

# Kostas Kontogiannis

## Curriculum Vitae

Western University, Dept. of Computer Science  
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### 1. EDUCATION

- 1989 – 1996:** Ph.D. Computer Science, McGill University, Canada,  
Thesis title: *“Pattern Matching Techniques for Program Understanding”*.
- 1988 – 1989:** M.Sc. Computer Science, Katholieke Universiteit Leuven, Belgium,  
Thesis title: *“Automatic Road Delineation from Satellite Images”*.
- 1981 – 1985:** B.Sc. Mathematics, University of Patras, Greece  
Thesis title: *“Modeling Fluid Flows in variable Cross-Section Pipes”*.

### 2. EMPLOYMENT

- 08/2016 – :** Tenured Professor, Western Research Chair in Software Engineering for Cyber-Physical Systems, Dept. of Computer Science, Western University, Canada.
- 2006 – 2016:** Tenured Professor, Dept. of Electrical & Computer Engineering, National Technical University of Athens, Greece.
- 2009 – 2015:** Adjunct Associate Professor, Dept. of Electrical & Computer Engineering, University of Waterloo, Canada.
- 2001 – 2006:** Tenured Associate Professor, Dept. of Electrical & Computer Engineering, University of Waterloo, Canada.
- 1997 – 2001:** Tenure-track Assistant Professor, Electrical & Computer Engineering, University of Waterloo, Canada.
- 01–12/1996:** Research Associate, Dept. of Computer Science, University of Toronto, Canada.

### 3. TEACHING EXPERIENCE

#### I. Undergraduate Courses

##### Western University, Canada

- **Introduction to Software Engineering (2<sup>nd</sup> year).** The course covers an introduction to UML, elements of software architecture, foundational design patterns, software reliability and project management and cost estimation fundamentals. Group project using the Java programming language (Spring'17 - ).

- **Computer Science Fundamentals (1<sup>st</sup> year)**. The course covers topics related to the organization and manipulation of foundational data structures (e.g. lists, stacks, queues, trees) and their implementation in Java. In addition to the above the course discusses foundational algorithms related to sorting and searching, CS 1027B (Spring'19 -).
- **Software Specification, Testing and Quality Assurance (4<sup>th</sup> year)**. The course covered agile process models, advanced UML modeling features, unit testing (specification, functional, data flow, object oriented), integration testing, system testing, software reliability, code metrics, and cost estimation (Fall'19).

#### National Technical University of Athens, Greece

- **Software Engineering (5<sup>th</sup> year)**. The course covered UML, software architecture and software architecture styles, design patterns, software reliability growth models, project management and cost estimation fundamentals. Capstone project on extending VoIP/SIP protocol with call forwarding, call blocking, and billing options (Spring'07-'16).
- **Artificial Intelligence (4<sup>th</sup> year)**. The course covered first order logic, search algorithms, reasoning and reasoning under uncertainty, knowledge representation and, expert systems (Spring'08-'12).
- **Advanced Topics in Database Systems (5<sup>th</sup> year)**. The course covered concurrency control and recovery in relational database management systems. distributed databases, object-oriented database systems, temporal and spatial database systems, cloud computing frameworks, data warehouses, data mining and data analytics (Fall'14-'15).
- **Programming Techniques (1<sup>st</sup> year)**. The course covered basic data structures (arrays, linked lists, structures, stacks, queues, hash tables, heaps), sorting, and C programming fundamentals (Fall'08-'12).

#### University of Waterloo, Canada

- **Data Structures and Algorithms (2<sup>nd</sup> year)**. The course covered basic data structures (abstract data types, object orientation, queues, hash tables, search trees, heaps), sorting, and C++ programming fundamentals, ECE 250 (Fall'97, Fall'98, Spring'00, Fall'04).
- **Software Engineering (3<sup>rd</sup> year)**. As above at NTUA. ECE 355 (Fall'98, Fall'99, Fall'00, Fall'04, Fall'05).
- **Computer Communication Networks (4<sup>th</sup> year)**. The course covered the study of all major protocols at physical, data-link, network, transport and application layers. ECE 428 (Spring'01).
- **Software Testing and Quality Assurance (4<sup>th</sup> year)**. The course covered testing techniques for unit, integration, functional and acceptance testing, as well as software metrics and software reliability growth models. ECE 453/SE465 (Fall'06).
- **Distributed Systems and Network Centric Computing (4<sup>th</sup> year)**. The course covered principles of Distributed systems, election algorithms, timestamps, inter-process communication, threads, remote invocation, distributed objects, and service orientation ECE 454 (Spring'98-01).
- **Artificial Intelligence (4<sup>th</sup> year)**. The course covered fundamental search algorithms, first order logic, reasoning in first order logic, probabilistic reasoning and reasoning under uncertainty, expert systems, fundamentals of neural networks, ECE 457 (Spring'98-01).

#### University of Toronto, Canada

- **Programming Languages (3<sup>rd</sup> year)**. The course covered principles of different programming paradigms and namely the functional, procedural, logic, and object oriented paradigms. Instruction of fundamental principles of LISP, C, Prolog, and C++ (Fall'96).

## II. Graduate Courses

### Western University, Canada

- **Software Engineering for Cyber-Physical Systems** (graduate course). The course covers, principles of conceptual modeling and meta-modeling, information retrieval and search on unstructured data, XML technologies for semantic modeling, linked data, RDF, RDFS, OWL, MOF Model Driven Engineering, micro-service architectures, reference architectures for Cyber-Physical Systems, CS (Spring'16 - ).

### National Technical University of Athens, Greece

- **Software Evolution and Re-engineering** (graduate course). The course covered, principles of parsing, languages, grammars, system modeling, source code representation, software transformations, software metrics for reengineering and maintenance (Fall'07-'16).
- **Principles of Enterprise Information Systems** (graduate course). The course covered UML, software enterprise architectures, project planning and management, software quality and reliability. Course is offered at the Techno-economic systems MBA program at NTUA (Spring'16).
- **Data Base Technologies and the World Wide Web** (grad course). The course covered data modeling, indexing and search algorithms in the WWW, map-reduce processes, cloud computing and distributed data storage (Spring'15-'16).
- **Advanced Topics in Data Science** (grad course). The course was offered for the first time on Fall Term 2015 and covered areas of data representation, conceptual modeling, reasoning, machine learning, and software engineering for big data systems. The course featured projects and training on the IBM Watson environment provided by IBM US (Fall'15-'16).

