

Curriculum Vitae

ABOUT ME

Enthusiastic, collaborative, eager to learn, optimistic, self-motivated, open and willing to
My interests are computers, writing software, traveling, playing music and swimming
I like to challenge myself in new research areas

RESEARCH INTERESTS

Parallel and Distributed Computing, High Performance Computing, Data Mining, Machine Learning,
Expert Systems, Artificial Intelligence, Image Processing and Virtualization.

EDUCATION

Ph.D. in Computer Science and Information Systems University of Colorado Denver (UCD)	2014
M.S. in Computer Science University of Colorado Denver (UCD)	2009
B.A. in Managerial Informatics University of Economics HCMC (UEH) <i>Distinct Honor, in top 21 best graduates of over 4000 graduates in 2004</i>	2004
B.A. in English Literature and Linguistics University of Social Sciences and Humanities HCMC	2005

CERTIFICATION

Certificate of Undergraduate Teaching Methodology Institute of Educational Managers, HCMC	2005
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AWARDS & HONORS

1. Travel Award by Purdue University & ACM for SIGKDD 2014 in New York, NY	2014
2. Xerox Scholarship for the 2013 Grace Hopper Conference in Minneapolis, MN	2013
3. Microsoft Scholarship for the 2012 Grace Hopper Conference in Baltimore, MD	2012
4. Outstanding Graduate Student Award , University of Colorado Denver	2012
5. Travel Award by MIT & CRA-W for the Computer Architecture Summer School in Illinois	2012
6. Award by CRA-W to attend the workshop of Managing the Academic Career for Women Faculty	2013
7. Ph.D. Scholarship , University of Colorado Denver	2011 - 2014
8. Ph.D. Differential Tuition Award , University of Colorado Denver	2009 - 2014
9. Mieczyslaw Altman Scholarship and Schuman Scholarship , University of Colorado Denver	2012
10. Travel Award by Grad School, UCD for the 2012 Grace Hopper Conference in Baltimore, MD	2012
11. Travel Award by Dept. of CSE, UCD for the IKE 2012 Conference in Las Vegas, NV	2012
12. Travel Award by Dept. of CSE, UCD for the CTS 2012 Conference in Westminster, CO	2012
13. Travel Award by CRA-W for the Graduate Cohort Workshop 2012 in Bellevue, WA	2012
14. Travel Award by Dept. of CSE, UCD for the IKE 2011 Conference in Las Vegas, NV	2011
15. Travel Award by CRA-W for the Workshop on Multi-core Systems in Los Angeles, CA	2011
16. Outstanding Academic Scholarship , University of Economics HCMC	2002, 2003, 2004
17. Merit Award for Excellent Graduation , University of Economics HCMC	2004
18. NDC Scholarship for Excellent Academic Result , University of Law HCMC	1997, 1998, 1999, 2000

