



Department/School: School of Electrical Engineering and Computer Science

13 March 2024

CURRICULUM VITAE

NAME:

LETHBRIDGE, Timothy, P.Eng, I.S.P., FCIPS Professor

DEGREES AND CREDENTIALS:

Degrees:

1994 PhD Computer Science, University of Ottawa, Ontario, Canada
1987 Masters of Computer Science Computer Science, University of New Brunswick, New Brunswick, Canada
1985 Bachelor of Computer Science Computer Science, University of New Brunswick, New Brunswick, Canada

Credentials:

Professional Engineer, Professional Engineers Ontario
Information Systems Professional, Canadian Information Processing Society

EMPLOYMENT HISTORY:

Academic Work Experience:

2005 – Professor, Professor, Electrical Engineering and Computer Science, University of Ottawa, Ontario, Canada
2010 – 2023 Vice-Dean, Governance, Professor, Faculty of Engineering, University of Ottawa, Ontario, Canada
2005 – 2005 Acting Vice Dean (Academic), Professor, Faculty of Engineering, University of Ottawa, Ontario, Canada
2001 – 2005 Associate Professor, Associate Professor, School of Information Technology and Engineering, University of Ottawa, Ontario, Canada
1994 – 2001 Assistant Professor, Assistant Professor, School of Information Technology and Engineering, University of Ottawa, Ontario, Canada
1990 – 1994 Part Time Professor, Lecturer, Computer Science, University of Ottawa, Ontario, Canada
1986 – 1986 Part Time Professor, Lecturer, Computer Science, University of New Brunswick, New Brunswick, Canada

Non-academic Work Experience:

1987 – 1989 Member of Scientific Staff, Bell-Northern Research (Canada)
1982 – 1985 Programmer, Government of New Brunswick, New Brunswick, Canada

HONOURS:

- 2016 IEEE Computer Society TCSE Outstanding Educator Award, In recognition of his outstanding contributions to software engineering education through leadership roles in curriculum development, his dissemination of software engineering education ideas through conferences and committees, his chairing of the CSEET steering committee, and his advancing of software engineering education through accreditation processes and curriculum design, IEEE
- 2015 Best paper Award - SDL Forum 2015, For: *Braun, E., Amyot, D., Lethbridge, TC. "Generating Software Documentation in Use Case Maps from Filtered Execution Traces", SDL Forum, United Kingdom
- 2010 Cascon High Impact Paper Award for one of best 14 out of 425 papers published in the first decade of Cascon, for Singer, J., Lethbridge, T.C., Vinson, N, and Anquetil, N (1997) "An Examination of Software Engineering Work Practices, IBM Cascon, Canada
- 2010 Gary Hadford Professional Achievement Award, "[to] CIPS members ... recognized by their peers for their integrity, high degree of competence, and outstanding achievements in fields related to information technology, Canadian Information Processing Society, Canada
- 2009 WCRE Award for Most Influential Paper from 10 years before, for Anquetil, N., and Lethbridge, T.C. (1999), "Experiments with Clustering as a Software Remodularization Method", Working Conference on Reverse Engineering, pp 235-255, Working Conference on Reverse Engineering, France
- 2006 Outstanding Contribution Award, IEEE, For contributions to SE2004, IEEE, United States
- 2004 The Mather Premium, Prize given once a year for a paper published in an IEE Journal on computing. For J11. Anquetil, N., and Lethbridge, T.C. (2003), "A Comparative Study of Clustering Algorithms and Abstract Representations for Software Remodularization", IEE Proceedings - Software, pp. 185-201, IEE, United Kingdom

SCHOLARLY and PROFESSIONAL ACTIVITIES:**Event Administration**

- 2005 – General Chair, Conference on Software Engineering Education and Training

Editorial Activities

- 2015 – 2025 Member of Editorial Board, Software and Systems Modeling (Springer)

Journal Review Activities

- 2015 – Reviewer, Applied Computing and Informatics
- 2015 – Reviewer, Science of Computer Programming
- 2015 – Reviewer, International Journal of Parallel, Emergent and Distributed Systems
- 2011 – Reviewer, Empirical Software Engineering
- 2009 – Reviewer, Journal of Systems and Software
- 2009 – Reviewer, Information and Software Technology
- 2009 – Reviewer, IEEE Software
- 2009 – Reviewer, Software and Systems Modeling

Conference Review Activities

- 2009 – Reviewer, Conference on Software Engineering and Training (CSEE&T)
- 2009 – Reviewer, Models Education Symposium
- 2009 – Reviewer, Cascon

MEMBERSHIPS**Committee Memberships**

- 2018 – Committee Member, *Vice Chair, Computer Science Accreditation Council*, Canadian Information Processing Society
- 2018 – Committee Member, *Member of Board of Directors, CIPS National*, Canadian Information Processing Society
- 2018 – Committee Member, *Board of Directors Member*, CIPS Ontario