### University of Waterloo, Canada

- **Software Evolution and Reengineering** (grad course). As above at NTUA. (Fall'97-'06).
- **Distributed and Network Centric Computing** (grad course). The course covers the material of ECE 454 as above, and in addition discusses research issues in distributed systems and requires the design and implementation of a distributed auction system. Graduate offering of ECE 757 (Spring'00).

### University of Toronto, Canada

- **Software Maintenance and Re-engineering** (grad course). The course covered principles of software maintenance, architectural analysis, software metrics, parsing, source code static analysis, data flow analysis, source code transformations and, tools. (Fall'96).

## 4. RESEARCH INTERESTS AND GRANTS

### I. Areas of Interest

Cyber-Physical systems, software engineering, service oriented computing, agent-based systems.

### II. Bibliometrics and Citations (Google Scholar)

h-index: 38  
Citations: 4,619

### III. Grants and Contracts (amounts pertain to my own portion of the grant)

<i>HOLDERS</i>	<i>TITLE &amp; AGENCY</i>	<i>OWN SHARE</i>	<i>DATES</i>
K. Kontogiannis (PI) + 8 collaborators	“CyPreSS: Software Techniques for the Engineering of Cyber-Physical Systems”, ORF Round-10.	450,000 CND	November 2020 - (announced)
K. Kontogiannis (PI)	“Continuous Compliance Data Science for Software Systems”, IBM Canada, Center for Advanced Studies	102,000 CND	May 2020 – April 2023
K. Kontogiannis (PI)	“Continuous Development, Maintenance and Evolution of Cyber-Physical Systems”, NSERC-DG	125,000 CND	May 2018 – April 2023
K. Kontogiannis (PI) + 9 collaborators	“Middleware Framework and Programming Infrastructure for IoT Services”, NSERC SPGP	110,000 CND	Sept./2017 – Aug./2020
K. Kontogiannis (PI)	“DevOps Analytics Frameworks for Continuous Delivery and Deployment”, IBM Canada, Center for Advanced Studies	102,000 CND	May 2017 – April 2020
K. Kontogiannis (PI)	“Continuous Software Engineering for Cyber-Physical Ecosystems”, NSERC-DG	20,000 CND	May 2017 – April 2018
K. Kontogiannis (PI)	“Software Engineering for CyberPhysical Systems”, WRC, Western University, Canada	250,000 CND	Sept. 2016 – Aug. 2021
K. Kontogiannis (PI)	“Resource Oriented Hypermedia” (IBM), CAS Research, Canada	20,000 USD	Jan. 2015 - Dec. 2015
K. Kontogiannis (PI)	“Compliance Verification for multi-tier Service Oriented Systems”, GGET, Greece	52,000 Euros	March 2011- Aug. 2015
K. Kontogianis (PI)	“Adapting Web Service Systems to REST Architecture” (IBM), US	\$84,000 USD	Jan. 2010 – Dec. 2013
K. Kontogiannis (PI)	“Bridging the Gap between Business and IT Compliance Requirements”, Computer Associates (CA), UK	72,000 Euros	Jan. 2009 – Dec. 2011

K. Czarnecki (PI), K. Kontogiannis et.al co-Pis)	"Model-Integrated Software Service Engineering" Ontario Research Fund - Research Excellence" (ORF-RE), Canada	160,000CND	Jan. 2008 – Jan 2011
K. Kontogiannis (co-PI)	"Event Logging Systems for Legacy Software", Computer Associates (CA), US	\$120,000 CND	June 2007 – May 2009
K. Kontogiannis (PI)	"Requirements Driven Model Refactoring and Evolution for Service Oriented Systems", IBM, Canada	\$108,000 CND	Jan. 2007 – Dec. 2009
K. Kontogiannis (SEI Contract - PI)	"A Research Agenda for Service Oriented Architectures", SEI/CMU, US IRAD Project	\$14,400 USD	Feb. 2007 – Sept. 2007
K. Kontogiannis (PI)	"Service Discovery and Composition of Carrier Applications", Nortel, Canada	\$180,000 CND	Jan. 2006 – Dec. 2008
K. Kontogiannis (PI)	"Extensible Framework for Model Driven Software Evolution" IBM, US	\$60,00 USD	Jan. 2005 – Dec. 2006
K. Kontogiannis (PI)	"Model Driven Software Development and Evolution", NSERC Discovery Grant	\$130,000 CND	April 2006 – March 2011
A. Safavi (PI), K. Kontogiannis, D. Covey	"Enabling Software Technologies for Land-mobile Satellite Data Network for Health Informatics", CITO	\$60,000 CND	April 2005 – Mar. 2006
K. Kontogiannis (PI)	"Integrating Software Evolution Support into Application Development Environment", IBM University Partnership Program Award	\$40,000 USD	May 2003
J. Mylopoulos (PI), K. Kontogiannis, J. Cordy, E. Stroulia	"Software Re-engineering for network-Centric Platforms", NSERC, CRD	\$98,000 CND	May. 2002 – Apr. 2006
J. Mylopoulos (PI), K. Kontogiannis, E. Stroulia	"Knowledge Management for Mobile Users", IRIS	\$105,000 CND	May 2002 – Apr. 2005
K. Kontogiannis (PI)	"Infrastructures for the Design and Deployment of Customizable Web Portals in Wireless and Thin-client Platforms", Bell University laboratories, Canada	\$225,000 CND	May 2001 – Apr. 2004
K. Kontogiannis (PI)	"Design of Software Tools and Methodologies to Support Software Re-engineering", NSERC Discovery Grant, Canada	\$130,000 CND	May 2001 – April 2006
K. Kontogiannis (PI)	"Analysis and Use of Markup Languages in Wireless Mobile Devices", Bell University Laboratories, Canada	\$70,000 CND	May 2000 – Dec. 2001

