

Thang N. Dinh

CONTACT INFORMATION

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RESEARCH INTERESTS

- Complex and Social Networks: Network Vulnerability Assessment, Dynamic Community Structure, and Information Propagation
- Mathematical Optimization and Approximation Algorithms

EDUCATION

University of Florida Gainesville, FL
Ph.D. Student in Computer Engineering **Fall 2008 - Present**

- Dissertation: “Complex Networks under Attacks: Vulnerability Assessments and Optimization”
- Advisor: Dr. My T. Thai

Vietnam National University Hanoi, Vietnam
B.S. in Information Technology, Honor Program, Rank: 2/250. **August 2003-June 2007**

HONORS AND AWARDS

- **2011 UFIC Outstanding International Student Award**, College of Engineering, 2011
- **CISE Department Travel Grant, 2011**
- **MILCOM 2011 Grant Award**
- **University Alumni Fellowship Award**, University of Florida, 2008
- **Distinguished Academic Achievement Award**, Vietnam National Univ., 2007 (Awarded to the best 2 students from a college)
- **Honda Young Engineer and Scientist Award**, Honda Foundation and The National Institute for Science and Technology, 2007 (Awarded by Honda Foundation for best 10 students in Vietnam)
- **Microsoft Scholarship** (Awarded by Bill Gates for best 10 students in Vietnam), 2006
- **Best Paper Award**, Scientific Research Contest, Col. of Tech., Vietnam National Univ., 2005
- **First Prize**, National Olympiad in Informatics for Students, Vietnam, 2004
- **Bronze Medal**, 15th International Olympiad in Informatics (IOI), Wisconsin, US, 2003

ACADEMIC EXPERIENCE

University of Florida Gainesville, FL

- Research Assistant: Optima Network Science Laboratory, CISE Department 2008 - Present
 - Devise new metrics for assessing network vulnerability and their efficient approximations.
 - Information diffusion in social networks and its applications in viral marketing.
 - Adaptive approximation algorithms to identify and tracking community structure.
- Teaching Assistant: COT 5405, Analysis of Algorithms; COP 5536, Advanced Data Structure; COT 3100, Discrete Mathematics; CGS 3460, Programming Using C; CGS 2531, Problem Solving Using Computer Software.

Vietnam National University Hanoi, Vietnam

- Research Assistant: Bioinformatics Group, Faculty of Information Technology 2006 - 2008
 - Pairwise and Multiple Genome Rearrangement problem
 - Phylogeny reconstruction based on Genome Rearrangement.
- Teaching Assistant for Introduction to Bioinformatics. Spring 2008
- Coach of Vietnam's programming team for International Olympiad in Informatics (IOI) 2004 - 2005

REFEREED
PUBLICATIONS

Book Chapter

1. T. N. Dinh, M. T. Thai, and D. T. Nguyen, *A Unified Approach for Domination Problems on Different Network Topologies*, **Handbook of Combinatorial Optimization**, (P. Pardalos, D. Du, and R. Graham eds), Springer Publisher
2. M. T. Thai, T. N. Dinh, and Y. Shen, *Hardness and Approximation of Network Vulnerability*, **Handbook of Combinatorial Optimization**, (P. Pardalos, D. Du, and R. Graham eds), Springer Publisher
3. T. N. Dinh, I. Shin, N. K. Thai, M. T. Thai, and T. Znati, *A General Approach for Modules Identification in Evolving Networks*, **Dynamics of Information Systems: Theory and Applications**, (M. Hirsh, P. Pardalos, and R. Murphey eds), Springer Publisher, 2010.

Journal

4. T. N. Dinh, Y. Xuan, M. T. Thai, and P. M. Pardalos, *On New Approaches of Assessing Network Vulnerability: Hardness and Approximation*. *IEEE/ ACM Transactions on Networking (TON)*, (To appear).
5. R. Tiwari, T. N. Dinh, and M. T. Thai, On Centralized and Localized approximation algorithms for Interference-Aware Broadcast Scheduling, *IEEE Transaction on Mobile Computing (TMC)*, (To appear).
6. T. N. Dinh and M. T. Thai, Community Structure in Undirected and Directed Scale-free Networks: Approximation Algorithms for Maximizing Modularity, *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, (Under review).
7. N. P. Nguyen, Y. Shen, T. N. Dinh, and M. T. Thai, On the evolution of overlapping communities in dynamic mobile networks, *IEEE Transaction on Mobile Computing (TMC)*, (Under review).

