

Omar Badreddin, PhD.

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Profile

- Active externally funded research projects in Software Engineering and Healthcare Informatics
- Cross-disciplinary projects in Civil Infrastructures, Transportation, Regulatory and Performance Compliance.
- Externally funded research projects from national and international organizations.
- Broad and global industrial experience. Subject matter expert in Business Intelligence, Analytics, and Model Driven Architecture.

Education

<p>PhD Jan 2008 – April 2012</p> <p>Grade: Topic: Supervisor</p>	<p>Computer Science, Software Engineering School of Electrical Engineering and Computer Science, University of Ottawa. Ottawa Canada</p> <p>4.0/4.0 A Manifestation of Model-Code Duality: Facilitating the Representation of State Machines in the Umpire Model-Oriented Programming Language. Dr. Timothy C. Lethbridge.</p>
<p>M.Sc. Jan 2005 - June 2007 Course work: Thesis title: Grade:</p>	<p>Computer Science Department of Computer Engineering American University in Cairo Cairo Egypt</p> <p>g-RUP: a Globalized methodology to Software Engineering 3.8/4.0</p>
<p>B.Sc. and B.A Sept 1996 - Jun 2001</p> <p>Major: Grade:</p>	<p>Computer Science and Economics (Double Major) American University in Cairo Cairo Egypt University of Massachusetts Massachusetts U.S.A</p> <p>Double Major Computer Science and Economics 3.63/4.0</p>

Work Experience

<p>Sept 2016 - Present</p> <p>Jan 2014 – Sept 2016</p>	<p>University of Texas, EL Paso</p> <ul style="list-style-type: none"> • Actively involved in research projects in software engineering with healthcare organizations, focusing on model driven development in applications including antibiotic administration practices, flow management, and crisis management. • Leading externally funded research grants from national and state agencies. • Applying innovative teaching pedagogies in Software Engineering and Computer Science. • Teaching graduate and undergraduate courses at both entry and advanced levels. <p>Northern Arizona University <i>Tenure-Track Assistant Professor</i></p> <p>University of Ottawa, Ottawa Hospital, Transport Canada <i>Postdoctoral Fellow – funded by MITAC, Canada (funded amount exceeds</i></p>
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<p>April 2012-Dec 2013</p>	<p><i>\$100,000)</i></p> <ul style="list-style-type: none"> • Contribute to methodology, execution, and development of a Business Process Management Approach for Clinical Pathways at Ottawa Hospital. • Build a team of researchers, professionals, and students, to provide innovative solution for a multi-year project. • Provide leadership in the development of eHealth informatics systems that provides insights into patients flow and wait times at a large urban hospital in Ontario. • Working in collaboration with Ottawa Hospital to improve Care Process Management Practices • Working in collaboration with Transport Canada to achieve an Objective-Driven Operational Framework. • Lead a team of practitioners and researchers in a high risk project. • Submit funding applications fostering collaborations between industry and academic partnerships. • Teach courses in software engineering curriculum.
<p>June 2008 – Dec 2011 (~12 hours/Week)</p> <p>Description</p>	<p>eVision Ottawa Canada <i>Business Process Management Consultant / Project Manager</i> <i>Principal Client: Canada Foundation for Innovation (CFI)</i></p> <ul style="list-style-type: none"> • Lead the implementation and delivery of Process Initiatives in the research-funding and merit review domain. • Re-engineer and model Fund-Review Processes. • Align project goals and activities with organizational mandate • Assess project progress and address escalated issues • Scope management and development methodologies • Experimental development and product vision.
<p>Jan 2008 - June 2012 (~10 hours/Week)</p>	<p>University of Ottawa <i>PhD candidate, Research Assistant</i></p> <ul style="list-style-type: none"> • Lecture in a number of undergraduate and graduate courses. • Teach labs and session for the following courses: <ul style="list-style-type: none"> - Software Engineering, Quality Assurance, Database design. - Advanced topics in Software Engineering. - Networking and communications, Logic and circuit design. - Introduction to programming and advanced programming courses.