K. Kontogiannis (PI), J. Mylopoulos	"Design and Implementation of a Collaborative Environment for Software Management", CITO, Canada	\$66,000 CND	Apr. 2000 – March 2002
J. Mylopoulos (PI), R. Holt, K. Kontogiannis, H. Muller	"Software Transformations for Massive Software Change", NSERC CRD, Canada	\$240,000 CND	April 1999- Mar. 2002
K. Kontogiannis (PI), J. Mylopoulos	"Design and Development of a Code Base Management System (CBMS)", CITO, Canada	\$66,000 CND	Sept. 1998 – June 2000
J. Mylopoulos (PI), K. Kontogiannis, H. Muller	"Frameworks for the Reengineering of Legacy Systems to Network-centric Environments", IRIS, Canada	\$80,000 CND	Apr. 1998- March 2002
K. Kontogiannis (PI), et.al	"Computing and Laboratory Infrastructure for the Wireless Telecommunications, Power Electronics and, Software Engineering Laboratories" ,CFI New Opportunities Program, Univ. of Waterloo, Canada	\$259,000 CND (total)	Apr. 1998 – March 2002
K. Kontogiannis (PI)	"Software Reengineering to Object Oriented Platforms", NSERC Discovery Grant, Canada	\$110,000 CND	May 1997 – Apr. 2001
J. Mylopoulos (PI), R. Holt, K. Kontogiannis	"Design of Tools and Techniques for Software Reengineering", NSERC CRD, Canada	\$80,000 CND	Jan. 1997 – Apr. 1999
J. Mylopoulos (PI), K. Kontogiannis, M. Stanley	"Evaluation and Integration of Software Reengineering Tools", CITO, Canada	\$30,000 CND	Sept. 1995 – Dec. 1996

## 5. COLLABORATION WITH RESEARCH CENTERS AND CONSULTING

### I. Industry and University Laboratories

- **Jan. 1997 – now:** Visiting Scientist and Faculty Fellow IBM Canada, Toronto Laboratory, Canada.
- **Jun. 2007 – Dec. 2011:** Visiting Scientist Computer Associates Technologies, CA Labs, Canada/UK
- **Jan. 2007 – Dec. 2007:** Visiting Scientist and Research Collaborator, Software Engineering Institute, Dynamic Systems Division, Pittsburgh, USA.

### II. Startups

- **Jun. 1996 – Jun. 1999:** *Techné Knowledge Systems*, Toronto, ON. Canada. The company developed novel program analysis, maintenance, and Y2K re-engineering tools for ADABAS, NATURAL and Micro-Focus based software applications.

### III. Consulting

- **Nov. 2014 – July 2016:** *Ulysses Systems*, Athens, Greece. Consulting for Ulysses Systems as an architect and software design reviewer for the system applications the company develops in Athens, London, and Mumbai.

## 6. HONORS AND AWARDS

### I. Academic Honors

- **Oct. 2015:** IBM Canada “CAS Faculty Fellow of the Year Award”.
- **Nov. 2013:** IBM CAS Research “Project of the Year Award” for the project “Framework for the Deployment of Legacy Enterprise Services Utilizing the REST Protocol” (2013).
- **Nov. 2010:** Decade’s High Impact Paper for year 1998 (period 1991- 2010) in ACM CASCON Conference for the paper, K.Kontogiannis, J.Martin, K.Wong, R.Gregory, H.Muller, J.Mylopoulos. 1998, “Code Migration Through Transformations: An Experience Report”. In Proceedings of CASCON'98, Toronto ON. December 1998, pp.1-12.
- **Nov. 2010:** Most Influential Paper Award (period 2000 – 2010) in IEEE Working Conference on Reverse Engineering for the paper, Balazinska, E. Merlo, M. Dagenais; B. Lague, K. Kontogiannis, 2000, “Advanced Clone-analysis to Support Object-oriented System Refactoring”. In Proceedings of the Working Conference on Reverse Engineering, 2000 (WCRE 200) November 2000, Brisbane Australia, pp.98 – 107.
- **July 2009:** Best Student Paper Award COMPSAC 2009 for the paper, A. Razavi, K. Kontogiannis, 2009, “ProtoTalk: A Generative Software Engineering Framework for Prototyping Protocols in Smalltalk”. In Proc. of 33<sup>rd</sup> IEEE COMPSAC 2009, Seattle, USA, pp.435-442.

### II. Industry Awards

- **Jan.2005-Dec. 2006:** IBM Faculty Fellowship Award (\$60,000 USD).
- **May 2003:** IBM University Partnership Award (\$40,000 USD).
- **Mar. 2003 – Feb.2005:** Elected Member IEEE Distinguished Visitors Program (DVP).
- **May 2003:** IBM University Partnership Program Award (\$60,000 USD).
- **May 2001:** IBM University Partnership Program Award (\$60,000 USD).

## 7. INNOVATION AND PATENTS

- **IBM Canada Ltd.** US 20080276229 A1, “INCREMENTAL MODEL REFINEMENT AND TRANSFORMATION IN GENERATING COMMERCE APPLICATIONS USING MODEL DRIVEN ARCHITECTURE” (with student I. Ivkovic et.al). (2008).
- **IBM Canada Ltd.** CA 2465155 and US 20080147981 A1, “RECOMMENDATIONS FOR INTELLIGENT DATA CACHING”, (with student C. Mills, D. Crick, M. Tang). (2008).

## 8. PUBLICATIONS (names of my own graduate students are underlined)

### I. Journal Papers

- [1] T. Kalamatianos, K. Kontogiannis, 2017, “Distributed analysis and filtering of application event streams”, Journal of Systems and Software, Elsevier, vol. 129, pp. 1-25.
- [2] I. Stavropoulou, M. Grigoriou, K. Kontogiannis, 2017, “Case study on which relations to use for clustering-based software architecture recovery”, J. Empirical Software Engineering, Springer, pp. 1-46.