Other Memberships

- 2008 – 2025 P. Eng, Professional Engineers Ontario, Canada
- 2006 – 2025 Certified Member and Fellow, Canadian Information Processing Society, Canada
- 1996 – 2025 Senior Member, ACM, United States
- 1989 – 2024 Senior Member, IEEE, United States

SUPERVISIONS:**Summary:****Completed**

Principal Supervisor	14 Doctorate
	11 Master's Thesis
	6 Master's non-Thesis
	3 Post-doctorate
Co-Supervisor	36 Bachelor's
	4 Doctorate
	6 Master's Thesis

In Progress

Principal Supervisor	2 Doctorate
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Supervision detail:

Reyhaneh Kalantari (Doctorate), Electronic Business *User Experience in Modeling*, Principal Supervisor, September 2020 -

Lovepreet Singh (Master's non-Thesis), Computer Science *Safe Cloud-Based Java Code Execution in UmpleOnline*, Principal Supervisor, September 2021 - May 2022

Shuvankar Saha (Master's non-Thesis), Computer Science *User Experience Analysis of UmpleOnline with real users*, Principal Supervisor, May 2021 - December 2021

Frédéric Laflèche (Master's non-Thesis), Computer Science *Enhancement of External Technology for End-Users Working with Umple*, Principal Supervisor, January 2021 - September 2021

Emmanuel Ayeleso (Doctorate), Computer Science *Modeling for Big Data*, Principal Supervisor, January 2019 - December 2022

Abdulaziz Algablan (Doctorate), Computer Science *Mixsets: Combining Annotative and Compositional Approaches to Variability and Product Lines*, Principal Supervisor, September 2016 - December 2021

Luciane Telinski Wiedermann Agner (Post-doctorate), Computer Science *Use of Modeling Tools in Software Engineering Education*, Principal Supervisor, August 2016 - July 2017

Alvine Boaye Belle (Post-doctorate), Computer Science *Reconstructing DoDAF (Department of Defense Architecture Framework) compliant high level views from information systems*, Principal Supervisor, May 2016 - May 2018

Aliaa Alghamdi (Doctorate), PhD. in E-Business *Enterprise Architecture in Higher Education: Processes, Principles, Challenges, Success Factors and Agility*, Principal Supervisor, January 2016 - September 2020

Amid Zakariapour (Master's Thesis), Computer Science *Real-time Distributed Modeling in Umple*, Co-Supervisor, September 2015 - August 2017

Robert Weisman (Doctorate), PhD in E-Business *A Leadership Approach to Successful Digital Transformation Using Enterprise Architecture*, Principal Supervisor, September 2014 - December 2019

Sultan Eid Almagthawi (Doctorate), Computer Science *Model-Driven Testing in Umple*, Principal Supervisor, September 2013 - April 2020

Adesina Opeyemi (Doctorate), Computer Science *Integrating Formal Methods With Model-Driven Engineering*, Co-Supervisor, September 2013 - July 2017

Abdelzad, Vahdat (Doctorate), Electrical Engineering *Promoting Traits into Model-Driven Development*, Principal Supervisor, May 2013 - May 2017

Mahmoud Hussein Orabi (Doctorate), Computer Science *Facilitating the Representation of Composite Structure, Active objects, Code Generation, and Software Component Descriptions in the Umple Model-Oriented Programming Language*, Principal Supervisor, January 2012 - July 2017

Ahmed Orabi (Doctorate), Computer Science *Multi-Modal Technology for User Interface Analysis including Mental State Detection and Eye Tracking Analysis*, Principal Supervisor, January 2012 - July 2017

COURSES:

Undergraduate Courses

SEG2105 Introduction to Software Engineering University of Ottawa, Ontario:

January, 1991 - July, 2020

SEG4910/SEG4911 Capstone Project in Software Engineering University of Ottawa, Ontario:

September, 2000 - April, 2023

Graduate Courses

CSI5122 Software Usability University of Ottawa, Ontario:

January, 1999 - April, 2021

LIFETIME FUNDING:

- Total amount of funding received\$2,686,348.00
 As Principal Investigator.....\$2,220,998.00

EXTERNAL RESEARCH FUNDING:

