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RESEARCH INTERESTS Software maintenance, Empirical software engineering, Refactoring recommendation systems, Software quality assurance, Design pattern detection

WORK EXPERIENCE **Associate Professor** June 2017 – present
 Department of Computer Science and Software Engineering,
 Concordia University, Montreal, Canada

Assistant Professor July 2012 – May 2017
 Department of Computer Science and Software Engineering,
 Concordia University, Montreal, Canada

Postdoctoral Fellow Jan 2011 – May 2012
 Department of Computing Science,
 University of Alberta, Edmonton, Canada

EDUCATION **University of Macedonia**, Thessaloniki, Greece

Ph.D. in Applied Informatics (Software Engineering) Dec 2006 – Sep 2010
 • Thesis: “Evaluation and Improvement of Software Architecture: Identification of Design Problems in Object-Oriented Systems and Resolution through Refactorings”

M.Sc. in Applied Informatics (Computer Systems) Oct 2004 – Aug 2006
 • Thesis: “Design Pattern Detection Using Graph Matching Algorithms”

B.Sc. in Applied Informatics Oct 2000 – Sep 2004
 • Thesis: “Predicting the Probability of Change in Object-Oriented Systems”

LICENSING Professional Engineers of Ontario - Limited License in the category of Software
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 Date of issue: November 3rd, 2015

RESEARCH FUNDING	Project	Funding Source	Duration
	Refactoring Recommendation 2.0 (PI)	NSERC Discovery	Apr'18 – Mar'23
	Pattern Extraction (PI)	Huawei Technologies	Jan'16 – Jan'17
	Concordia University Research Chair in Web Software Technologies (PI)	Vice-President, Research and Graduate Studies	Jun'15 – May'20
	Improving the Maintainability and Efficiency of Cascading Style Sheets (PI)	FRQNT New University Researchers Start-up	May'14 – May'16
	A Framework for the Management of Preventive Maintenance (PI)	NSERC Discovery	Apr'13 – Mar'18
	Supporting Preventive Maintenance through the Detection of Refactoring Opportunities (PI)	ENCS Start-up	Jul'12 – Apr'14

REFEREED
JOURNAL
PAPERS

1. M. Hassani, W. Shang, E. Shihab, and **N. Tsantalis**, “Studying and Detecting Log-Related Issues,” *Empirical Software Engineering*, 2018.
2. E. da S. Maldonado, E. Shihab, and **N. Tsantalis**, “Using Natural Language Processing to Automatically Detect Self-Admitted Technical Debt,” *IEEE Transactions on Software Engineering*, vol. 43, no. 11, pp. 1044-1062, November 2017.
3. **N. Tsantalis**, D. Mazinianian, and G. P. Krishnan, “Assessing the Refactorability of Software Clones,” *IEEE Transactions on Software Engineering*, vol. 41, no. 11, pp. 1055-1090, November 2015.
4. M. Fokaefs, **N. Tsantalis**, E. Stroulia, and A. Chatzigeorgiou, “Identification and Application of Extract Class Refactorings in Object-Oriented Systems,” *The Journal of Systems and Software*, vol. 85, no. 10, pp. 2241-2260, October 2012.
5. **N. Tsantalis**, and A. Chatzigeorgiou, “Identification of Extract Method Refactoring Opportunities for the Decomposition of Methods,” *The Journal of Systems and Software*, vol. 84, no. 10, pp. 1757-1782, October 2011.
6. **N. Tsantalis**, and A. Chatzigeorgiou, “Identification of Refactoring Opportunities Introducing Polymorphism,” *The Journal of Systems and Software*, vol. 83, no. 3, pp. 391-404, March 2010.
7. **N. Tsantalis**, and A. Chatzigeorgiou, “Identification of Move Method Refactoring Opportunities,” *IEEE Transactions on Software Engineering*, vol. 35, no. 3, pp. 347-367, May/June 2009.
8. S. T. Halkidis, **N. Tsantalis**, A. Chatzigeorgiou, and G. Stephanides, “Architectural Risk Analysis of Software Systems based on Security Patterns,” *IEEE Transactions on Dependable and Secure Computing*, vol. 5, no. 3, pp. 129-142, July-September 2008.
9. **N. Tsantalis**, A. Chatzigeorgiou, G. Stephanides, and S. T. Halkidis, “Design Pattern Detection Using Similarity Scoring,” *IEEE Transactions on Software Engineering*, vol. 32, no. 11, pp. 896-909, November 2006.
10. **N. Tsantalis**, A. Chatzigeorgiou, and G. Stephanides, “Predicting the Probability of Change in Object-Oriented Systems,” *IEEE Transactions on Software Engineering*, vol. 31, no. 7, pp. 601-614, July 2005.