<p>Nov 2007 – Dec 2012 (~28 hours/week)</p> <p>Description</p>	<p>IBM Ottawa Laboratories (SWG) <i>Researcher, Business Partner</i></p> <ul style="list-style-type: none"> Working on industrial research project funded by Natural Sciences and Engineering Research Council of Canada (NSERC) and IBM CAS Ottawa. Chair, co-chair IBM workshops. Participate in conferences in worldwide locations to present IBM research projects, foster collaboration. Contribute to grant proposal writing and funding applications. Contribute to product feature pipeline by soliciting research findings.
<p>Jan 2005 – Dec 2007 (Full time)</p> <p>Description</p>	<p>IBM Technology Development Centre <i>Software Engineer / System Analyst</i></p> <ul style="list-style-type: none"> Lead a team of software developers to ensure timely delivery within stated schedule and estimates Deliver Business Process Management (BPM) consultancy and solutions to a number of large banking and financial institutions in worldwide locations. Model Driven developing BPM solutions. Clients include: Mobily telecom, NedBank South Africa, Austrian government, IBM Business Partners in the Middle East, Europe, and North America. Perform globalization related activities for IBM Rational and WebSphere family of tools. Conduct technology transfer to IBM clients, including clients in IBM Labs in Croatia, Spain, Germany, Austria, Holland, and South Africa.
<p>Jan 2005 – June 2008 (2 year)</p> <p>Description</p>	<p>American University in Cairo <i>Graduate Teaching and Research Assistant</i></p> <ul style="list-style-type: none"> Completed a Masters' degree in Computer Science. Academic Teaching and Research assistant for a number of graduate and undergraduate courses.
<p>June 2002 – Jan 2005</p> <p>Description</p>	<p>Xceed Telecom <i>Software Developer.</i></p> <ul style="list-style-type: none"> Participate in general software development activities using .NET, C#, Java, SQL, and other technologies. Implement continuous-integration server for automated software deployment. Manage defects and conduct triage meetings.
<p>Grant Proposals (Total Funded: \$308,000)</p>	
<p>Program Status Budget</p>	<p>(PI) NSF CRII, Sept. 2014 Reviewed (competitive), resubmitted in Sept. 2015. \$175,000</p>
<p>Program Budget</p>	<p>(PI) Thrive transitional Healthcare Initiative (Funded) \$15,000 over 1 year.</p>

Program	(Postdoc) Mitacs Post Doctorate Industrial Program
Status	Funded
Budget	\$110,000 over two years
Program	(Co-PI 50%) NSF BSF joint funding program
Status	Competitive, not funded due to lack of funds.
Budget	\$250,000 over 4 years
Program	(PI) ST. Luke's Health Innovation Grant
Status	Under review
Budget	\$50,000 over 2 years
Program	(Co-PI 50%) NAU 20K Innovation Fund
Status	Funded, Completed.
Budget	\$6,000 seed funding.
Program	Collaboration Seed Grant, Flagstaff Medical Centre
Status	Funded, in progress.
Budget	\$12,000. (Plus ~\$15,000 in-Kind Contribution).
Program	Northern Arizona University Educational Research Fun
Status	Funded
Budget	\$5,000
Program	Research Start-up Fund
Status	Funded
Budget	\$30,000
Program	(Research Scientist) IBM Center for Advanced Studies and Research
Status	Funded, completed.
Budget	\$120,000

Service Activities

NSF Review Panel November 2015	National Science Foundation (NSF), Washington DC: NSF CRII Review Panel, and NSF GRFP 2016 Review Panel.
NSF Review Panel February 2016	National Science Foundation (NSF), SHF 2016 review panel.
NSF Review Panel April 2016	National Science foundation (NSF), SaTC 2016 review panel.
Organizing/Program Committee	International Conference on Health Informatics (HEALTHINF), ACM/IEEE International Conference on Model Driven Engineering Languages and Systems (MODELS), Computing Reviews, ACM International Conference of the Center for Advanced Studies on Collaborative Research (CASCON). International Conference on Model-Driven Engineering and Software Development (MODELSWARD).
Other Professional Services	Engineering Graduate Program committee member, Tri-Institutional NAPSA steering committee member.

Awards (total monetary value \$155,000)

Nov 2012	CASCON's Best Paper Award (\$1,000).
May 2012	Graduate & Postdoctoral Studies Dean's Scholarship, University of Ottawa (\$5,000).
Jan 2008 – Jan 2012	Research bursary funded by IBM CAS Ottawa and National Research Council of Canada. Total value of (\$120,000).
Sept 2004 – June 2007	Full Funded Fellowship at the American University in Cairo (\$24,000).
Jan 2007	3rd place winner of Entrepreneurial competition (\$5,000).
June 2007	Master's Degree with Highest Honours.
June 2007	Distinguished Graduate Thesis Award.