- [3] G. Chatzikonstantinou, K. Kontogiannis, 2016, "Efficient Parallel Reasoning on Fuzzy Goal Models for Runtime Requirements Verification", *Journal of Software and Systems Modeling* pp.1-26.
- [4] G. Chatzikonstantinou, K. Kontogiannis, 2016, "Run-Time Requirements Verification for Reconfigurable Systems", *Journal of Information and Software Technology*, Elsevier, No.75, pp.105-121.
- [5] M. Athanasopoulos, K. Kontogiannis, 2015, "Extracting REST Resource Models from Procedure-oriented Service Interfaces", In *Journal of Systems and Software*, Elsevier, Vol. 100, Feb. 2015, pp. 149-166.
- [6] I. Ivkovic, K. Kontogiannis, 2006, "Towards Automatic Establishment of Model Dependencies Using Formal Concept Analysis". In *International Journal of Software Engineering and Knowledge Engineering*, Vol. 16, No. 4, pp.499-522.
- [7] L. Tahvildari, K. Kontogiannis, 2004, "Improving Design Quality Using Meta-Pattern Transformations: A metric-Based Approach". In *Journal of Software Maintenance and Evolution*. Volume 16, Issue 4-5, July-October 2004, pp.331-361.
- [8] K. Sartipi, K. Kontogiannis, 2003, "A User-Assisted Approach to Component Clustering". In *Journal of Software Maintenance Research and Practice*, John Willey & Sons. Volume 15, Issue 4, pp.265-295.
- [9] L. Tahvildari, K. Kontogiannis, J. Mylopoulos, 2003, "Quality Driven Software Reengineering". In *Journal of Systems and Software*, Vol. 66, No. 3 Elsevier 2003, pp.225-239.
- [10] T. Lau, J. Lu, J. Mylopoulos, K. Kontogiannis, 2003, "Migrating E-commerce Database Applications to an Enterprise Java Environment". In *Information Systems Frontiers*, Vol. 5, No. 2 (2003), Kluwer Academic Publishers, pp.149-160.
- [11] D. Rayside, K. Kontogiannis, 2002, "Extracting Java Library Subsets for Deployment on Embedded Systems". In *Journal Science of Computer Programming*, Elsevier Publishing, pp.245-270.
- [12] W. Kou, D. Lauzon, W. O'Farrell, T.L. See, D. Wee, D. Tan, K. Cheung, R. Gregory, K. Kontogiannis, J. Mylopoulos, 2000, "End-to-end E-commerce Application Development Based on XML Tools". In *IEEE Data Eng. Bull.* 23(1), pp.29-36.
- [13] P. Finnigan, R. Holt, I. Kalas, S. Kerr, K. Kontogiannis, H. Muller, J. Mylopoulos, S. Perelgut, M. Stanley, K. Wong, 1997, "The Software Bookshelf". In *IBM Systems Journal*, Vol. 36, No.4, 1997, pp.564-594.
- [14] K. Kontogiannis, R. DeMori, E. Merlo, M. Galler, and M. Bernstein, 1996, "Pattern Matching Techniques for Clone Detection". In *Journal of Automated Software Engineering*, Kluwer Academic Publishers, Vol. 3. pp.77-108.
- [15] E. Buss, R. DeMori, M. Gentleman, J. Henshaw, H. Johnson, K. Kontogiannis, E. Merlo, H. Muller, J. Mylopoulos, S. Paul, A. Prakash, M. Stanley, S. Tilley, J. Troster, and K. Wong, 1994, "Investigating ReverseEngineering Technologies for the CAS program Understanding Project". In *IBM Systems Journal*, Vol. 33, No. 3, pp.477-500.
- [16] E. Merlo, P.Y Gagnie, J.F Girard, K. Kontogiannis, L. Hendren, P. Panangaden, R. DeMori, 1995. "Re-engineering User Interfaces". In *IEEE Software*, January 1995, pp.64-73.

## **II. Special Volumes**

- [17] K. Kontogiannis, R. Gregory, 2001, "Customizable Service Integration in Web-Enabled Environments". In *Lecture Notes in Computer Science LNCS* vol. 1999, Springer-Verlag, pp. 227-243.
- [18] Y. Zou, K. Kontogiannis, 2001, "Migrating and Specifying Services for Web Integration". In *Lecture Notes in Computer Science LNCS* vol. 1999, Springer-Verlag 2001, pp.244-260.

## **III. Refereed Book Chapters**

- [19] H. Zawawy, S. Mankovskii, K. Kontogiannis, J. Mylopoulos, 2015. "Mining Software Logs for Goal-Driven Root Cause Analysis". In book "The Art and Science of Analyzing Software Data", eds. C. Bird, T. Menzies, T. Zimmermann, Waltham: Morgan Kaufmann, 2015, pp. 519-554.
- [20] M. Athanasopoulos, K. Kontogiannis, 2012. "Considerations of Adapting Service-offering Components to RESTful Architectures". In book "Migrating to SOA and Cloud Environments: Challenges in Service



Oriented Architecture and Cloud Computing Environments”, eds. A. D. Ionita, G. Lewis and M. Litoiu, IGI Global, 2102, pp.303-331.

- [21] Kontogiannis, 2011, “Techniques for Software Maintenance”. In Encyclopedia of Software Engineering. Taylor and Francis Publishers, 2011, pp.482-512.
- [22] K. Sartipi, K. Kontogiannis , 2004, “Software Architecture Analysis and Reconstruction”. In book, “Managing Corporate Information Systems Evolution and Maintenance”. Idea Group Publishing, 1004, pp.175-183.
- [23] Y. Zou, K. Kontogiannis, 2004, “Re-engineering Legacy Systems to Web-enabled Environments”. In book, “Managing Corporate Information Systems Evolution and Maintenance”, Idea Group Publishing, Hershey, PA, USA. 2004, pp.138-146.
- [24] K. Kontogiannis, J. Mylopoulos, S. Wu, 2001, “Towards Environment Re-targetable Parser Generators”. In book, “Advances in Software Engineering: Topics in Comprehension, Evolution, and Evaluation”, Springer-Verlag, New York, 1001, pp.407 - 437.
- [25] L. Tahvildari, K. Kontogiannis , 1999, “Computer Aided Software Engineering”. In Encyclopedia of Electrical and Electronics Engineering, John Webster editor. John Willey & Sons Publishers (35 pages).

