

NAM H. PHAM, M.S.

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EDUCATION

M.S., Computer Engineering, Iowa State University, Aug. 2007-May 2010

B.A., Software Engineering, Hanoi University of Technology 2007, Sept. 2002 - July 2007

RESEARCH INTERESTS

My research interest is software engineering, with emphases on software maintenance and evolution, software analysis, software testing, and secure software engineering.

GRADUATE RESEARCH EXPERIENCE

Research Assistant, Computer Engineering, Iowa State University Aug. 2007 – Present:

- **Software Vulnerabilities**

Create algorithms and a framework to detect software vulnerabilities recurring in different software systems (**ICSE 2010, ASE 2010**)

- **Software Code Clone Analysis & Management**

Built an algorithmic and formal framework that enables a systematic construction of efficient and accurate clone group management tools. (**ASE 2009, ICSM 2009, ASE 2008**)

- **Model Clone Analysis**

Built a novel clone detection tool for MatLab/Simulink models, which detects both exactly matched and approximate model clones efficiently and accurately. (**ICSE 2009, FASE 2009**)

- **Programming Pattern Mining**

Mined API usage patterns and suggest buggy usage patterns in source code. (**FSE 2009 - ACM SIGSOFT Distinguished Paper Award**)

- **Social Network Analysis for evolving software**

Proposed a novel model for assessment and prediction of fallibility of both developers and software components in software development process.

- **Bug Detection & Fixing**

Mined software repositories to help developers find and fix potential bugs in software development process.

- **Software Vulnerabilities**

Studied characteristics of software vulnerabilities and source code in software systems to recommend developers fixes/patches of similar vulnerabilities across different systems.

UNDERGRADUATE
RESEARCH
EXPERIENCE

- **Software Testing**

Found traceability links between test cases and software requirements via source code.

**Research Assistant, Software Engineering, Hanoi University of Technology
2003 - June 2007:**

- **Computer Virus**, 2003-2004

Researched on the models and mechanisms of various types of computer viruses.

- **Text Data Mining**, 2005-2006

Classified Vietnamese documents into correct categories using classification algorithms & data structures such as Decision Tree, K- nearest neighbor, ternary search tree.

- **Software Fault Tolerance**, 2006 – June 2007:

Developed a Hidden Markov Model (HMM) based approach to measure the dependability of the systems using software fault tolerance techniques (n-version program and recovery blocks).

PUBLICATIONS

1. Nam H. Pham, Tung Thanh Nguyen, Hoan Anh Nguyen, and Tien N. Nguyen, **Detection of Recurring Software Vulnerabilities**. To appear in the 25nd IEEE/ACM International Conference on Automated Software Engineering (**ASE 2010**). (acceptance rate 17.8%).
2. Nam H. Pham, Tung Thanh Nguyen, Hoan Anh Nguyen, Xinying Wang, Anh Tuan Nguyen, Tien N. Nguyen. **Detecting Recurring and Similar Software Vulnerabilities**. In Proceedings of the 32nd ACM/IEEE International Conference on Software Engineering- **NIER ICSE 2010**
3. Tung Thanh Nguyen, Hoan Anh Nguyen, Nam H. Pham, Jafar M. Al-Kofahi, and Tien N. Nguyen, **Recurring Bug Fixes in Object-Oriented Programs**. To appear in the 32nd International Conference on Software Engineering - **ICSE 2010** (acceptance rate 13.7%).
4. Tung Thanh Nguyen, Hoan Anh Nguyen, Nam H. Pham, and Tien N. Nguyen, **Operation-based, Fine-grained Version Control Model for Tree-based Representation**. To appear in the 13th International Conference on Fundamental Approaches to Software Engineering (**FASE 2010**).
5. Nam H. Pham, Hoan Anh Nguyen, Tung Thanh Nguyen, Jafar M. Al-Kofahi and Tien N. Nguyen. **Complete and Accurate Clone Detection in Graph-based Models**. In Proceedings of the 31st ACM/IEEE International Conference on Software Engineering - **ICSE 2009** (acceptance rate 12.3%)
6. Tung Thanh Nguyen, Hoan Anh Nguyen, Nam H. Pham, Jafar M. Al-Kofahi and Tien N. Nguyen. **Graph-based Mining of Multiple Object Usage Patterns**. The 2009 ACM SIGSOFT Conference on the Foundations of Software Engineering - **FSE 2009** (acceptance rate 14.7%). **ACM SIGSOFT Distinguished Paper Award**.
7. Tung Thanh Nguyen, Hoan Anh Nguyen, Nam H. Pham, Jafar M. Al-Kofahi and Tien N. Nguyen. **Clone-aware Configuration Management**. In Proceedings of the 24th ACM/IEEE International Conference on Automated Software Engineering – **ASE 2009** (acceptance rate 17.1%)

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8. Tung Thanh Nguyen, Hoan Anh Nguyen, Nam H. Pham, Jafar M. Al-Kofahi and Tien N. Nguyen. **ClemanX: Incremental Clone Detection Tool for Evolving Software**. Informal Research Demonstration paper at the 31st ACM/IEEE International Conference on Software Engineering (**ICSE 2009**).
 9. Hoan Anh Nguyen, Tung Thanh Nguyen, Nam H. Pham, Jafar M. Al-Kofahi and Tien N. Nguyen. **Accurate and Efficient Structural Characteristic Feature Extraction for Clone Detection**. The 12th International Conference on Fundamental Approaches to Software Engineering (**FASE 2009**).
 10. Tung Thanh Nguyen, Hoan Anh Nguyen, Nam H. Pham, Jafar M. Al-Kofahi and Tien N. Nguyen.: **Cleman: Comprehensive clone group evolution management**. The 23rd IEEE/ACM International Conference Automated Software Engineering, 2008 (**ASE 2008**).
 11. Tung Thanh Nguyen, Hoan Anh Nguyen, Jafar Al-Kofahi, Nam H. Pham and Tien Nguyen. **Scalable and Incremental Clone Detection for Evolving Software**. In Proceedings of the 25th IEEE International Conference on Software Maintenance (**ICSM 2009**). Short paper.
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INDUSTRIAL EXPERIENCES

- Software Engineer - Bach Khoa Internetwork Security Center, Vietnam, 2003-2005.
 - Designed and developed document circulation and workflow in the eOffice system – an enterprise content management system.
 - Developed the interface of the instant messaging tool in eOffice.
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HONORS AND AWARDS

- ACM SIGSOFT Distinguished Paper Award, ESEC/FSE 2009.
 - ACM SIGSOFT CAPS Award to attend the 31st ACM/IEEE International Conference on Software Engineering - ICSE 2009.
 - Iowa State University Professional Development grants to attend the 31st ACM/IEEE International Conference on Software Engineering - ICSE 2009.
 - Tuition Scholarship & Research Assistantship, Iowa State University, 2007-2009.
 - Academic Scholarships, Hanoi University of Technology, 2002-2006
 - Fujitsu Scholarship, Fujitsu Vietnam Ltd, 2005-2006
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PROFESSIONAL ACTIVITIES

Reviewer:

- The 9th International Conference on Quality Software, (QSIC'2009)
 - The 33rd Annual IEEE International Conference on Computer, Software and Applications(COMPSAC 2009)
 - The 32nd Annual International Computer Software and Applications Conference (IEEE COMPSAC 2008)
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VOLUNTEER EXPERIENCES

Student Volunteer in the 31st ACM/IEEE International Conference on Software Engineering, Vancouver, Canada 2009

ASSOCIATIONS

ACM SIGSOFT
