

Curriculum Vitae of Professor Spiros Mancoridis, Ph.D.

Personal Information:

- **Address:** Department of Computing, College of Computing and Informatics, Drexel University, 3141 Chestnut Street, Philadelphia, PA, 19104, USA.
- **Phone/FAX:** (215) 895-6824 / FAX: (215) 895-0545
- **E-mail:** Spiros.Mancoridis@drexel.edu
- **WWW:** <http://www.cs.drexel.edu/~spiros>
- **Society Memberships:** Senior Member of the IEEE, Senior Member of the ACM.
- **Birth:** 1968, Montreal, Canada
- **Citizenship:** USA and Canada

Education:

- **1996: Ph.D.** (Doctor of Philosophy in Computer Science) University of Toronto, Department of Computer Science. **Thesis:** *Controlling the Interactions of Architectural Design Components Using Scoping Rules*. **Supervisor:** Prof. Richard C. Holt
- **1992: M.Sc.** (Master of Science in Computer Science) University of Toronto, Department of Computer Science. **Thesis:** *A Visual Programming Environment for Object-Oriented Turing* **Supervisor:** Prof. Richard C. Holt
- **1990: B.C.S.H.** (Bachelor of Pure and Applied Science with in Computer Science with Honors) Acadia University, Department of Computer Science.

Academic Experience:

- **2016-present: Tenured Distinguished Professor of Computer Science**, College of Computing and Informatics, Drexel University.
- **2016-present: Technical Fellow of the Isaac L. Auerbach Cybersecurity Institute**, Drexel University.
- **2015-2016: Interim Dean**, College of Computing and Informatics, Drexel University.
- **2015: Vice Dean**, College of Computing and Informatics, Drexel University.
- **2013-2015: Department Head of Computer Science & Senior Associate Dean of Computing**, College of Computing and Informatics, Drexel University.
- **2013-2016: Tenured Full Professor of Computer Science**, College of Computing and Informatics Drexel University.
- **2012-2013: Interim Department Head of Computer Science**, College of Engineering, Drexel University.
- **2007-2013: Tenured Full Professor of Computer Science**, College of Engineering, Drexel University.
- **2002-2007: Tenured Associate Professor of Computer Science**, College of Engineering, Drexel University.
- **2001-2002: Tenured Associate Professor of Mathematics and Computer Science**, College of Arts and Sciences, Drexel University.
- **1996-2001: Assistant Professor of Mathematics and Computer Science**, College of Arts and Sciences, Drexel University.

Professional Experience:

- **1997–2001: Visiting Professor at the AT&T Labs – Research.** Duties: Conducting research in reverse engineering, software maintenance, and tool integration.
- **1992: Visiting Researcher at the IBM Canada Ltd. Center for Advanced Studies (CAS).** Duties: Technology transfer of academic research to industry; developing tool integration techniques for object-oriented programming and architectural design environments.

- **1988-1989: Co-op student at the IBM Canada Ltd. Laboratory.** Duties: Ada compiler performance evaluation; VM systems administration.

Legal Consulting:

- **2104:** Expert witness consulting for O’Kelly, Ernst & Bielli, LLC
- **2014:** Expert witness consulting for US Department of Justice
- **2008:** Expert consulting for software copyright infringement litigation for lawyer Mr. Ely Goldin, Fox Rothschild LLP, 1250 S Broad Street, P.O. Box 431, Lansdale, PA 19446.
- **2007:** Expert consulting for software patent infringement litigation for lawyer Mr. Daniel L. Calder, Ratner-Presita, One Westlakes, Berwyn P.O. Box 980 Valley Forge, PA 19482.
- **2006:** Expert consulting for software copyright infringement litigation for lawyer Mr. William J. Brennan, IV, Pepper Hamilton, 3000 Two Logan Square, 18th and Arch Streets, Philadelphia, PA 19103-2799.
- **2003:** Expert testimony and software analysis on software copyright infringement litigation for lawyer Mr. George Berkelbach, Suite 300, 1401 Walnut Street, Philadelphia, PA, 19102.
- **2002:** Expert opinion of education-related litigation for lawyer Mr. Bruce McCulloch, PO Box 397, Wilmington, DE 19899-0397.

Defense Contracting Consulting:

- **2005-2008:** Advisor for Lockheed Martin’s Advanced Technology Laboratory in Cherry Hill NJ.
- **2004-2008:** Technical software consulting for Lockheed Martin’s ELDP program in Moorestown NJ.

Other Consulting:

- **2012-13:** Software Development Tools for Nutrition for Robert J. Karp, MD, Professor of Pediatrics, SUNY-Downstate Medical Center

Software Licenses:

- **2000:** (Mancoridis and Mitchell) **CHI Systems Inc., license for the Bunch Software (\$10,000).**

Software Patents:

- **2009:** (Mancoridis, Rorres, Stehle, Shevertalov, Lynch) “**Detection, Diagnosis, And Mitigation Of Software Faults**”, PCT/US2011/022846.
- **2016:** (Mancoridis, Canzanese, Kam) “**Behavioral Change-Point Malware Detection System**”. Patent Pending.