#### IV. Refereed IEEE/ACM Conference Publications

- [26] M. Grigoriou, K. Kontogiannis, A. Giammaria, C. Brealey, 2020, “Report on Evaluation Experiments Using Different Machine Learning Techniques for Defect Prediction”. In Proc. 30<sup>th</sup> CASCON Conference, Toronto, ON. Nov. 2020 (**nominated for best paper award**).
- [27] M. Bachras, K. Kontogiannis, 2020, “Goal Modelling Meets Service Choreography: A Graph Transformation Approach”. In Proc. 24th IEEE International Enterprise Distributed Object Computing Conference, EDOC 2020, Eindhoven, The Netherlands, October 5-8, 2020 EDOC’20 pp. 30-39.
- [28] K. Tatsi, K. Kontogiannis, 2017, “Assisting Developers Towards Fault Localization by Analyzing Failure Reports”, In Proc. CASCON 2017, pp. 56-65 (**best student paper award**).
- [29] G. Chatzikonstantinou, M. Athanasopoulos, K. Kontogiannis, 2014, “Task Specification and Reasoning in Dynamically Altered Contexts”, In Proc. of 25<sup>th</sup> International Conference on Advanced Information Systems Engineering, (CAiSE’14), Thessaloniki, Greece, pp. 625-639. (acceptance rate 18,1%).
- [30] T. Kalamatianos, K. Kontogiannis, 2014, “Schema Independent Reduction of Streaming Log Data”, In Proc. of 25<sup>th</sup> International Conference on Advanced Information Systems Engineering, (CAiSE’14), Thessaloniki, Greece, pp. 394-408 (acceptance rate 18,1%).
- [31] G. Chatzikonstantinou, K. Kontogiannis, M. Attarian, 2013, “A Goal Driven Framework for Software Project Data Analytics”, In Proc. of 25<sup>th</sup> International Conference on Advanced Information Systems Engineering, (CAiSE’13), Valencia, Spain, pp.546-561. (acceptance rate approx. 18%).
- [32] T. Kalamatianos, K. Kontogiannis, P. Matthews, 2012, “Domain Independent Event Analysis for Log Data Reduction”, In. Proc. of the 36<sup>th</sup> IEEE International Computers, Software and Applications Conference (COMPSAC’12), Izmir, Turkey, pp.350-365.
- [33] A. Razavi, K. Kontogiannis, 2012, “Partial Evaluation for Model Transformations”. In Proc. of IEEE International Conference on Software Engineering (ICSE), Zurich, Switzerland, pp.562-572.
- [34] H. Zawawy, K. Kontogiannis, J. Mylopoulos, 2012, “Requirements-Driven Root Cause Analysis Using Markov Logic Networks”, In Proc. of 24<sup>th</sup> International Conference on Advanced Information Systems Engineering, (CAiSE’12), Gdansk, Poland, pp.350-365. (acceptance rate approx. 17%).
- [35] H. Zawawy, K. Kontogiannis, J. Mylopoulos, S. Mankovskii, 2011, “Towards a Requirements-

- Driven Framework for Detecting Malicious Behavior Against Software Systems” In Proc. of 21<sup>st</sup> IBM Center for Advanced Studies Conference (CASCON’11), Toronto, ON, Canada, pp.15-29.
- [36] M. Athanassopoulos, K. Kontogiannis, 2010, “Identification of REST-like Resources from Legacy Service Descriptions”. In Proc. of IEEE Working Conference on Reverse Engineering (WCRE/10), Oct. 2010, Boston, MA. USA, pp.215-219.
- [37] H. Zawawy, K. Kontogiannis, J. Mylopoulos, 2010, “Log Filtering and Interpretation for Root Cause Analysis” In Proc. of IEEE Intl. Conference on Software Maintenance (ICSM’10), Timisoara, Romania, pp.1-5.
- [38] A. Razavi, K. Kontogiannis, C. Brealey, L. Nigul, 2009, “Incremental Model Synchronization in Model Driven Development Environments”. In Proc. of 19<sup>th</sup> IBM Center for Advanced Studies Conference (CASCON’09), Toronto ON. Canada, pp.210-224.
- [39] A. Razavi, K. Kontogiannis, 2009, “ProtoTalk: A Generative Software Engineering Framework for Prototyping Protocols in Smalltalk” – **(Note: Best student paper award)**. In Proc. of 33<sup>rd</sup> IEEE International Computers, Software and Applications Conference (COMPSAC’09), Seattle, WA, USA, pp.435-442.
- [40] A. Razavi, K. Kontogiannis, 2008. “Pattern and Policy Driven Log Analysis for Software Monitoring”. In Proc. of the 32<sup>nd</sup> IEEE International Computers, Software and Applications Conference (COMPSAC’08), Turku, Finland, pp.108-111.
- [41] K. Kontogiannis, “Challenges and opportunities related to the design, deployment and, operation of Web Services”. In 26<sup>th</sup> IEEE International Conference on Software Maintenance (ICSM’08), FoSM track, October 2008, Beijing, China, pp.11 – 20.
- [42] I. Ivkovic, K. Kontogiannis, 2006, “A Framework for Software Architecture Refactoring using Model Transformations and Semantic Annotations”. In Proceedings of IEEE Conference on Software Maintenance and Reengineering (CSMR’06), Bari Italy, pp.135-144.
- [43] I. Ivkovic, K. Kontogiannis, 2005, “Using Formal Concept Analysis to Establish Model Dependencies”. In Proceedings of IEEE International Conference on Information Technology (ITCC’05), Volume 2, Las Vegas, NV. UAS, pp.365 – 372.
- [44] R. al Ekram, K. Kontogiannis, 2005, “An XML-based Framework for Language Neutral Program Representation and Generic Analysis”. In Proceedings of the IEEE Conference on Software Maintenance and Re-engineering (CSMR’05), Manchester UK, pp.42-51.
- [45] Y. Zou, T. Lau, K. Kontogiannis, T. Tong, R. McKegney, 2004, “Model Driven Business Process Recovery”. In Proceedings of the IEEE Working Conference on Reverse Engineering (WCRE’04), Amsterdam, The Netherlands, pp.224-233.
- [46] L. Tahvildari, K. Kontogiannis, 2004, “Developing a multi-objective decision approach to select source-code improving transformations”. In Proceedings of the IEEE International Conference on Software Maintenance (ICSM’04), Chicago IL. USA, pp.427-431.
- [47] I. Ivkovic, K. Kontogiannis, 2004, “Tracing Evolution Changes of Software Artifacts through Model Synchronization”. In Proceedings of the IEEE International Conference on Software Maintenance (ICSM’04), Chicago IL. USA, pp.252-261.
- [48] Y. Ping, K. Kontogiannis, T. Lau, 2004, “Refactoring Web Sites to the Controller-centric Architecture”. In Proceedings of the IEEE Conference on Software Maintenance and Re-engineering (ICSM’04), Tampere, Finland, pp.204-213.
- [49] R. al Ekram, K. Kontogiannis, 2004, “Source Code Modularization Using Lattice of Concept Slices”. In Proceedings of the IEEE Conference on Software Maintenance and Re-engineering (WCRE’04), Tampere, Finland. pp.195-203.

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**V. Refereed IEEE/ACM short papers** (approx. 1 to 4 Transactions pages).