REFEREED
CONFERENCE
PAPERS

1. **N. Tsantalis**, M. Mansouri, L. Eshkevari, D. Mazinianian, and D. Dig, “Accurate and Efficient Refactoring Detection in Commit History,” pp. 483-494, *40th International Conference on Software Engineering (ICSE’2018)*, Gothenburg, Sweden, May 27 - June 3, 2018. (AR: 20.9%, 105/502)
2. D. Mazinianian, A. Ketkar, **N. Tsantalis**, and D. Dig, “Understanding the Use of Lambda Expressions in Java,” *2017 ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA’17)*, Vancouver, Canada, October 25-27, 2017. (AR: 29.6%, 66/223, **ACM SIGPLAN Distinguished Artifact Award**)
3. **N. Tsantalis**, D. Mazinianian, and S. Rostami, “Clone Refactoring with Lambda Expressions,” *39th International Conference on Software Engineering (ICSE’2017)*, Buenos Aires, Argentina, May 20-28, 2017. (AR: 17.1%, 68/398, **ACM SIGSOFT Distinguished Paper Award**)

4. D. Mazinianian, and **N. Tsantalis**, “Migrating Cascading Style Sheets to Preprocessors by Introducing Mixins,” pp. 672-683, *31st IEEE/ACM International Conference on Automated Software Engineering (ASE’2016)*, Singapore, September 3-7, 2016. (AR: 19.1%, 57/298, **Special Issue of the Automated Software Engineering Journal**)
 5. D. Silva, **N. Tsantalis**, and M. T. Valente, “Why We Refactor? Confessions of GitHub Contributors,” pp. 858-870, *24th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE’2016)*, Seattle, WA, USA, November 13-18, 2016. (AR: 27.1%, 74/273, **ACM SIGSOFT Distinguished Paper Award**)
 6. D. Mazinianian, and **N. Tsantalis**, “An Empirical Study on the Use of CSS Preprocessors,” pp. 168-178, *23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER’2016)*, Osaka, Japan, March 14-18, 2016. (AR: 37.1%, 52/140, **Best Paper Candidate Award**)
 7. D. Mazinianian, **N. Tsantalis**, and A. Mesbah, “Discovering Refactoring Opportunities in Cascading Style Sheets,” pp. 489-499, *22nd ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE’2014)*, Hong Kong, November 16-22, 2014. (AR: 22.3%, 61/273)
 8. G. P. Krishnan, and **N. Tsantalis**, “Unification and Refactoring of Clones,” pp. 104-113, *IEEE Conference on Software Maintenance, Reengineering and Reverse Engineering (CSMR-WCRE’2014)*, 2014 Software Evolution Week, Antwerp, Belgium, February 3-7, 2014. (AR: 31%, 27/87)
 9. **N. Tsantalis**, V. Guana, E. Stroulia, and A. Hindle, “A Multidimensional Empirical Study on Refactoring Activity,” pp. 132-146, *23rd Annual International Conference of the Centre for Advanced Studies on Collaborative Research (CASCON’2013)*, Toronto, Ontario, Canada, November 18-20, 2013. (AR: 34.3%, 24/70)
 10. M. Fokaefs, R. Mikhael, **N. Tsantalis**, E. Stroulia, and A. Lau, “An Empirical Study on Web Service Evolution,” pp. 49-56, *9th IEEE International Conference on Web Services (ICWS’2011)*, Washington DC, USA, July 4-9, 2011. (AR: 13.7%, 38/277)
 11. **N. Tsantalis**, and A. Chatzigeorgiou, “Ranking Refactoring Suggestions based on Historical Volatility,” pp. 25-34, *15th European Conference on Software Maintenance and Reengineering (CSMR’2011)*, Oldenburg, Germany, March 1-4, 2011. (AR: 28.7%, 29/101)
 12. M. Fokaefs, **N. Tsantalis**, A. Chatzigeorgiou, and J. Sander, “Decomposing Object-Oriented Class Modules Using an Agglomerative Clustering Technique,” pp. 93-101, *25th IEEE International Conference on Software Maintenance (ICSM’2009)*, Edmonton, Alberta, Canada, September 20-26, 2009. (AR: 21.6%, 35/162)
 13. **N. Tsantalis**, and A. Chatzigeorgiou, “Identification of Extract Method Refactoring Opportunities,” pp. 119-128, *13th European Conference on Software Maintenance and Reengineering (CSMR’2009)*, Kaiserslautern, Germany, March 24-27, 2009. (AR: 31.4%, 22/70)
- INVITED PAPERS
1. **N. Tsantalis**, T. Chaikalis, and A. Chatzigeorgiou, “Ten Years of JDeodorant: Lessons Learned from the Hunt for Smells,” *25th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER’2018)*, Campobasso, Italy, March 20-23, 2018. (**Most Influential Paper Retrospective**)