Awards and Distinctions:

- **2016-present:** Distinguished Professor of Computer Science
- **2016-2019:** Technical Fellow of the Isaac L. Auerbach Cybersecurity Institute.
- **2009:** Best paper: *Task Dependency of User Perceived Utility in Autonomic VoIP Systems*, by E. Stehle, M. Shevertalov, P. deGrandis, S. Mancoridis, M. Kam. In the Proceedings of the IEEE 4th International Conference on Autonomic and Autonomous Systems (ICAS’08).
- **2008:** Drexel University College of Engineering *Outstanding Research Award*.
- **2003:** Best paper: *Modeling the Search Landscape of Metaheuristic Software Clustering Algorithms*, by B. S. Mitchell, S. Mancoridis. In the AAAI Proceedings of the 2003 Genetic and Evolutionary Computation Conference (GECCO’03).
- **2003:** Invited to attend a Schloss Dagstuhl Workshop at the International Conference and Research Center for Computer Science in Dagstuhl Germany on the subject of *Software Architecture: Modeling and Recovery* (<http://www.dagstuhl.de/Reports/03061>)
- **2001:** Best paper: *CRAFT: A Framework for Evaluating Software Clustering Results in the Absence of Benchmark Decompositions*, by B. S. Mitchell, S. Mancoridis. In the IEEE Proceedings of the 2001 Working Conference in Reverse Engineering (WCRE’01).

- **2001:** Invited to attend a Schloss Dagstuhl Workshop at the International Conference and Research Center for Computer Science in Dagstuhl Germany on the subject of *Interoperability of Reengineering Tools* (<http://www.dagstuhl.de/01041>)
- **2000:** Research Day 2000 – Best Poster Award, Twelfth Annual SIGMA XI Research Day Drexel and MCP Hahnemann Universities (with M. Traverso)
- **1997:** NSF CAREER Award (<http://www.nsf.gov/cgi-bin/showaward?award=9733569>).
- **1993-1995:** IBM Canada Ltd. Center for Advanced Studies (CAS) Research Fellowship
- **1992-1994:** Natural Sciences & Engineering Research Council (NSERC) Postgraduate Scholarship
- **1990-1991:** Open Master's Fellowship, University of Toronto
- **1987-1990:** Acadia University Dean's List Scholarship

Ph.D Students:

- **Brian Mitchell (Ph.D.) graduated 2002.**
- **Maher Salah (Ph.D.) graduated 2005.**
- **Ray Canzanese (Ph.D, co-advisor with Moshe Kam) graduated 2015.**
- **Matthew Ping (Ph.D. candidate)**
- **Bander Alsulami (Ph.D. candidate)**
- **Alex Duff (Ph.D. candidate)**

M.Sc. Students with Thesis:

- **Juan Gargiulo (M.Sc.) graduated 2001.**
- **Martin Traverso (M.Sc.) graduated 2001.**
- **Beth Randall (M.Sc.) graduated 1999.**
- **Congrong Liao (M.Sc.) graduated 2002.**
- **Christopher Dahn (M.Sc.) graduated 2004.**
- **Maxim Shevertalov (M.Sc.) graduated 2007.**
- **William Mongan (M.Sc.), graduated 2009.**
- **Daniel DaCosta (M.Sc.), graduated 2011.**

Archival Journal Publications:

1. E. Stehle, M. Shevertalov, P. deGrandis, S. Mancoridis, and M. Kam. "Perception of Utility in Autonomic VoIP Systems", *International Journal On Advances in Intelligent Systems*, Volume 2, No 1, 2009, pp. 92-106.
2. B. S. Mitchell, S. Mancoridis, On the evaluation of the Bunch search-based software modularization algorithm, *Springer-Verlag Journal of Soft Computing*, Volume 12, Number 1, 2007, pp. 77-92.
3. B. S. Mitchell, S. Mancoridis, On the Automatic Modularization of Software Systems Using the Bunch Tool, *IEEE Transactions on Software Engineering*, Volume 32, Number 3, 2006, pp. 193-208.
4. A. Shokoufandeh, S. Mancoridis, T. Denton, M. Maycock, Spectral and Meta-heuristic Algorithms for Software Clustering, *Journal of Systems and Software*, Vol. 77, pp. 213-223, 2005.
5. J. Clark, J. J. Dolado, M. Harman, R. Hierons, B. Jones, M. Lumkin, B. S. Mitchell, S. Mancoridis, K. Rees, M. Roper, M. Shepperd, Reformulating Software Engineering as a Search Problem, *Journal of IEE Proceedings - Software*, 150(3): 161-175, 2003.
6. M. Traverso, S. Mancoridis, On the Automatic Recovery of Style-Specific Structural Dependencies in Software Systems, *Journal of Automated Software Engineering*, Kluwer Academic Publishers, Volume 9, Number 3, 2002. pp. 331-360.
7. A. Buchsbaum, Y.Chen, H.Huang, M.Jankowsky, E.Koutsofios, S.Mancoridis, J.Mocenigo, A.Rogers, Enterprise Navigator: A System for Visualizing and Analyzing Software Infrastructures, *IEEE Software*, Vol 18, Number 5, October 2001. pp 62-70.

8. S.Mancoridis, ISF: A Visual Formalism for Specifying Interconnection Styles for Software Design, *Intl. Journal of Software Engineering and Knowledge Engineering (IJSEKE)*, Vol. 8 No. 4, 1998, pp 517-540, World Scientific Publishing Company.