PUBLICATIONS

1. **Lan Vu**, Gita Alaghband, "**A Self-Adaptive Method for Frequent Pattern Mining using a CPU-GPU Hybrid Model**," accepted to be published in the *Proceedings of the 2014 High Performance Computing Symposium, ACM*, 2015.
2. **Lan Vu**, Gita Alaghband, "**A Load Balancing Parallel Method for Frequent Pattern Mining on Multi-core Cluster**," accepted to be published in *Proceedings of the 2014 High Performance Computing Symposium, ACM*, 2015.
3. **Lan Vu**, "**High Performance Methods for Frequent Pattern Mining**," *PhD Thesis Dissertation, University of Colorado at Denver, ProQuest*, Dec. 2014.
4. **Lan Vu**, Gita Alaghband, "**Novel Parallel Method for Association Rule Mining on Multi-core Shared Memory Systems**," accepted for publication at *Journal of Parallel Computing*, July 2014.
5. **Lan Vu**, Gita Alaghband, "**Efficient Algorithms for Mining Frequent Patterns from Sparse and Dense Databases**," accepted for publication at *Journal of Intelligent Systems*, Aug. 2014.
6. **Lan Vu**, Gita Alaghband, "**An Efficient Approach for Mining Association Rules from Sparse and Dense Databases**," In *Proceedings of the 2014 International Conference on Information and Knowledge Management, IEEE*, Jan 2014.
7. **Lan Vu**, Hari Sivarman, Rishi Bidarkar, "**GPU Virtualization for High Performance General Purpose Computing on the ESX Hypervisor**," in the *Proceedings of the 2014 High Performance Computing Symposium, ACM*, April 2014.
8. **Lan Vu**, Gita Alaghband, "**Novel Parallel Method for Mining Frequent Patterns on Multi-core Shared Memory Systems**," in *Proceedings of the 2013 International Workshop on Data-Intensive Scalable Computing Systems, ACM*, pp. 49-54, Nov 2013.
9. **Lan Vu**, Gita Alaghband, "**Mining Frequent Patterns Based on Data Characteristics**," the *Proceedings of the 2012 International Conference on Information and Knowledge Engineering*, pp. 369-375, July 2012.
10. **Lan Vu**, Gita Alaghband, "**High Performance Frequent Pattern Mining on Multi-core Cluster**," in the *Proceedings of the 2012 Int. Conference on Collaboration Technologies and Systems, IEEE*, pp. 630 – 633, May 2012.
11. **Lan Vu**, Gita Alaghband, "**A Fast Algorithm Combining FP-Tree and TID-list for Frequent Pattern Mining**," in the *Proceedings of the 2011 Int. Conf. on Information and Knowledge Engineering*, pp. 472-477, July 2011.
12. **Lan Vu**, Thanh Le, "**Offline Handwriting Digit Recognition for Mark List Scanning System**," *Technical Report Book, UEH, 2006*.
13. Thanh Le, **Lan Vu**, Viet Nguyen, "**Research and Implementation of Mark List Scanning System**," *Technical Report Book, UEH, 2006*.
14. Huong Vu, Thanh Le, **Lan Vu**, "**Objective Testing System**," *Technical Report Book, MOET, 2004*.

PATENT

1. One filed patent application.

RESEARCH POSTER

1. **Lan Vu**, Gita Alaghband, "**Mining Frequent Patterns on Multi-core Shared Memory Systems**," in the *Proceeding of the 2013 GHC, Minneapolis, MN*, 2013.
2. **Lan Vu**, Hari Sivarman, Rishi Bidarkar, "**vmCUDA for High Performance GPGPU on ESX**," at VMware, Palo Alto, CA 2013.
3. **Lan Vu**, Gita Alaghband, "**High Performance Data Mining Techniques for Gene Function Prediction**," in the *Proceeding of the 2012 Graduate Cohort Workshop, Bellevue, WA*, 2012.

4. **Lan Vu**, Gita Alaghband, "**Novel methods for mining frequent patterns and their applications** ", in the *Proceeding of the 15th Research And Creative Activities Symposium*, UCD, Denver, CO, 2012.
5. **Lan Vu**, Gita Alaghband, "**High Performance Human Gene Prediction Using Gene Ontology**", in the *Proceeding of the 13th Research And Creative Activities Symposium*, UCD, Denver, CO, 2010.

TALKS

1. **vmCUDA for High Performance GPGPU on ESX**, technical talk at VMware, Palo Alto, CA 2013
2. **GPU Architecture & Applications**, *course speaker, Advanced Computer Architectures, UCD* 12 – 14
3. **Introduction to Android Development**, *course speaker, Mobile Computing, UCD* 2013
4. **New Sequential and Parallel Methods for Frequent Pattern Mining**, *course speaker, UCD* 2012
5. **Multi-core Systems**, *course speaker, Advanced Computer Architectures, UCD* Jan 2011
6. **GPU - Massively Parallel Computing** , *course speaker, Parallel & Dist. Systems, UCD* 2010, 2011
7. **GPU Programming with CUDA & OpenCL**, *course speaker, Parallel & Dist. Systems, UCD* 2010, 2011
8. **Offline Handwriting Character Recognition**, *Academic Seminar Series, UEH* May 2006
Presentation slides are available at <http://profile.lanvu.net/?p=experience>