Teaching & Supervision

TEACHING EXPERIENCE	Course title	Course number	Reg. Students	Offered
	Software Architecture II	SOEN 344/4 S	164	Winter 2018
	Software Refactoring	SOEN 6491/2 DD	50	Fall 2017
	Software Engineering Team Design Project	SOEN 390/4 S	94	Winter 2017
	Software Refactoring	SOEN 6491/2 DD	31	Fall 2016
	Software Engineering Team Design Project	SOEN 390/4 S	63	Winter 2016
	Software Refactoring	SOEN 691/2 DD	27	Fall 2015
	Software Measurement	SOEN 6611/1 AA	93	Summer 2015
	Software Engineering Team Design Project	SOEN 390/4 S	55	Winter 2015
	Software Refactoring	SOEN 691C/2 DD	47	Fall 2014
	Object-Oriented Programming II	COMP 249/1 CC	69	Summer 2014
	Software Measurement	SOEN 6611/4 DD	32	Winter 2014
	Software Refactoring	SOEN 691C/2 DD	27	Fall 2013
	Object-Oriented Programming II	COMP 249/2 D	60	Fall 2013
	Software Measurement	SOEN 6611/4 DD	22	Winter 2013
	Object-Oriented Programming II	COMP 249/2 D	46	Fall 2012

SUPERVISED STUDENTS	Name	Role	Level	Status	Start	End
1	Tahmid Ahmad	Supervisor	Ph.D.	In Progress	Sep'16	–
2	Matin Mansouri	Supervisor	Master's	Completed	Jan'16	Jan'18
3	Mehran Hassani	Co-supervisor	Master's	Completed	Jan'16	Mar'18
4	Laleh M. Eshkevari	Supervisor	Postdoc	Completed	Feb'16	Aug'17
5	Davood Mazinianian	Supervisor	Ph.D.	Completed	May'13	Aug'17
6	Asif Al-Waqfi	Supervisor	Master's	Completed	Sep'15	Mar'17
7	Shahriar Rostami	Supervisor	Master's	Completed	Sep'14	Aug'16
8	Guo Qiao	Supervisor	Master's	Completed	Sep'13	Apr'15
9	Zackary Valenta	Supervisor	NSERC USRA	Completed	May'14	Aug'14
10	Giri Panamoottil Krishnan	Supervisor	Master's	Completed	Jan'13	Apr'14
11	Kimberly Dextras-Romagnino	Supervisor	NSERC USRA	Completed	May'13	Aug'13
12	Raphael Stein	Supervisor	NSERC USRA	Completed	May'13	Aug'13