Archival Conference Publications:

1. A. Darki, A. Duff, Z. Qian, G. Naik, S. Mancoridis, M. Faloutsos. "Don't Trust Your Router: Detecting Compromised Router". In the *IEEE Proceedings of the 12th International Conference on Emerging Networking Experiments and Technologies CoNEXT'16 Student Workshop*, Irvine, CA, USA, 2016.
2. M. Ping, B. Alsulami, S. Mancoridis. "On the Effectiveness of Application Characteristics in the Automatic Classification of Malware Smartphones", *Proc. 2015 IEEE International Conference on Malicious and Unwanted Software (MALWARE'16)*, Puerto Rico, October, 2016.
3. M. Balduccini, S. Mancoridis. "Action Languages and the Mitigation of Malware". In the Springer Verlag *Proc. of the First Workshop on Action Languages, Process Modeling, and Policy Reasoning (ALPP 2015)*, Lexington, Kentucky, USA, September, 2015.
4. R. Canzanese, S. Mancoridis, M. Kam. "Run-time Classification of Malicious Processes Using System Call Analysis", *Proc. 2015 IEEE International Conference on Malicious and Unwanted Software (MALWARE'15)*, Puerto Rico, October, 2015.
5. Robert J Karp, Isabelle Bollendorf, Christian Ngo, Nesity Dahan, Rayana Johnson, Donald Okoye, Shikha Sheth, and Spiros Mancoridis. "Filling, Affordable and Nutritious (FAN): An individualized program to assist poorer families in obtaining sufficient, nutritious food at a reasonable cost", Meetings of the Pediatric Academic Societies. Vancouver, Canada. May 6, 2014.
6. R. Canzanese, M. Kam, S. Mancoridis. "Toward an Automatic, Online Behavioral Malware Classification System", *Proc. 7th IEEE International Conference on Self-Adaptive and Self Organizing Systems (SASO '13)*, Philadelphia, PA, USA, September, 2013.
7. R. Canzanese, M. Kam, S. Mancoridis. "Multi-Channel Change Point Malware Detection", *Proc. IEEE International Conference on Software Security and Reliability (SERE '13)*, Washington, DC, USA, June, 2013.
8. E. Stehle, K. Lynch, M. Shevertalov, C. Rorres, S. Mancoridis. "Diagnosis of Software Failures Using Computational Geometry", *Proc. IEEE/ACM 26rd International Conference on Automated Software Engineering (ASE'11)*, Oread Lawrence, Kansas, USA, November, 2011.
9. M. Shevertalov, S. Mancoridis. "On the Maintenance of UI-integrated Mashup Applications", *Proc. IEEE of the 2011 International Conference on Software Maintenance (ICSM'11)*, Williamsburg, VA, USA, September, 2011.
10. R. Canzanese, M. Kam, and S. Mancoridis, "Inoculation against malware infection using kernel-level software sensors", In the *IEEE Proceedings of the International Conference on Autonomic Computing (ICAC'11)*, Karlsruhe, Germany, June, 2011
11. S. Wong, M. Aaron, J. Segall, K. Lynch, S. Mancoridis: Reverse Engineering Utility Functions Using Genetic Programming to Detect Anomalous Behavior in Software. WCRE 2010, Beverly, Massachusetts, October, 2010, pp. 141-149.
12. M. Shevertalov, K. Lynch, E. Stehle, C. Rorres, and S. Mancoridis . "Using Search Methods for Selecting and Combining Software Sensors to Improve Fault Detection in Autonomic Systems", *Proc. IEEE of the 2nd International Symposium on Search Based Software Engineering (SBSE'10)*, Benevento, Italy, September, 2010.
13. E. Stehle, K. Lynch, M. Shevertalov, C. Rorres, and S. Mancoridis, "On the use of Computational Geometry to Detect Software Faults at Runtime", In the *IEEE Proceedings of the International Conference on Autonomic Computing (ICAC'10)*, Washington DC, USA, June, 2010.
14. R. Lange and S. Mancoridis. "thr2csp: Toward Transforming Threads into Communicating Sequential Processes", In the *IEEE Proceedings of the Source Code Analysis and Manipulation Conference (SCAM'09)*, Edmonton, Canada, September, 2009, pp 3-12.
15. M. Shevertalov, J. Kothari, E. Stehle, and S. Mancoridis . "On the Use of Discretized Source Code Metrics for Author Identification", *Proc. IEEE of the 1st International Symposium on Search Based*