TEACHING

1. **Fundamental of Computing Laboratory**, *Instructor, Dept. of CSE, UCD* F. 12, Spr. 13, F. 13
2. **Introduction to Engineering**, *Instructor of Pre-college Program, UCD* Sum. 2011, Sum. 2012
3. **Parallel and Distributed Systems**, *Teaching Assistant, Dept. of CSE, UCD* F. 11, F. 12, F. 13
4. **Advanced Computer Architectures**, *Teaching Assistant, Dept. of CSE, UCD* Spr. 2012, Spr. 13
5. **Web Design**, *Instructor at REACH Program, UCD* F. 09, Spr. 10
6. **Introduction to Applied Computing**, *Instructor at Dept. of ITM, UEH* Fall 2006
7. **System Analysis and Design**, *Lecturer at Dept. of ITM, UEH* Spring 2006
8. **Designing Management Information Systems**, *Instructor at Dept. of ITM, UEH* Fall 2005
9. **Advanced Designing Management Information Systems**, *Instructor at EIC, UEH* Fall 05, Spr. 06
10. **Designing Management Information Systems**, *Instructor at EIC, UEH* F. 04, Spr. 05, F. 05, Spr. 06

ADVISING

1. **Co-Advisor, Undergraduate Thesis**, 4 students, *UEH* Spring 2005

SERVICES

Session Chair of the 2012 International Conference on Artificial Intelligence (ICAI'12), July 2012, Las Vegas, USA, 2012.

Volunteer at the 2013 SIGCSE Conference in Denver, CO 2013.

SELECTED WORK EXPERIENCES

1. **Research Intern at VMware** Summer 2013
Research novel solutions for enabling GPGPU virtualization on VMware's ESX. Developed a novel method to avoid recompilation of CUDA program when running on ESX. Improved the data communication performance of virtualized GPUs 30% - 500% by combining two optimizing communication techniques.
2. **Research Assistant & System Admin at Parallel Distributed Systems Lab, UCD** 2009 - present
Research and develop Lab experiments to analysis the performance on cache effects on multi-core machine, CPU affinity, memory management, Parallel computing, GPU computing using *C++, Fortran, OpenMP, MPI, CUDA*.
Programming support for students in projects related to *multi-core cluster & GPU*
System administration and maintenance (1 supercomputer & 25 workstations)
Build Lab's website at <http://pds.ucdenver.edu>
3. **Instructor & Teaching Assistant at Dept. of Computer Science & Engineering, UCD** 2009 - present

Instructor of 3 courses: "Intro. to Engineering", "Fund. of Computing Lab", "Web Design"
 TA of 4 courses: "Advanced Computer Architectures", "Parallel & Distributed Systems",
 "Programming Languages", "Web 2.0 Technology, Culture and Eco."
 Technical skills covered in these classes C#, C++, Microsoft XNA framework, Visual Studio,
 Linux, C++, Fortran, OpenMP, MPI, CUDA, GPU, Multi-core, Cache, Profilers.

4. **Instructor at Dept. of Information Technology & Management , UEH** 2004 - 2007
 Taught 3 courses: "Introduction to Applied Computing", "System Analysis and Design",
 "Designing Management Information Systems" using MS Access
 Worked on 3 funded research projects
5. **Software Developer** at University of Economics HCMC 2004 - 2007
 Develop several management software student management system, test system,
 grade-list scanning system involving languages: C++, MS Access, Visual Fox
6. **Foreign Trading Administrator** at Duc Lan Company, HCM City 2004 - 2005
 Duc Lan is an large company specialized in business supplies such as photocopiers,
 printers, printing supplies and office machine parts. I was responsible for new products
 research, imported price negotiation, import management and sale pricing. Working
 with the partners from USA, Japan, China, Singapore, Taiwan, Hong Kong gave me the
 experiences of international trading.
7. **Sale Manager** at MLV Company, HCM City 2004 - 2005
 MLV is a company specialized in printing products and supplies. I involved in many
 positions including marketing, customer services, pricing, financial management, human
 resource. Working at MLV added to my experience the business management skills.