Conference

8. T. N. Dinh, D. T. Nguyen, and M. T. Thai, Cheap, Easy, and Massively Effective Viral Marketing in Social Networks: Truth or Fiction?, *in Proceedings of the ACM Hypertext and Social Media Conference*, (**Hypertext**) 2012.
9. N. P. Nguyen, T. N. Dinh, D. T. Nguyen and M. T. Thai, Overlapping Community Structures and Their Detection on Social Networks, *in Proceedings of the IEEE International Conference on Social Computing (SOCIALCOM)* 2011.
10. T. N. Dinh and M. T. Thai, Finding Community Structure with Performance Guarantees in Complex Networks, *in Proceedings of the IEEE International Conference on Social Computing (SOCIALCOM)* 2011.
11. T. N. Dinh and M. T. Thai, Precise Structural Vulnerability Assessment Via Mathematical Programming, *in Proceedings of the Military Communications Conference*, (**MILCOM**) 2011.
12. N. P. Nguyen, T. N. Dinh, S. Tokala, and M. T. Thai, Overlapping Communities in Dynamic Networks: Their Detection and Mobile Applications, *in Proceedings of the 17th Annual International Conference on Mobile Computing and Networking (MOBICOM)* 2011.

13. N. P. Nguyen, T. N. Dinh, Y. Xuan, and M. T. Thai, Adaptive Algorithms for Detecting Community Structure in Dynamic Social Networks, in Proceedings of the *IEEE Conference on Computer Communications (INFOCOM)*, 2011.
14. T. N. Dinh, Y. Xuan, M. T. Thai, EK Park, and T. Znati, On Approximation of New Optimization Methods for Assessing Network Vulnerability, in Proceedings of the *IEEE Conference on Computer Communications (INFOCOM)*, 2010.
15. F. Ay*, T. N. Dinh*, M. T. Thai, and T. Kahveci, **Identification of Dynamic Modules in Biological Regulatory Networks**, *10th IEEE International Conference on Bioinformatics & Bioengineering (BIBE)*, 2010. (* Co-first authors)
16. T. N. Dinh, Y. Xuan, and M. T. Thai, **Towards Social-aware Routing in Dynamic Communication Networks**, in Proceedings of the 28th IEEE *International Performance Computing and Communications Conference (IPCCC)*, 2009.
17. R. Tiwari, T. N. Dinh, and M. T. Thai, On Approximation Algorithms for Interference-Aware Broadcast Scheduling in 2D and 3D Wireless Sensor Networks, in Proceedings of *Int. Conf. on Wireless Algorithms, Systems and Applications (WASA)* 2009.
18. T. N. Dinh, V. S. Le, and H. X. Hoang, A Fast Algorithm for Genome Pairwise Alignment with Rearrangements, KLLBI Workshop in the 10th *Pacific Rim International Conference on Artificial Intelligence (PRICAI-08)*, 2008.

PROFESSIONAL
SERVICE

- TPC/Reviewer for SOCIALCOM 2012 / 2011, Optimization Letters, J. of Comb. Opt.,
- External reviewer for IEEE TMC, INFOCOM, COCOON, ISAAC, COCOA, CCNET, SIMPLEX.
- Web-master, The 16th International Computing and Combinatorics Conference (COCOON 2010).

INDUSTRIAL
EXPERIENCE

- **Project Leader**, C++ Camouflage Project 2008
 - The project is a high level C++ source obfuscating/deobfuscating program. The project is sponsored by the Singapore's Agency for Science, Technology and Research Project (A*STAR).
- **System Administrator**, Galaxy Mobile JSC 2007
 - Manage and develop the information system to provide value added services for cellphone users.

TECHNICAL
SKILLS

- **First Language:** C/C++ (OpenMP, Intel TBB, MPI, Boost, Cplex Ilog, Gurobi, Igraph)
- **Competent:** Pascal, Java, Matlab, C#, Perl, Shell scripting, PHP, SQL.
- **Tools/Applications:** Eclipse, MS Visual Studio, Borland CBuilder, Borland Delphi, MS Visio, Adobe Acrobat, Adobe Photoshop
- **Operating Systems:** Windows/DOS, Linux/Unix

MISC

- My **Erdős number** is 3 via the following path: Paul Erdős → Ronald Graham → Panos Pardalos.
- **Student Representative**, High School for Gifted Student in Mathematics and Informatics, HUS
- **Certificate of merit**, Vietnam Youth Union Central Committee, 2004
- IEEE Student Member