- Software Engineering (SBSE'09)*, Windsor, UK, May, 2009.
16. C. Nagy and S. Mancoridis. "Static security analysis based on input-related software faults", *Proc. IEEE of the 13th European Conference on Software Maintenance and Reengineering (CSMR'09)*, Kaiserslautern, Germany, March, 2009, pp. 37-46.
 17. J. Kothari, D. Bespalov, S. Mancoridis, A. Shokoufandeh. "On Evaluating the Efficiency of Software Feature Development Using Algebraic Manifolds", *Proc. IEEE of the 2008 International Conference on Software Maintenance (ICSM'08)*, Beijing, China, September, 2008.
 18. S. Mancoridis. "Software Analysis for Security", *Proc. IEEE of the 2008 International Conference on Software Maintenance (ICSM'08), Future of Software Maintenance Track*, Beijing, China, September, 2008.
 19. M. Shevertalov, S. Mancoridis. "A Case Study on the Automatic Composition of Network Application Mashups", *Proc. IEEE/ACM 23rd International Conference on Automated Software Engineering (ASE'08)*, L'Aquila, Italy, September, 2008.
 20. W. Mongan, M. Shevertalov, S. Mancoridis. "Re-Engineering a Reverse Engineering Portal to a Distributed SOA", *Proc. IEEE Proceedings of the 16th International Conference on Program Comprehension (ICPC'08)*, Amsterdam, The Netherlands, June, 2008.
 21. E. Stehle, M. Shevertalov, P. deGrandis, S. Mancoridis, M. Kam, Task Dependency of User Perceived Utility in Autonomic VoIP Systems, *Proc. IEEE 4th International Conference on Autonomic and Autonomous Systems (ICAS'08)*, Gosier, Guadeloupe, March, 2008.
 22. M. Shevertalov, S. Mancoridis, A Reverse Engineering Tool for Extracting Protocols of Networked Applications, *Proc. IEEE 14th Working Conference on Reverse Engineering (WCRE'2007)*, Vancouver, Canada, October, 2007.
 23. R. C. Lange, S. Mancoridis, Using Code Metric Histograms and Genetic Algorithms to Perform Author Identification for Software Forensics, *Proc. AAAI Genetic and Evolutionary Computing Conference (GECCO'07)*, London, UK, July 2007.
 24. J. Kothari, T. Denton, A. Shokoufandeh, S. Mancoridis, Reducing Program Comprehension Effort in Evolving Software by Recognizing Feature Implementation Convergence, *Proc. IEEE 15th International Conference on Program Comprehension (ICPC'2007)*, Banff, Canada, June, 2007.
 25. M. Shevertalov, E. Stehle, C. Rorres, S. Mancoridis, M. Kam, An Approach to Comprehending Networked Applications through Analogy, *Proc. IEEE 3rd International Conference on Autonomic and Autonomous Systems (ICAS'07)*, Athens, Greece, June, 2007.
 26. J. Kothari, M. Shevertalov, E. Stehle, S. Mancoridis, A Probabilistic Approach to Source Code Authorship Identification, *Proc. IEEE 5th International Conference on Information Technology: New Generations (ITNG'07)*, Las Vegas, USA, April, 2007.
 27. J. Kothari, T. Denton, S. Mancoridis, A. Shokoufandeh, On Computing the Canonical Features of Software Systems, *Proc. IEEE 13th Working Conference on Reverse Engineering (WCRE'2006)*, Benevento, Italy, October, 2006.
 28. J. Kothari, T. Denton, A. Shokoufandeh, S. Mancoridis, A. E. Hassan, Studying the Evolution of Software Systems Using Change Clusters, *Proc. IEEE 14th International Conference on Program Comprehension (ICPC'2006)*, Athens, Greece, June, 2006.
 29. P. J. Modi, S. Mancoridis, W. M. Mongan, W. C. Regli, I. Mayk, Towards a Reference Model for Agent-Based Systems, *Proc. of the 5th International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS'06)*, (Industry Track), Japan, May 2006.
 30. M. Salah, S. Mancoridis, G. Antoniol, M. Di Penta, Scenario-Driven Dynamic Analysis for Comprehending Large Software Systems, *Proc. IEEE 10th European Conference on Software Maintenance and Reengineering (CSMR'06)*, Bari, Italy, March, 2006.
 31. M. Salah, T. Denton, S. Mancoridis, A. Shokoufandeh, F. Vokolos, Scenariographer: A Tool for Reverse Engineering Class Usage Scenarios from Method Invocation Sequences, *Proc. IEEE 2005 International Conference on Software Maintenance (ICSM'05)*, Budapest, Hungary, September, 2005.
 32. M. Salah, S. Mancoridis, G. Antoniol, M. Di Penta, Towards Employing Use-cases and Dynamic Analysis to Comprehend Mozilla, *Proc. IEEE 2005 International Conference on Software Maintenance (ICSM'05)*, Budapest, Hungary, September, 2005.
 33. J. Haas, M. Peysakov, V. Cicirello, S. Mancoridis, GA-based Parameter Tuning for Multi-Agent Systems (short Paper), *Proc. AAAI 9th Annual Genetic and Evolutionary Computing Conference (GECCO'05)*, Washington, DC, USA, June 2005.