- [94] A. Wasfy, K. Kontogiannis, “Event clustering for log reduction and run time system understanding”, In Proc. of ACM Symposium on Applied Computing (SAC’11), Taichung Taiwan, pp.191-192.
- [95] M. Athanasopoulos, K. Kontogiannis, “Identification of REST-like Resources from Legacy Service Descriptions”, In Proc. of IEEE Working Conference on Reverse Engineering, Boston, USA, pp.215-219.
- [96] H. Zawawy, K. Kontogiannis, J. Mylopoulos, “Log filtering and interpretation for root cause analysis”, In Proc. of IEEE Conference on Software Maintenance, (ICSM’10), Banff, Canada, pp.1-5.
- [97] K. Kontogiannis, D. Smith, G. Lewis, M. Litoiu, E. Stroulia, H. Muller, 2007, “The Landscape of Service Oriented Systems: A Research Perspective”. In Proceedings of International Conference on Software Engineering (ICSE’07), Minneapolis, MN. USA, p.1.
- [98] K. Kontogiannis, P. Linos, K. Wong, 2006, “Comprehension and Maintenance of Large-Scale Multi-Language Software Applications”. In Proceedings of IEEE International Conference on Software Maintenance (ICSM’06), Philadelphia, PA. USA, pp.497-500.
- [99] I. Ivkovic, K. Kontogiannis, 2005, “Model Synchronization through Pattern-Based Association Grammars” (poster paper). In Proceedings of the IEEE International Conference on Software Maintenance (ICSM’05), Budapest, Hungary p.1.
- [100] I. Ivkovic, K. Kontogiannis, “Model Synchronization as a Problem of Maximizing Model Dependencies”. In Proceedings of IEEE International Conference on Object Oriented Programming languages Systems and Languages (OOPSLA’04), Vancouver Canada pp.222-223.

**VI. Refereed IEEE/ACM Workshop papers**

- [101] N. Madhavji, A. Miranskyy, Kostas Kontogiannis, “Big Picture of Big Data Software Engineering: With Example Research Challenges”. In Proc. of Big Data in Software Engineering IEEE ICSE 2015, pp. 11-14.
- [102] G. Chatzikonstantinou, K. Kontogiannis, “Policy Modeling and Compliance Verification in Enterprise Software Systems: A Survey”. In online Proc. of the 6<sup>th</sup> IEEE International Workshop on the Maintenance and Evolution of Service-Oriented and Cloud-Based Systems, Sept. 2012, (10 pages).
- [103] M. Athanasopoulos, K. Kontogiannis, “Towards an interpretation framework for assessing Interface uniformity in REST”, In Proc. of IEEE WS-REST Workshop, WWW’11, pp.47-50.
- [104] V. Koutsoubas, K. Kontogiannis, P. Mathews, “Dynamic Analysis for the Reconstruction of System Behavior Models”, In. Proc. of Second IEEE International Workshop on Computer Forensics in Software Engineering, IEEE COMPSAC 2010, pp. 273, 280.
- [105] K. Kontogiannis, G. Lewis, D. Smith, “The landscape of service-oriented systems: a research perspective for maintenance and Reengineering”, In Proc, of 11th IEEE International Workshop on Service-Oriented Architecture Maintenance and Reengineering, CSMR’07, Amsterdam, the Netherlands, 2007 (8 pages).
- [106] K. Kontogiannis, D. Smith, G. Lewis, M. Litoiu, E. Stroulia, H. Muller, Schuster, 2007, “The Landscape of Service Oriented Systems: A Research Perspective”. In Proc. SDSOA’07, Systems Development in SOA Environments, International Workshop on, Systems Development in SOA Environments, International Workshop on 2007, pp.1-7.
- [107] Y. Zou, K. Kontogiannis, 2003, “Adoption-Centric Software Evolution”. In Proceedings of the IEEE Workshop on Adoption Centric Computing held at ICSE 2003, Edinburgh, Scotland, pp.3-6.
- [108] Y. Zou, K. Kontogiannis , 2001, “Towards an Abstract Syntax Tree Using XML”. In Proceedings of IEEE Workshop on XML and Software Engineering. held at ICSE 2001, May 2001, (4 pages).
- [109] Y. Zou, K. Kontogiannis, 2001, “Towards a Web-Centric Legacy System Migration Framework”, In Proceedings of IEEE Workshop on Network Centric Computing, held in conjunction with ICSE 2001, May 2001, Toronto, ON. Canada, (4 pages).
- [110] Y. Zou, K. Kontogiannis, 2000, “Migrating and Specifying Services for Web Integration”. In Intl. Workshop on Engineering Distributed Objects, (EDO’00), June 2000, Davis CA. USA, pp.253-270.

- [111] K. Kontogiannis, R. Gregory, 2000, "Customizable Service Integration in Web-Enabled Environments". In the working notes of the International Workshop on Engineering Distributed Objects (EDO'00) June 2000 Davis CA. USA, pp.235-252..
- [112] Y. Zou, K. Kontogiannis, 2000, "Localizing and Using Services in Web-enabled Environments". In the working notes of Workshop on Web Site Evolution, (WSE'00) March 2000, Zurich, Switzerland (4 pages).
- [113] Y. Zou, K. Kontogiannis, 1999, "Enabling Technologies for Web-Based Legacy System Integration". In the working notes of the Workshop on Web Site Evolution, (WSE'99) October 1999, Atlanta GA. USA (4 pages).
- [114] R. DeMori, K. Kontogiannis, 1995, "Partial Matching for Code Similarity". International Joint Conference on Artificial Intelligence. In the working notes of the Workshop on Software Engineering and Artificial Intelligence, Montreal, PQ. Canada (5 pages),

## **VI. Book Translation**

- [113] Bruno Preiss, Data Structures and Algorithms with Object Oriented Patterns in C++, Addison Wesley. Translation in Greek, Pedio Publishers.
- [114] Ian Sommerville, *Software Engineering*, 7<sup>th</sup> Edition, Translation in Greek, Tziolas Publishers
- [115] G. Coulouris, *Distributed Systems, Concepts and Design*, Addison Wesley. Translation in Greek. DaVinci Publishers.

## **9. KEYNOTES AND INVITED TALKS**

### **I. Keynotes**

- "Maintenance and Evolution of Service-Oriented and Cloud-Based Systems", K. Kontogiannis. Keynote Talk, 8<sup>th</sup> IEEE International Symposium on Maintenance and Evolution of Service Oriented and Cloud Based Applications 2014, Sept. 2014, Victoria, BC. Canada.
- "Model Driven Evolution of Network-Centric Applications: Perspectives, Challenges, and Issues", K.Kontogiannis, Keynote Talk, 8<sup>th</sup> IEEE International Symposium on Web Site Evolution 2006, Sept. 2006, Philadelphia, PA. USA.