Certifications and Memberships

Certifications	<ul style="list-style-type: none"> Canadian Professional Engineering Association (Started May 2013) Rational Unified Process Certification International Technical Support Organization Certified Instructor Project Management Professional
Membership	<ul style="list-style-type: none"> ACM & IEEE professional member. Object Management Group (OMG) Contributing Member. Localization Industry Standards Association (LISA) Globalization Community of Expert International Society for Computers and their Applications (ISCA)

Government Security Clearance

Enhanced Reliability (Canada)	<ul style="list-style-type: none"> Enhanced Reliability security clearance. (10 years clearance – valid thru 2023)
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Public Profiles

Home Page	www.Badreddin.com
Google Scholar	http://goo.gl/gW6af
Microsoft Academic	www.academic.research.microsoft.com/Author/11608639
LinkedIn	www.linkedin.com/profile/view?id=19295957&trk=tab_pro
Academia	www.uottawa.academia.edu/OmarBadreddin
Research Gate	www.researchgate.net/profile/Omar_Badreddin2/

Publications

Complete updated list of publications is available: <http://badreddin.com/publications>.

Underlined names are student co-authors.

Books

1. "gRUP: a Globalized Approach to Software Engineering."
ISBN: 978-3-8465-0986-9.
Handelsregister Amtsgericht Saarbrücken HRB.

Publish Date: 07 October 2011

2. "Powering SOA Solutions with IMS"
ISBN: 0738432385
IBM Form Number: SG24-7662-00
Publish Date: 16 February 2009.
3. "z/VM and Linux Operations for z/OS Systems Programmers"
ISBN: 0738431591
IBM Forum Number: SG24-7603-00
Publish Date: 01 September 2008.
4. "Human Centric Business Process Management with WebSphere Process Server V6"
ISBN: 0738486787
IBM Forum Number: SG24-7477-00
Publish Date: 15 October 2007.

Refereed Publications (Journals)

5. **Omar Badreddin**, Andrew Forward, and Timothy C. Lethbridge. "Exploring a model-oriented and executable syntax for UML attributes." *Software Engineering Research, Management and Applications*. Springer International Publishing, 2014. pp 33-53.
6. **Omar Badreddin**, Andrew Forward, and Timothy C. Lethbridge. "Improving code generation for associations: enforcing multiplicity constraints and ensuring referential integrity." *Software Engineering Research, Management and Applications*. Springer International Publishing, 2014. pp129-149.
7. **Omar Badreddin**, Timothy C. Lethbridge, and Maged Elassar. "Modeling Practices in Open Source Software." *Open Source Software: Quality Verification*. Springer Berlin Heidelberg, 2013. pp 127-139.
8. Daniele Barone, Liam Peyton, Flavio Rizzolo, Daniel Amyot, John Mylopoulos, and **Omar Badreddin**. "Model-based management of strategic initiatives." *Springer Journal on Data Semantics* 4, no. 3 (2015): pp 149-165.
9. Andrew Forward, **Omar Badreddin**, Timothy C. Lethbridge. "Model-Driven Rapid Prototyping with Umple". In *Software: Practice and Experience Journal*. 2012. Vol 42, Issue 7. pp 781–797.
10. **Omar Badreddin**. "Thematic Review and Analysis of Grounded Theory Application in Software Engineering". *Journal of Advances in Software Engineering*, Hindawi publishing, 2013. pp 1-9.
11. Hisham El-Shishiny, Sally Deraz, and **Omar Bahy Badreddin**. "Mining Software Aging Patterns by Artificial Neural Networks". *Artificial Neural Networks in Pattern Recognition*. Springer Berlin Heidelberg, 2008. pp 252-262.
12. Amr el-Kadi and **Omar Badreddin**. "gRUP—A globalized approach to software engineering". *Journal of Computational Methods in Science and Engineering* 9. pp 201-210.

Other Refereed Publications

13. Abdullah Aldaej and **Omar Badreddin**. "Towards Improving UML Adoption and Modeling Practices in the Open Source Community". In *Proceedings of the ACM/IEEE International Conference on Software Engineering (ICSE)*, 2016 (To Appear).