34. C. Dahn, S. Mancoridis, Automatically Transforming GNU C Source Code. *Proc. 1st International Workshop on Software Evolution Transformations (SET'04)*, Delft, the Netherlands, November, 2004.
35. M. Salah, S. Mancoridis, Reverse Engineering of a Hierarchy of Dynamic Software Views: From Object Interactions to Feature Dependencies. *Proc. IEEE 2004 International Conference on Software Maintenance (ICSM'04)*, Chicago, USA, September, 2004.
36. B. S. Mitchell, S. Mancoridis, Using Interconnection Style Rules to Infer Software Architecture Relations, *Proc. AAAI 8th Annual Genetic and Evolutionary Computing Conference (GECCO'04)*, Seattle, USA, July 2004.
37. C. Dahn, S. Mancoridis, Using Program Transformation to Secure Against Buffer Overflows, *Proc. IEEE 2003 Working Conference in Reverse Engineering (WCRE'03)*, Victoria, BC, Canada, 2003.
38. M. Salah, S. Mancoridis, Toward an environment for comprehending distributed systems, *Proc. IEEE 2003 Proceedings of the Working Conference in Reverse Engineering (WCRE'03)*, Victoria, BC, Canada, 2003.
39. D. DaCosta, C. Dahn, S. Mancoridis, V. Prevelakis, Characterizing the Security Vulnerability Likelihood of Software Functions *Proc. IEEE 2003 International Conference on Software Maintenance (ICSM'03)*, Amsterdam, The Netherlands, September, 2003.
40. G.W.Hislop, S. Mancoridis, P.M.Shankar, A Collaborative Bachelor's Degree in Software Engineering, *Proc. IEEE/ASEE 2003 Proceedings of the Frontiers in Education Conference (FIE'03)*, Boulder, Colorado, November, 2003.
41. B. S. Mitchell, S. Mancoridis. Modeling the Search Landscape of Metaheuristic Software Clustering Algorithms, *Proc. AAAI 7th Annual Genetic and Evolutionary Computing Conference (GECCO'03)*, Chicago, USA, July 2003. (BEST PAPER AWARD).
42. D. DaCosta, C. Dahn, S. Mancoridis, V. Prevelakis, Demonstration of CoSAK Static Analysis Tools, DARPA Information Survivability Conference and Exposition – DISKEX 2003, Washington, DC, 2003.
43. A. Shokoufandeh, S. Mancoridis, M. Maycock . Applying Spectral Methods to Software Clustering, *Proc. IEEE 2002 Working Conference in Reverse Engineering (WCRE'02)*, Richmond, VA, USA, October, 2002, pp 3-10.
44. B. S. Mitchell, S. Mancoridis, M. Traverso. Search Based Reverse Engineering, *Proc. ACM 2002 International Conference on Software Engineering and Knowledge Engineering (SEKE'02)*, Ischia, Italy, July, 2002. pp. 431-438.
45. B.S.Mitchell, S.Mancoridis, Using Heuristic Search Techniques to Extract Design Abstractions from Source Code, *Proc. AAAI 2002 Genetic and Evolutionary Computing Conference (GECCO'02)* , NY, USA, July, 2002. pp. 1375-1382.
46. B. S. Mitchell, S. Mancoridis , Comparing the Decompositions Produced by Software Clustering Algorithms using Similarity Measurements, *Proc. IEEE 2001 International Conference on Software Maintenance (ICSM'01)*, Florence, Italy, November, 2001. pp 744-753.
47. T. S. Souder, S. Mancoridis, M. Salah , Form: A Framework for Creating Views of Program Executions, *Proc. IEEE 2001 International Conference on Software Maintenance (ICSM'01)*, Florence, Italy, November, 2001. pp. 612-620.
48. B. S. Mitchell, S. Mancoridis , CRAFT: A Framework for Evaluating Software Clustering Results in the Absence of Benchmark Decompositions, *Proc. IEEE 2001 Working Conference in Reverse Engineering (WCRE'01)*, Stuttgart, Germany, October, 2001. pp 93-102. (BEST PAPER AWARD)
49. S. Mancoridis, T. S. Souder, Y-F. Chen, E. R. Gansner, J. L. Korn , REportal: A Web-based Portal Site for Reverse Engineering, *Proc. IEEE 2001 Working Conference in Reverse Engineering (WCRE'01)*, Stuttgart, Germany, October, 2001. pp 221-230.
50. B.S.Mitchell, M.Traverso, S.Mancoridis, An Architecture for Distributing the Computation of Software Clustering Algorithms, *Proc. 2001 IEEE/IFIP Working Conference on Software Architecture (WICSA'01)*, Amsterdam, Netherlands, August, 2001. pp 181-190.
51. J.Gargiulo, S.Mancoridis, Gadget: A Tool for Extracting the Dynamic Structure of Java Programs, *Proc. 2001 International Conference on Software Engineering and Knowledge Engineering (SEKE'01)*, Buenos Aires, Argentina, June, 2001. pp. 244-251.
52. T.Hewett, S.Mancoridis, Psychology as Reverse Engineering, Society for Computers in Psychology Symposium, New Orleans, USA, November, 2000.