### **II. Invited Talks and Research Presentations**

- "Software Quality Assurance: Principles, Methods, and Emerging Challenges in the Maritime ICT Industry". Invited Talk at ShipIT Conference, Athens, Greece, September 2015.
- "Measuring and Assessing Software Quality: Issues, Challenges and Practical Approaches". Invited Talk at Digital Ship International Conference, Athens, Greece, November 2014.
- "Identifying REST Resource Models from Procedure-oriented Web Services". Invited Talk at IBM Toronto Lab, October, 2013.
- "Towards the Adaptation of WS-\* Services to REST Architecture". Invited Talk at IBM Toronto Lab, April, 2013.
- "Techniques for Software Analytics". Invited Talk on Research in Software Analytics Workshop ACM/CASCON 2012, November 2012.
- "Adapting procedure-oriented systems to REST". Research presentation at 2<sup>nd</sup>, Workshop on Leveraging REST in Enterprise Service Systems, ACM/CASCON 2011, November 2011.
- "Information Model for Integrated Root Cause Analysis". Invited Talk at workshop Integrated system diagnosis and root cause analysis, ACM/CASCON 2010, November 2010.

- “Rest Architecture in the Enterprise: Research Challenges”. Research presentation at Workshop on Issues and Challenges Leveraging REST Architectural Style in Enterprise Service Systems, ACM/CASCON 2010, November 2010.
- “Challenges in Bringing SOA Testing to the Classroom”. Invited Talk at Workshop on Software Testing in the Cloud, ACM/CASCON 2009, November 2009.
- “In-Context Challenges and Research Topics in SOA”. Research presentation at Workshop on SOA Research Challenges: Current Progress and Future Challenges, ACM/CASCON 2008, October 2008.
- “SOA Research Open Issues”. Research presentation at Workshop on SOA Research Challenges: A User Perspective, ACM/CASCON 2007, October 2007.
- “Web Services: Implications to Software Engineering”. Invited Talk Software Engineering Institute, Carnegie Mellon University, January 2005.

## 10. PROFESSIONAL ENGINEERING AFFILIATIONS AND SERVICE

### I. Professional Affiliations

- Registered Professional Engineer *P.Eng.* (Software Engineering) with Professional Engineers Ontario.
- Member of IEEE since 1997.

### II. IEEE/ACM Conference Organization

- General Chair, 27<sup>th</sup> IEEE International Conference on Software Analysis Evolution and Re-engineering (SANER 2020), London ON. Feb. 2020.
- Program co-Chair, 29<sup>th</sup> Annual International Conference on Computer Science and Software Engineering, CASCON 2019, Toronto, ON. Nov. 2019.
- Program co-Chair of the 15<sup>th</sup> IEEE Symposium on Web Systems Evolution WSE 2013, held in Eindhoven, The Netherlands, Sept. 2013.
- General Chair of the 12<sup>th</sup> IEEE Symposium on Web Systems Evolution WSE 2010, held in Timisoara, Romania, Sept. 2010.
- Program Co-Chair of the IEEE Intl. Conference on Software Maintenance ICSM 2009, held in Edmonton AB, Canada, Sept. 2009.
- General Chair of the IEEE Intl. Conference on Software Maintenance and Reengineering CSMR 2008, held in Athens, Greece, April 2008.
- General Chair of the IEEE Intl. Conference on Program Comprehension ICPC 2006 (former International Workshop on Program Comprehension IWPC), held in Athens, Greece, June 2006.
- General Chair of the IEEE Software Technology and Engineering Practice STEP 2005 Conference, Budapest Hungary, Sept 2005.
- Elected member of the Steering Committee of the IEEE International Conference on Program Comprehension (ICPC), 2001 – 2007.
- Elected member of Steering Committee of the IEEE Intl. Conference on Software Technology and Engineering Practice (STEP) 2004 – 2007.
- Elected member of Steering Committee of the IEEE Intl. Conference on Software Maintenance and Reengineering (CSMR) 2009-2012.
- General Chair of the IEEE Software Technology and Engineering Practice STEP 2003 conference, Amsterdam, The Netherlands, September 2003.



- Dagstuhl seminar organizer (with J. Mylopoulos, and J. Ebert) in: Interoperability of Re-engineering Tools, Dagstuhl Event 01041, Dagstuhl, Germany, January 2001,
- Program Chair for the IEEE-Intl. Workshop on Program Comprehension IWPC 2001 conference, Toronto, ON. Canada, May 2001.
- Program Chair Industrial Systems track at IEEE Intl. Conference on Software Engineering ICSE 2001, Toronto ON. Canada, May 2001.

### **III. Peer Review Service**

- Regular reviewer for various journals and conferences, notably: IEEE Transactions on Software Engineering, ACM Transactions on Software Engineering and Methodology, Journal of Systems and Software, International Journal of Software Engineering and Knowledge Engineering, International Journal of Software Engineering Practice and Experience, International Journal of Science of Computer Programming, IEEE International Conference on Software Maintenance, IEEE International Working Conference on Reverse Engineering, IEEE International Workshop on Program Comprehension.
- Program Committee member in the IEEE International Conference on Advanced Information Systems Engineering (CAISE'02) conference, the IEEE International Conference on Software Maintenance (2001 – 2004), the IEEE International Conference on Program Comprehension ICPC (1997 – 2004), the IBM Center for Advanced Studies Conference CASCON, (2012-2020).

### **IV. Department and University Service**

#### **Western University**

- Member of the Senate, Representative – Faculty of Science
- Co-Director, Western Industry 4.0 Network
- Member, Communications Committee, Faculty of Science
- Member, Fallona Interdisciplinary Science Award Committee, Faculty of Science
- Undergraduate Curriculum Committee, Computer Science Department
- Technologies Services Support Committee, Computer Science Department
- Topical Research and Colloquium Committee, Computer Science Department

#### **National Technical University of Athens**

- Member of the NTUA Senate Committee for University Libraries (2012-2016).
- Head of the ECE Departmental Library, responsible for the operations and management of the library (5,800 books, 5270 Ph.D, M.Sc., Diploma Theses, 2760 book loans in 2012, hosting of the ECE student electronic forum, and the Microsoft ELMS system) (2010 – now).
- Departmental Representative in the NTUA Senate (2010-2011).