14. **Omar Badreddin**, Abdelwahab Hamou-Lhadj, Maged Elaasar. "Controlled Experiment for Evaluating the Comprehensibility of UML Action Languages". In Proceedings of 2016 IEEE International Conference on Model-Driven Engineering and Software Development, Rome, Italy (To Appear).
15. **Omar Badreddin**, Ryan Simmons, Waylon Dixon, Ricardo Castillo, Michael Albanese, Duke Ayers, and Ian Humphrey. "Design and Evaluation of Seamless Hand Hygiene Monitoring System". In Proceedings of the 9th International Conference on Health Informatics (HEALTHINF) 2016 (To appear).
16. **Omar Badreddin**, Ricardo Castillo, Lysanne Lessard, and Michael Albanese. "Towards improved performance and compliance in healthcare using wearables and bluetooth technologies." In Proceedings of the 25th ACM Annual International Conference on Computer Science and Software Engineering, pp. 239-242. IBM Corp., 2015.
17. **Omar Badreddin**, Arnon Sturm, Abdelwahab Hamou-Lhadj, Timothy Lethbridge, Waylon Dixon, Ryan Simmons. "The Effects of Education on Students' Perception of Modeling in Software Engineering". In First International Workshop on Human Factors in Modeling (HuFaMo 2015). CEUR-WS pp 39-46.
18. **Omar Badreddin**, Ricardo Castillo. "Patient Flow Management: Combining Analytical and Observational Data to Uncover Flow Patterns". Proceedings of the International Conference on Health Informatics, Lisbon, Portugal, January, 2015. pp 32-39.
19. Miguel A. Garzón, Timothy C. Lethbridge, Hamoud Aljamaan, **Omar Badreddin**. "Reverse Engineering of Object-Oriented Code into Uml using an Incremental and Rule-Based Approach". In ACM Proceedings of 24th Annual International Conference on Computer Science and Software Engineering. IBM Corp., 2014. pp 91-105.
20. **Omar Badreddin**, Arnon Sturm, Timothy C. Lethbridge. "Requirement Traceability: A Model-based Approach". In IEEE Proceedings of The Fourth International Model-Driven Requirements Engineering (MoDRE), 2014. pp 87-91.
21. **Omar Badreddin**, Liam Peyton. "Patient Flow Monitoring Systems: Investigation of Alternatives". In Proceedings of Symposium on Foundations of Health Information Engineering and Systems (FHIES) and the Software Engineering in Healthcare (SEHC), 2014.
22. Okhaide Akhigbe, Mohammad Alhaj, Daniel Amyot, **Omar Badreddin**, Edna Braun, Nick Cartwright, Gregory Richards, Gunter Mussbacher. "Creating Quantitative Goal Models: Governmental Experience." In Proceedings of Springer 33rd edition of the International Conference on Conceptual Modeling, 2014. pp 466-473.
23. **Omar Badreddin**, Craig Kuziemsky, Aladdin Baarah, Liam Peyton, Austin Chamney. "Analytics Driven Application Development for Healthcare Organizations". In Proceedings of 7th International Conference on Health Informatics (HEALTHINF), 2014. pp 135-142.
24. **Omar Badreddin**, Timothy C. Lethbridge, and Andrew Forward. "Investigation and Evaluation of UML Action Languages". In Proceedings of IEEE Model-Driven Engineering and Software Development, 2014. pp 264-273.
25. **Omar Badreddin**, Timothy C. Lethbridge, and Andrew Forward. "A novel approach to versioning and merging model and code uniformly." In Proceedings of IEEE Model-Driven Engineering and Software Development, 2014. pp 254-263.