53. T.S.Souder, S. Mancoridis, A Tool for Securely Integrating Legacy Systems into a Distributed Environment, *Proc. 1999 IEEE Working Conference in Reverse Engineering (WCRE'99)*, Atlanta, GA, October, 1999. pp 47-55.
54. G.W.Hislop, S. Mancoridis, P.M.Shankar, Creating a Jointly Sponsored Master of Science in Software Engineering, *Proc. 1999 IEEE/ASEE Frontiers in Education Conference (FIE'99)*, San Juan, Puerto Rico, November, 1999. pp. 13A3/7-13A311
55. S. Mancoridis, B.S.Mitchell, Y.Chen, E.R.Gansner, Bunch: A Clustering Tool for the Recovery and Maintenance of Software System Structures, *Proc. 1999 IEEE Intl. Conference on Software Maintenance (ICSM'99)*, Oxford, UK, August, 1999. pp 50-59.
56. D. Doval, S. Mancoridis, B.S.Mitchell, Automatic Clustering of Software Systems using a Genetic Algorithm, *Proc. 1999 IEEE Intl. Workshop on Software Tools and Engineering Practice (STEP'99)*, Pittsburgh, PA, August, 1999. pp. 73-81.
57. S. Mancoridis, B.S.Mitchell, C.Rorres, Y.Chen, E.R.Gansner, Using Automatic Clustering to Produce High-Level System Organizations of Source Code, *Proc. 1998 IEEE Intl. Workshop on Program Understanding (IWPC'98)*, Ischia, Italy, June, 1998. pp. 45-52.
58. S. Mancoridis, R.C.Holt, Algorithms for Managing the Evolution of Software Designs, *Proc. 1998 Intl. Conf. on Software Engineering and Knowledge Engineering (SEKE'98)*, San Francisco, CA, June, 1998. pp. 367-374.
59. H.Fahmy, R.C.Holt, S.Mancoridis, Repairing Software Style using Graph Grammars, *Proc. 7th IBM Centre for Advanced Studies Conf. (CASCON'97)*, November, 1997.
60. S.Mancoridis, Customizable Notations for Software Design, *Proc. 9th Intl. Conf. on Software Engineering and Knowledge Engineering (SEKE'97)*, June, 1997. pp. 318-325. (Selected as one of the BEST PAPERS)
61. S.Mancoridis, R.C.Holt, Recovering the Structure of Software Systems Using Tube Graph Interconnection Clustering, *Proc. 1996 IEEE Intl. Conf. on Software Maintenance (ICSM'96)*, November, 1996. pp. 23-32.
62. S.Mancoridis, Toward a Generic Framework for Computing Subsystem Interfaces, *Proc. 2nd IEEE Intl. Workshop on Software Architecture (IWSA'96)*, October, 1996. pp 42-56.
63. S.Mancoridis, R.C.Holt, On Controlling the Interactions of Software Components: An Evolutionary Perspective, *Proc. 1996 Conf. on Software Engineering and its Application*, August, 1996.
64. S.Mancoridis, R.C.Holt, Extending Programming Environments to Support Architectural Design, *Proc. 7th IEEE Intl. Workshop on Computer-Aided Software Engineering (CASE'95)*, July, 1995. pp. 110-119.
65. S.Mancoridis, Loosely Integrating Tools Using the Star System, *Proc. 4th IBM Centre for Advanced Studies Conf. (CASCON'94)*, November, 1994.
66. S.Mancoridis, R.C.Holt, M.W.Godfrey, Tool Support for Software Engineering Education, *Proc. 16th IEEE Intl. Conf. on Software Engineering (ICSE'16) Workshop on Software Engineering Education*, May, 1994.
67. M.W.Godfrey, R.C.Holt, S.Mancoridis, Prototyping a Visual Formalism for Configuration Management, *Proc. 16th IEEE Intl. Conf. on Software Engineering (ICSE'16) Workshop on Software Engineering and Human-Computer Interaction*, May, 1994. (Also published as Lecture Notes in Computer Science vol.896, Springer Verlag, Feb. 1995.)
68. S.Mancoridis, R.C.Holt, M.W.Godfrey, A Program Understanding Environment Based on the Star approach to Tool Integration, *Proc. 22nd ACM Computer Science Conf. (CSC'94)*, March, 1994.
69. S.Mancoridis, A Multi-Dimensional Taxonomy of Software Development Environments, *Proc. 3rd IBM Center for Advanced Studies Conf. (CASCON'93)*, November, 1993.
70. S.Mancoridis, R.C.Holt, D.A.Penny, A Conceptual Framework for Software Development, *Proc. 21st ACM Computer Science Conf. (CSC'93)*, February, 1993.
71. S.Mancoridis, R.C.Holt, D.A.Penny, A Curriculum-Cycle Environment for Teaching Programming, *Proc. 24th ACM Special Interest Group in Computer Science Education (SIGCSE'93) Technical Symposium on Computer Science Education*, February, 1993.
72. R.C.Holt, D.A.Penny, S.Mancoridis, Multicolour Programming and Metamorphic Programming: Object-Oriented Programming-in-the-Large, *Proc. 2nd IBM Centre for Advanced Studies Conf. (CASCON'92)*, November, 1992.

Technical Report Publications:

1. A. Buchsbaum, Y. Chen, H.Huang, M.Jankowsky, E. Koutsofios, S. Mancoridis, J. Mocenigo, A. Rogers, Enterprise Navigator: A System for Visualizing and Analyzing Software Infrastructures, *AT&T Labs – Research Technical Report, Number TR-99.16.1*, 1999.
2. R. C. Holt, S. Mancoridis, Using Tube Graphs to Model Architectural Designs of Software Systems, *Computer Systems Research Institute University of Toronto, Technical Report, Number 308*, October, 1994.
3. S. Mancoridis, R. C. Holt, M. W. Godfrey, Tool Support for Software Engineering Education, *Imperial College of London Technical Report, Number TR 94/6*, June, 1994. (Also appears in the Proceedings of the Sixteenth International Conference on Software Engineering Workshop on Software Engineering Education.)
4. R. C. Holt, S. Mancoridis, A Framework for Specifying and Visualizing Architectural Designs, *Computer Systems Research Institute University of Toronto Technical Report, Number 300*, June 1994. (Also appears as an *IBM Technical Report, Number TR-74.142*, July, 1994.)
5. R. C. Holt, D. A. Penny, S. Mancoridis, Multicolour Programming and Metamorphic Programming: Object-Oriented Programming-in-the-Large, *IBM Technical Report, Number TR-74.087*, March, 1992. (Also appears in the Proceedings of the Second IBM Center for Advanced Studies Conference.)