#### **University of Waterloo**

- E&CE Software Engineering Option Coordinator (Spring 1998 - 2006).
- Member of the Departmental Tenure and Promotion Committee (Spring 2001 – Spring 2003).
- Chair, Departmental Computing Resource Committee (Fall 1999 – Fall 2000).
- Member, Software Engineering Program Design Committee, University of Waterloo (Spring 1999 – 2000).
- Member, Departmental Recruiting Committee (Spring 1999 – Spring 2003).
- Representative of E&CE to the Faculty of Engineering Computing Committee (Spring 1998 – 2000).
- Member of Software Engineering Degree Program, Curriculum Design Committee (Spring 1998 – 1999).
- Member of Associate Dean's Research and External Partnerships Planning Committee (Fall 2004 – 2005).

**11. STUDENTS – TRAINING OF HIGHLY QUALIFIED PERSONNEL (HQP)**

<i>NAME</i>	<i>TYPE of TRAINING</i>	<i>YEARS SUPERVISED</i>	<i>THESIS TITLE / AREA</i>	<i>PRESENT POSITION</i>
Andres Ishida	M.Sc.	2019 –	Extraction of Run-time Dependencies of Micro-Service Architecture Systems	Western University
Sergio Villegas	M.Sc.	2019 –	AIOps Techniques for Assessing System Requirements Compliance	Western University
Michael Rist	M.Sc.	2019 –	Modeling and Simulating Swarm Agent Behavior	Western University
Piush Korlepara	M.Sc.	2019 –	Probabilistic AI Reasoning Techniques for the Identification of Error Prone Modules	Western University
Ria Ria	M.SC	2019 –	Defect Prediction Techniques	Western University
Hao Jiang	Ph.D	2019 –	Personalized Web Tasking	Western University
Kostas Tsiounis	Ph.D.	2018 –	Assessing and Quantifying Trust in Large Software Ecosystems	Western University
Marios Grigoriou	Ph.D.	2017 –	DevOps for Continuous Software Engineering	Western University
Naditha Rao	M.Sc.	2017 – 2019	Techniques for Root Cause Analysis in Software Systems	Western University
Hao Jiang	M.Sc.	2017 – 2019	Personalized Web Tasking	Western University
Sanjay Ghanathay	M.Sc.	2017 – 2018	Software Analytics Frameworks	IBM Canada
Theodoros Kalamatianos	Ph.D.	2012 – 2019	Log Analysis for System Understanding	Google, Zurich Lab
Michalis Athanopoulos	Ph.D.	2010-2015	Migration of Service Oriented Architectures to REST	NBG, Greece
George Chatzikonstantinou	Ph.D.	2009-2015	Policy Compliance Verification for Multi-Tier Service Systems	SyntaxIT, Greece

Maria Attarian	M.A.Sc.	2010-2012	Techniques for Project Data Analysis	Google, US
Hamzeh Zawawi	Ph.D.	2007-2012	Log Filtering Techniques for Software Root Cause Analysis	Google, Mountain View
Ali Razavi	Ph.D.	2006-2012	Software Model Evolution	Google, Mountain View
Igor Ivkovic	Ph.D.	2003-2011	Model Synchronization Based on Graph Grammars	Lecturer, CS, U. Waterloo, Canada
Tasos Livogiannis	M.A.Sc.	2010-2011	Software Configuration Analysis	Google, US
Ahmed Wasfy	M.A.Sc.	2009-2010	Software Log Data Analysis	Agfa, Canada
Alfred Wong	M.A.Sc.	2005-2007	Workflow Simulation Framework	Microsoft, USA
Nikos Giannopoulos	M.A.Sc.	2005-2007	Architectures for Adaptive Systems	Intracom, Greece
Ali Razavi	M.A.Sc.	2003-2006	System Integration in Net-centric environments	Google, US
Majed Al-Shawa	M.A.Sc.	2003-2006	Enterprise Knowledge Management Framework	Software Engineer, Waterloo, ON.
Stelios Pallis	Research Associate	2003-2005	Infrastructures for Mobile Communication Applications	Rogers, Canada
Kishor Patil	M.A.Sc.	2002-2004	64Bit Architectures: A Compiler's Perspective	IBM Lab, Canada
Andrew Roszko	M.A.Sc.	2001-2004	Next Generation Enterprise Application Integration	CubeRoot, Canada
Cyrus Mills	M.A.Sc.	2001-2004	Analysis of JSP Applications for Efficient Caching	IBM Lab, Canada
Raihan Al-Ekram	M.A.Sc.	2001-2004	Source Code Modularization Using Concept Slices	Research Assoc. U. Waterloo, Canada
Ryan Bannon	M.A.Sc.	2001-2004	Persona-based Data Utilization	DevOps Engineer, CaseWare, Canada
Yu Ping	M.A.Sc.	2001-2004	Migration of Legacy Applications	SyBase, Canada
Alvin Chin	M.A.Sc.	2001-2003	Service Invocation and Roaming in Pervasive Computing	Senior ML Engineer, BMW, USA
Faryaaz Kassam	M.A.Sc.	2001-2003	Quality and Constraint based Workflow Composition	BMO, Canada
Gerald Tarcisius	M.A.Sc.	2001-2003	Context Aware Workflows	IBM Canada
Ladan Tahvildari	Ph.D.	1999-2003	Quality Driven Software Re-engineering	Professor, U. Waterloo, Canada

Ying Zou	Ph.D.	1999-2003	Migration of Procedural Systems to Object Oriented Platforms	Professor & CRC, Queen's Univ., Canada
Kamran Sartipi	Ph.D.	1998-2003	Pattern-based Software Architecture Extraction	Assoc. Prof. East Carolina Univ. USA
Kelvin Chung	M.A.Sc.	2000-2002	Web-Service Integration System for Collaborative Activities	IBM, Canada
Frankie Poon	M.A.Sc.	1999-2001	Approximate Matching and Structural Modeling for Web Data Integration	PWC, SAR Hong Kong, China
Derek Rayside	M.A.Sc.	1999-2001	A Generalized delta-Wavefront Graph Traversal Algorithm for Data Flow Analysis	Assoc. Prof., Univ. Waterloo, Canada
Evan Mamas	M.A.Sc.	1998-2000	Integrated Software Maintenance Environment	CEO, Arkbro Industries, Canada
Richard Gregory	M.A.Sc.	1998-2000	Customizable Service Integration Environment	IBM Lab, Canada
Prashant Patil	M.A.Sc.	1997-1999	Migration of Procedural Software Architectures to Object Oriented Architectures	Consultant, USA
Christy Lu	M.A.Sc.	1997-1998	C to RPG Program Adaptation	Computer Associates, USA
Shridhar Muthana	M.A.Sc.	1997-1998	Assessing Maintainability of Software Using Metrics	Bell Canada