26. **Omar Badreddin**, Timothy C. Lethbridge, Andrew Forward, Maged Elaasar, Hamoud Aljamaan, Miguel A. Garzon. "Enhanced Code Generation from UML Composite State Machines". In Proceedings of IEEE International Conference on Model-Driven Engineering and Software Development. 2014. pp 235-245
27. **Omar Badreddin**, Andrew Forward, Timothy C. Lethbridge. "A Test-Driven Approach for Developing Software Languages". In Proceedings of IEEE International Conference on Model-Driven Engineering and Software Development. 2014. pp 225-234.
28. Hamoud Aljamaan, Timothy C. Lethbridge, **Omar Badreddin**, Geoffrey Guest, Andrew Forward. "Specifying Trace Directives for UML Attributes and State Machines". In Proceedings of IEEE International Conference on Model-Driven Engineering and Software Development. 2014. pp 79-86.
29. **Omar Badreddin**, Liam Peyton. "Real Time Patient Flow Management using Business Process Management, Location Tags, and Complex Events Processing". In Proceedings of the ACM Conference of the Center for Advanced Studies on Collaborative Research. IBM Corp., 2013. pp 357-359.
30. **Omar Badreddin**, Gunter Mussbacher, Daniel Amyot, Saeed Ahmadi Behnam, Rouzbahan Rashidi-Tabrizi, Edna Braun, Mohammad Alhaj and Gregory Richards. "Regulation-Based Dimensional Modeling for Regulatory Intelligence". In Proceedings of IEEE International Workshop on Requirements Engineering and Law (RELAW), 2013. pp 1-10.
31. **Omar Badreddin**. "Empirical Evaluation of Research Prototypes at Variable Stages of Maturity". In Proceedings of second International Workshop on User Evaluations for Software Engineering Researchers (USER), 2013. pp 1-4.
32. **Omar Badreddin**, Timothy C. Lethbridge. "Model Oriented Programming: Bridging the Code-Model Divide". In IEEE Proceedings of the 5th International Workshop on Modeling in Software Engineering (MiSE). pp 69-75.
33. Saeed Ahmadi Behnam, **Omar Badreddin**. "Toward a Care Process Metamodel For Business Intelligence Healthcare Monitoring Solutions". In Proceedings of 5th International Workshop on Software Engineering in Health Care (SEHC), 2013. pp 79-85.
34. **Omar Badreddin**, Andrew Forward, Timothy C. Lethbridge. "Model Oriented Programming: An Empirical Study of Comprehension". Proceedings of the ACM Conference of the Center for Advanced Studies on Collaborative Research, 2012. pp 73-86. *Winner of 'Best Student Paper' award.*
35. **Omar Badreddin**, Timothy C. Lethbridge. "Combining Experiments and Grounded Theory to Evaluate a Research Prototype: Lessons from the Umlle Model-Oriented Programming Technology". In IEEE Proceedings of the First International Workshop on User Evaluation for Software Engineering Researchers, 2012. pp 1-4.
36. **Omar Badreddin**. "A Manifestation of Model-Code Duality: Facilitating the Representation of State Machines in the Umlle Model-Oriented Programming Language". Doctoral Dissertation, Université d'Ottawa/University of Ottawa, 2012.
37. Timothy C. Lethbridge, Gunter Mussbacher, Andrew Forward, **Omar Badreddin**. "Teaching UML Using Umlle: Applying Model-Oriented Programming in the Classroom". In Proceedings of the 24th IEEE-CS Conference on Software Engineering Education and Training (CSEE&T), 2011. pp 421-428.

38. "Challenges and Opportunities in Adoption of Research Prototypes in Industrial practice". **Omar Badreddin**, Tim Lethbridge, Hisham El-Shishiny, Margaret-Anne Storey, Andrew Forward. Proceedings of the ACM International Conference of the Center for Advanced Studies on Collaborative Research, 2010. pp 414-415.
39. **Omar Badreddin**, Timothy C. Lethbridge. "A Study of Applying a Research Prototype Tool in Industrial Practice". Proceedings of the eighteenth ACM SIGSOFT International Symposium on Foundations of Software Engineering, 2010. pp 353-356 .
40. **Omar Badreddin**. "Umple: A model-oriented programming language". In Proceedings of the 32nd ACM/IEEE International Conference on Software Engineering (ICSE). Volume 2, 2010. pp 337-338.
41. Andrew Forward, **Omar Badreddin** and Timothy C. Lethbridge. "Umple: Towards Combining Model Driven with Prototype Driven System Development". 21st IEEE International Symposium on Rapid System Prototyping (RSP), 2010. pp 1-7.
42. Timothy C. Lethbridge, Andrew Forward, **Omar Badreddin**. "Umplication: Refactoring to Incrementally Add Abstraction to a Program". In the 17th Working Conference on Reverse Engineering (WCRE), 2010. pp 220 – 224.
43. **Omar Badreddin**. "Integrating Globalization Process in the Rational Unified Process". Master's Thesis, the American University in Cairo, 2007.
44. Hisham El-Shishiny, Sally Deraz. **Omar Badreddin**. "Mining software aging: A neural network approach". In Proceedings of IEEE Symposium Computers and Communications, ISCC 2008. pp182-187.

Technical Reports

45. **Omar Badreddin** and Timothy C. Lethbridge. "An Empirical Experiment of Comprehension on Textual and Visual Modeling Approaches". Technical report number TR-2011-03.
46. **Omar Badreddin**. "A comparison of Requirement Integration Support from an MDA Perspective. Technical report, University of Ottawa. April, 2008.

Languages

English and Arabic	Proficient.
French	Advanced.
Citizenship	Canada, Egypt.

References

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Relationship: Active Collaborator

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