Service

- EDITORIAL BOARD MEMBER
- IEEE Transactions on Software Engineering Review Board 2018-2019
- PROGRAM CHAIR
- 26th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER'2019) [ERA]
 - 24th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER'2017) [Tool Demonstration]
 - 22nd IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER'2015) [ERA]
- PROGRAM COMMITTEE MEMBER
- 2018 [Track]**
- IEEE International Conference on Software Maintenance and Evolution (ICSME) [Main]
 - ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) [ACM Student Research Competition]
 - International Workshop on Software Refactoring (IWSR)
- 2017 [Track]**
- IEEE/ACM International Conference on Automated Software Engineering (ASE) [Main]
 - IEEE International Conference on Software Maintenance and Evolution (ICSME) [Main]
 - IEEE International Conference on Program Comprehension (ICPC) [Main]
 - International Workshop on API Usage and Evolution (WAPI)
- 2016 [Track]**
- IEEE International Conference on Software Maintenance and Evolution (ICSME) [Main]
 - IEEE International Conference on Program Comprehension (ICPC) [Main]
 - IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER) [ERA]
 - International Workshop on Software Refactoring (IWSR)
- 2015 [Track]**
- International Conference on Web Engineering (ICWE) [Web user interfaces]
 - IEEE International Conference on Program Comprehension (ICPC) [Main]
 - IEEE International Conference on Program Comprehension (ICPC) [ERA]
- 2014 [Track]**
- Asia-Pacific Software Engineering Conference (APSEC) [Main]
 - IEEE International Conference on Software Maintenance and Evolution (ICSME) [ERA]
 - IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM) [Main]
 - IEEE Conference on Software Maintenance, Reengineering and Reverse Engineering (CSMR-WCRE) [Main]
- 2013 [Track]**
- International Conference on Software Engineering (ICSE) [Formal Research Demonstrations]
 - IEEE International Conference on Program Comprehension (ICPC) [ERA]
 - European Conference on Software Maintenance and Reengineering (CSMR) [Main]
 - IEEE International Conference on Software Maintenance (ICSM) [ERA]
- 2012 [Track]**
- European Conference on Software Maintenance and Reengineering (CSMR) [Main]
 - IEEE International Conference on Software Maintenance (ICSM) [ERA]
- JOURNAL REVIEWER
- IEEE Transactions on Software Engineering (11 articles)
 - IEEE Software (2 articles)
 - IEEE Transactions on Reliability (1 article)
 - Empirical Software Engineering (6 articles)

- Journal of Systems and Software (11 articles)
- Information and Software Technology (4 articles)
- Automated Software Engineering (1 article)
- Journal of Software: Evolution and Process (6 articles)
- Journal of Software: Practice and Experience (1 article)
- Journal of Software Maintenance and Evolution: Research and Practice (1 article)
- Software and Systems Modeling (2 articles)
- Science of Computer Programming (3 articles)
- Software Quality Journal (4 articles)
- IEEE Transactions on Systems, Man, and Cybernetics–Part C (1 article)
- Computational Intelligence (1 article)

- EXTERNAL REVIEWER
- NSERC Discovery Grant 2013 (2 applications)
 - NSERC Discovery Grant 2015 (1 application)
 - NSERC Discovery Grant 2016 (1 application)
 - NSERC Collaborative Research and Development Grant (1 application in 2015)

- INVITED TALKS
- “Code Smell Research: History and Future Directions,” [Second PLOW Installment](#), École Polytechnique de Montréal, Montreal, QC, Canada, March 5, 2014.
 - “Preventive Software Maintenance: The Past, the Present, the Future,” Consortium for Software Engineering Research (CSER’2013) Spring Meeting, New Faculty Keynote, Montreal, QC, Canada, June 18, 2013.

Awards/Distinctions

- Our paper titled “JDeodorant: Identification and Removal of Type-Checking Bad Smells” received a **Most Influential Paper Award** at SANER 2018 with the following citation: “The special recognition award recognizes JDeodorant as one of the leading and most widely used tools for code refactoring”.
- Our paper titled “Using Natural Language Processing to Automatically Detect Self-Admitted Technical Debt” was the **featured article** of the *IEEE Transactions on Software Engineering* November 2017 issue.
- Our paper titled “Understanding the Use of Lambda Expressions in Java” received an **ACM SIGPLAN Distinguished Artifact Award** at OOPSLA 2017.
- Our paper titled “Clone Refactoring with Lambda Expressions” received an **ACM SIGSOFT Distinguished Paper Award** at ICSE 2017.
- Our paper titled “Why We Refactor? Confessions of GitHub Contributors” received an **ACM SIGSOFT Distinguished Paper Award** and a **Distinguished Artifact Award** at FSE 2016.
- Awarded **Outstanding Reviewer Status** by the *Information & Software Technology* Journal for my Exceptional Contribution to the Quality of the Journal when Serving as Reviewer from 2014 to 2015.
- Our paper titled “An Empirical Study on the Use of CSS Preprocessors” has been selected as one of the 5 **best paper candidates** for the *23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering* (SANER’2016).
- Our paper titled “Assessing the Refactorability of Software Clones” was the **featured article** of the *IEEE Transactions on Software Engineering* November 2015 issue.