TECHNICAL SKILLS

1. **Programming languages:** C/C++, C#, Java, Assembly, Visual Basic, Visual FoxPro, Fortran, Prolog, R
2. **Parallel programming:** OpenMP, MPI, CUDA, OpenCL, pThread, Windows API Thread
3. **Web programming:** ASP.NET, ASP, PHP, JavaScript, HTML, AJAX, CSS, XML
4. **Database programming:** SQL, ADO, ADO.NET, OLEDB, ODBC, DAO
5. **Database management systems:** MySQL, MS Access, MS SQL Server, Visual FoxPro
6. **Device programming:** Scanners, Card & Barcode Readers, Graphic Cards, Printers, Multi-core cluster
7. **Computer graphic languages and tools:** OpenGL, Cg, FX Composer and Microsoft XNA
8. **Development Platforms:** Windows, Linux w/ System Administration and Beowulf cluster skills
9. **Proficiency in Object-Oriented development**
10. **Experience in design & developing** management software, desktop and web applications
11. **Experience in developing experiments** for performance benchmarks and analysis.
12. **Experience in writing shell scripts** for job/system automation.

INDUSTRIAL & ACADEMIC PROJECTS

High Performance Computing, Parallel Computing, Computer Architecture, Virtualization

1. High Performance Techniques for Mining Frequent Patterns & Association Rules (C++) 2009 - present
2. GPU Virtualization for High Performance Computing on ESX (C/C++, CUDA) , for VMware 2013
3. Research on Effects of Sharing Cache of Multi-core Processors on Parallel Applications (C++) 2013
4. Cloud Storage Systems 2010
5. GPGPU Research & Programming (C++, CUDA) 2009
6. Applying Parallel Algorithms for Handwriting Recognition Problem (C++) 2008

Data Mining, Machine Learning, Databases & Data Analysis

7. Performance Evaluation of Classification Algorithms using ROC (use R language) 2011
8. Feature Selection And Classification For Microarray Data (use R language) 2011

9. Human Gene Function Prediction using Gene Ontology (<i>C#, MySQL</i>)	2010
10. OLAP and Data Warehouse (<i>SQL Server and MS Access</i>)	2003
<u>Expert Systems, Machine Learning & Artificial Intelligence</u>	
11. Improvements for Handwriting Recognition using Artificial Neural Network (<i>C++, AI</i>)	2007
12. Fuzzy-Rule Based Car Evaluation System (<i>C#, , expert system</i>)	2007
13. Offline Handwriting Digit Recognition for Mark List Scanning System (<i>C++</i>)	2006
14. Handwriting Recognition Software using Artificial Neural Networks (<i>C++, AI, Image processing</i>)	2003
15. Rule-based Fashion Consulting Software (<i>ASP.NET, C#, expert system, web development</i>)	2003
<u>Computer Security & Web Development</u>	
16. Research on Performance of Secure Web Services (<i>C#, WCF</i>)	2009
17. Rabin Cryptosystem (<i>build encryption/decryption demo using C#</i>)	2009
<u>Web Development & Databases</u>	
18. Website of Parallel Distributed Systems Lab, (<i>PHP, HTML, CSS, XML, Javascript, MySQL</i>)	2010
19. RSS in Web 2.0 Information Ecosystem (<i>C#, ASP.NET, XML</i>)	2008
<u>Computer Graphics</u>	
20. FX Composer (<i>C#, FX Composer, XNA Game Framework</i>)	2008
<u>Image Processing</u>	
21. Research and Implementation of Mark List Scanning System (<i>C++</i>)	2006
22. Mark List Scanning Software, <i>for University of Economics HCMC</i> (<i>C++</i>)	2004
<u>Management Information Systems & Databases</u>	
23. Student Information Systems, <i>for University of Economics HCMC</i>	2005
24. Price & Label Management Software, <i>for Duc Lan Company, HCMC</i>	2005
25. Patient & Medicine Information Software, <i>for The Health Center of University of Law, HCMC</i>	2005
26. Design & Implement the Sale Management Software at HL Co. (<i>Visual Basic, MS Access</i>)	2003
27. Invoice Management Systems, <i>for Institute of Educational Managers, Nursery School III, HCMC</i>	2003
<u>Networking, Distributed Systems & Databases</u>	
28. Testing System, <i>being used by many universities and institutions</i> (<i>C++</i>)	2004
29. Improvement methods for the Testing System at University of Economics HCMC. (<i>C++</i>)	2004
30. Design & Implement the Objective Testing System (<i>Visual Foxpro, database</i>)	2003
<u>Others</u>	
31. Minimum Vertex Cover (<i>Java</i>)	2007
32. Econometrics Problem Solver (<i>C++</i>) <i>over 26,000 downloads in 2002 at the MOET</i>	2002
33. Puzzle Game (<i>Assembly</i>)	2001
Description of these projects is available at http://profile.lanvu.net/?p=research	