Book Chapter Publications:

1. R.C.Holt, S.Mancoridis, D.A.Penny, Using the Turing Language Across the Curriculum, *Chapter in Programming Language Choice: Practice and Experience* (Mark Woodman ed.), Intl. Thompson Computer Press London, U.K., 1996.
2. M.Nassar, S.Mancoridis, Fundamental Data Structures and Algorithms, *Wm. C. Brown Publishers*, Dubuque, Iowa 52001, USA, 1992.

Software:

- **Bunch:** Bunch is a software clustering tool. Its input is a module dependency graph that consists of nodes (e.g., modules, files, classes) and edges (e.g., method invocations, inheritance relationships between classes). Bunch's output is a hierarchical decomposition of the system structure where closely related modules are grouped into clusters that are loosely connected to other clusters. This decomposition produces a high-level map, which software engineers can use to navigate through the complex structure of large software systems. Bunch has had a widespread impact in **a)** classrooms (University of California – Riverside, University of Wisconsin – Milwaukee, Waterloo University), **b)** research labs (AT&T Labs - Research, University of Ottawa, University of Toronto), and **c)** industry (CHI Systems, AT&T). More information about Bunch can be found at: <http://serg.cs.drexel.edu>.

Professional Service:

Conference General Chair:

- **2006:** *IEEE International Conference on Software Maintenance (ICSM'06)*, September 2006, Philadelphia, USA.

Conference Program Committee Chair:

- **2005:** *AAAI Genetic and Evolutionary Computation Conference (GECCO'05) Track on Search-Based Software Engineering (SBSE)*, June 2005, Washington, USA.

Associate Editor:

- **2011-present:** *Journal of Software Maintenance and Evolution: Research and Practice*

Conference Program Committees:

- **2009-2015:** *IEEE Symposium on Search Based Software Engineering (SBSE)*.
- **2004-2007, 2009-2013:** *IEEE International Conference on Software Maintenance (ICSM)*.

- **2002-2015:** *AAAI Genetic and Evolutionary Computation Conference (GECCO) Track on Search-Based Software Engineering (SBSE)*.
- **2002-2014:** *IEEE International Working Conference in Reverse Engineering (WCRE)*.
- **2007-2011:** *IEEE International Conference on Program Comprehension (ICPC)*.
- **2006-2007:** *IEEE International Workshop on Source Code Analysis and Manipulation (SCAM)*.
- **2004-2010:** *IEEE European Conference in Software Maintenance and Reengineering (CSMR)*.
- **2006:** CEC Track of the *IEEE World Congress on Computational Intelligence (WCCI)*.
- **2003:** *IEEE International Workshop on Principles of Software Evolution (IWPSE)*.
- **2004:** IEEE Workshop on Software Evolution Transformations (SET).
- **1999:** *IEEE Software Tools and Engineering Practice Conference (STEP)*.

Other Conference Committees:

- **2013:** Research Demonstrations Committee Member for the *International Conference on Software Engineering, (ICSE'2013)*, San Francisco, USA, 2013.
- **2006-2009:** International Conference on Software Maintenance (ICSM) Steering Committee.
- **2009-2011:** International Conference on Search Based Software Engineering (SSBSE) Steering Committee.
- **2009:** *IEEE International Working Conference in Reverse Engineering (WCRE)* Doctoral Symposium co-chair.
- **2007:** Workshop Co-chair for the workshop entitled Code Based Software Security Assessments (CoBaSSA), October, 2007, Vancouver, Canada.
- **2005:** Workshop Co-chair for the workshop entitled Code Based Software Security Assessments (CoBaSSA), November, 2005, Pittsburgh, PA.
- **2004:** Dissertation Forum co-Chair for the *IEEE International Conference on Software Maintenance (ICSM'04)*, September, 2004, Chicago, USA.
- **2004:** Workshops Committee Member for the *International Conference on Software Engineering, (ICSE'2004)*, Edinburgh, Scotland, 2004.
- **2001:** Exhibits and Tools Fair Committee Member for the *International Conference on Software Engineering, (ICSE'2001)*, Toronto, Canada, 2001.
- **1999:** Workshop Chair for the workshop entitled *Software Clustering at the Software Tools and Engineering Practice, (STEP'99)*, August, 1999.
- **1995:** Workshop Co-chair for the workshop entitled *Architecture-Based CASE Systems* at the *7th Intl. Workshop on Computer-Aided Software Engineering (CASE'95)*, July, 1995.
- **1994:** Workshop Co-chair for the workshop entitled *C++ Compiler-Based Development Environments* at the *4th IBM Centre for Advanced Studies, Conference (CASCON'94)*, October, 1994.
- **1993:** Tutorial Co-Presenter for the tutorial entitled *Object-Oriented Development Environments* at the *3rd IBM Centre for Advanced Studies Conference (CASCON'93)*, October, 1993.

