master degree 2014 – 2016
3. **Selected for Best Papers** 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.

– **Tools**: Visual Studio, Eclipse, RStudio, Jira, Mantis Bug Tracker, Mind Manager, Ext.Net, DevExpress, PyCharm, CodeSmith Generator.

Publications

– 14 peer-reviewed scientific articles, 171 citations, h-index 7.

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

Languages

Vietnamese (native), English (fluent), Norwegian (Studying Level 2 at NTNU), Chinese (basic).