COURSEWORK

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| <ul style="list-style-type: none"> • <u>PhD in Computer Science & Info. Systems</u> 1. Advanced Statistical Methods for Research 2. Bioinformatics (School of Medicine) 3. Computer Storage Systems 4. Network-based High Performance Computing 5. Operating Systems 6. Parallel Languages 7. Parallel Data Mining Algorithms 8. Topics In Analytical Research In Management Information Systems | <ul style="list-style-type: none"> • <u>Master in Computer Science</u> 1. Advanced Computer Architecture 2. Algorithms (Graduate Course) 3. Algorithms (Undergraduate Course) 4. Artificial Intelligence 5. Computer Security 6. Computer Communication Networks 7. Expert Systems 8. Intelligent Agents 9. Introduction to Computer Graphics 10. Parallel and Distributed Systems |
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11. Web 2.0 Technology Economics & Culture

• **Bachelor in Managerial Informatics**
Computer Science & Info. Sys. courses

1. Artificial Intelligence
2. Computer Architecture
3. Database I
4. Database II
5. Database Management Systems
6. Data Structures
7. Decision Support Systems
8. Expert Systems
9. Networking
10. Object - Oriented Programming
11. Operating Systems
12. Pulse Techniques
13. Principles of Programming
14. System Analysis and Design
15. Theory of Mathematical Programming
16. Theory of Systems

Business & Economics courses

17. Basic Marketing
18. Basic Accounting
19. Economic Law
20. Enterprise Management

21. Economical Geography

22. Financial Accounting
23. Fundamental of Law
24. History of Economics Doctrines
25. Introduction to Management
26. International Economics
27. Microeconomics
28. Macroeconomics
29. Political Economics
30. Theory of Currency and Finance

Mathematics & Statistics courses

31. Analysis I
32. Analysis II
33. Analysis III
34. Business Statistics
35. Linear Algebra
36. Linear Programming
37. Discrete Mathematics
38. Mathematic Statistics
39. Methodology for Calculation
40. Theory of Statistics
41. Theory of Probability

LANGUAGES

English, Vietnamese, French (beginning level)

ORGANIZATION

Being a sponsor of **Children International** (www.children.org)

NOTES

- UCD: University of Colorado Denver
- UEH: University of Economics Ho Chi Minh City
- MOET: Ministry of Education and Training, VN
- Dept. of ITM: Department of Information Technology & Management at UEH
- EIC: Economics Informatics Center at UEH
- HCMC: Ho Chi Minh City