Funded Research Grants:

- **2016-2019:** (PI: Mancoridis), Isaac L. Auerbach Cybersecurity Technical Fellowship (\$60,000), *Malware Protection*.
- **2015-2017:** (PI: Mancoridis, co-PIs: Weber, Kandasamy, Sethu, COMCAST **(\$200,000)**), *VoD Quality using machine learning and big data analytics*.
- **2014-2015:** (PI: Balduccini, co-PIs: Mancoridis, Kandasamy, Nwankpa, Drexel IeXE institute **(\$50,000)**), *Robustness testing of Smart Grids*.
- **2013-2014:** (PI: Mancoridis, co-PIs: Balduccini, Cyber Security Research Alliance **(\$60,000)**), *Roots of Trust in Electric Energy Generation and Distribution*.
- **2012-2016:** (PI: Weber, co-PIs: Mancoridis, Sethu, Dandekar) NSF-CISE-CNS 1228847 **(\$1,080,000)**, *TTP: Medium: Securing Wireless Philadelphia Network*.

- **2011-12:** (PI: Mancoridis) federal Aviation Administration (FAA) (**\$40,000**) *On the Application of Anomaly Detection Algorithms to Support TAA NextGen.*
- **2010-12:** (PI: Regli, co-PIs: Dandekar, Mancoridis, Naik) United States Army Research Office, Defense University Research Instrumentation Program (DURIP) (AFOSR-BAA-2009-F), Grant#57654-NS-RIP, Contract#W911NF-10-1-0249 (**\$150,000**) *NEER-IP: A Network Emulation Environment for Research In-the-loop*
- **2008-11:** (PI: Mancoridis) Lockheed-Martin Corporation (**\$500,000**) *Toward the Automatic Diagnosis and Mitigation of Failures in SOA Services.*
- **2008-09:** (PI: Mancoridis) Lockheed Martin Corporate Systems and Software Initiative (SSI) (**\$150,000**) Chimera. Subcontract from Lockheed Martin ATL (PI: Daniel Waddington).
- **2007-09:** (PI: Mancoridis) Lockheed Martin Corporate Systems and Software Initiative (SSI) (**\$157,993**) Astraeus Multi-core Experimentation Test bed. Subcontract from Lockheed Martin ATL (PI: Daniel Waddington).
- **2007:** (PI: Mancoridis) U.S. Air Force Research Lab AFRL/IFKD Contract No. FA8750-07-C-0190 (**\$50,000**) *Optimal Configuration and Development of Software on Multi-core Processing Architectures.* Subcontract from Lockheed Martin ATL (PI: Daniel Waddington).
- **2005-2009:** (PI: Mancoridis, co-PI: Kam) Department of Defense DARPA IPTO BAA 04-32 Situation-Aware Protocols in Edge Network Technologies (SAPIENT) (**\$1,420,484**). *Synthesizing Adaptive Protocols by Selective Enumeration (SYNAPSE).* Subcontract from Lockheed Martin ATL (PIs: Lardieri, Gelfand) total project budget: (**\$10,636,594**).
- **2000-2011:** (PI: Kam, Regli, co-PIs: Mancoridis, et al) U.S. Army, Communications and Electronics Command (CECOM), Fort Monmouth, NJ, FY 2005 sub-award under DoD contract DAAB07-01-9-L504 (approximately **\$10,000,000**). *Title: Applied Communications and Information Networking (ACIN).*
- **2006-2007:** (PI: D'Ovidio, Co-PI: Mancoridis) U.S. Department of Justice (DoJ) Edward Byrne Grant (**\$50,000**), *Detection of Software Copyright Infringement.*
- **2004-2007:** (PI: Mancoridis, Co-PI: Kam) Software Reverse Engineering Tools (**\$150,000**), *Lockheed-Martin Corporation.*
- **2001-2003:** (PI: Mancoridis, Co-PI: Prevelakis) Department of Defense Information Technology Office F30602-01-20534 (**\$622,873**). *CoSAK-Code Security Analysis Kit.*
- **2000-2003:** (PI: Mancoridis, Co-PIs: Regli, Char, Greenwald) NSF CISE Instrumentation Grant Program (**\$161,973**), *A Multidisciplinary Design Testbed for Research and Education* (CISE-9986015).
- **1998-2002:** (PI: Mancoridis) NSF CISE CAREER Award (**\$269,000**), *Toward a Design Environment for Recovering and Maintaining the Structure of Software Systems* (CISE-9733569) includes REU supplements.
- **1999-2002:** (PI: Mancoridis, Co-PI: Regli) Sun Microsystems Inc Academic Equipment Grant (AEG) Program (**\$113,470**), *A Laboratory for Distributed Computer-aided Software and Engineering Design.*
- **1998-2000:** (PI: Mancoridis) AT&T Labs -Research University Affiliates Program (**\$48,000**) *Clustering Algorithms for Partitioning Graphs* (Year 1), *Using Distributed Algorithms to Cluster Large Software Structure Graphs* (Year 2), *Integrating Tools for Reverse Engineering Software Systems* (Year 3).
- **1996-1997:** (PI: Mancoridis) Devereux Research Grant (**\$5,000**), *On the Synthesis of High-level Software Structure Interconnections from Low-level Implementation Dependencies.*