Date(s)	Source	Type	Investigator	Amount
2022/4 - 2028/3	Natural Sciences and Engineering Research Council of Canada (NSERC) <u>Title:</u> Identifying and Overcoming Obstacles to Effective Software Modeling <u>Program:</u> NSERC Discovery Grant	<u>Type:</u> Grant <u>Purpose:</u> Operating	<u>My Role:</u> Principal Investigator	Funding Total: \$120,000
2016/5 - 2018/5	Mitacs and KDM Analytics <u>Title:</u> Mitacs Accelerate: Reconstructing DoDAF (Department of Defense Architecture Framework) compliant high level views from information systems <u>Program:</u> Mitacs Accelerate	<u>Type:</u> Grant <u>Purpose:</u> Operating	<u>My Role:</u> Principal Investigator <u>Co-applicant:</u> Alvine Boaye-Belle	Funding Total: \$75,000 (\$75,000 received)
2016/4 - 2021/3	Natural Sciences and Engineering Research Council of Canada (NSERC) <u>Title:</u> Discovery Grant: Improving the Capabilities and Applicability of Umple <u>Program:</u> Discovery Grants	<u>Type:</u> Grant <u>Purpose:</u> Operating	<u>My Role:</u> Principal Investigator	Funding Total: \$130,000 (\$130,000 received)
2011/9 - 2016/9	Ontario Research Fund, General Motors and IBM <u>Title:</u> ORF Grant - Model-Based Software Engineering <u>Program:</u> Model-Based Software Engineering	<u>Type:</u> Grant	<u>My Role:</u> Co-investigator <u>Principal Investigator:</u> Joanne Atlee	Funding Total: \$381,000 (\$381,000 received)
2011/4 - 2016/3	NSERC	<u>Type:</u> Grant	<u>My Role:</u> Principal Investigator	Funding Total: \$145,000

Date(s)	Source	Type	Investigator	Amount
	<u>Title:</u> Discovery Grant: Evaluating and improving the Umple model-oriented programming language <u>Program:</u> Discovery Grants	<u>Purpose:</u> Operating		(\$145,000 received)

INTERNAL RESEARCH FUNDING:

Date(s)	Source	Type	Investigator	Amount
2018/7 - 2020/6	University of Ottawa <u>Title:</u> Internal Stipend <u>Program:</u> Research Stipend 12K per year	<u>Type:</u> Grant <u>Purpose:</u> Operating	<u>My Role:</u> Principal Investigator	Funding Total: \$24,000 (\$24,000 received)
2014/7 - 2017/6	University of Ottawa <u>Title:</u> Internal Stipend <u>Program:</u> Research Stipend 7.5K per year	<u>Type:</u> Grant <u>Purpose:</u> Operating	<u>My Role:</u> Principal Investigator	Funding Total: \$22,500 (\$22,500 received)
2008/7 - 2014/6	University of Ottawa <u>Title:</u> Internal Stipend <u>Program:</u> Research Stipend 2.5K per year	<u>Type:</u> Grant <u>Purpose:</u> Operating	<u>My Role:</u> Principal Investigator	Funding Total: \$15,000 (\$15,000 received)

CONTRIBUTIONS:

Life-time summary count according to the following categories:

Books Authored.....	3
Refereed Journal Articles	29
Conference Publications.....	140
Refereed Chapters In Books.....	11
Reports	5
Intellectual Properties.....	1
Other Contributions.....	9

PUBLICATIONS:

Refereed Chapters In Books

11. Lethbridge, TC and *Algablan, A. (2021). Umple: An Executable UML-Based Technology for Agile Model-Driven Development. In Y Rhazali (Ed.), *Advancements in Model-Driven Architecture in Software Engineering* (pp. 1-25). IGI Global. doi:10.4018/978-1-7998-3661-2.ch001

Refereed Journal Articles

29. *Kalantari, R. & Lethbridge, T.C. (2022, November). Characterizing UX Evaluation in Software Modeling Tools: A Literature Review. *IEEE Access*, 10, 131509-131527. <https://doi.org/10.1109/ACCESS.2022.3227504>
28. Lethbridge, T.C., *Forward, A., *Badreddin, O., *Brestovansky, D., *Garzon, M., *Aljamaan, H., . . . *Zakariapour, A. (2021, April). Umple: Model-Driven Development for Open Source and Education. *Science of Computer Programming*, 208, 1-10. <https://doi.org/10.1016/j.scico.2021.102665>
27. Badreddin, O., Rahad, K., Forward, A., and Lethbridge T. (2021). The Evolution of Software Design Practices Over a Decade: A Long-Term Study of Practitioners. *Journal of Object Technology*, 20(2), 1. <https://doi.org/10.5381/jot.2021.20.2.a1>
26. *Husseini, Orabi M, *Husseini, Orabi A & Lethbridge, TC. (2020, January). Umple-TL: A Model-Oriented, Dependency-Free Text Emission Tool. *Communications in Computer and Information Science*, 1161, 127-155. https://doi.org/10.1007/978-3-030-37873-8_6
Extended version of Modelsward Article
25. Agner, L.T.W., Lethbridge, T.C. & Soares, I.W. (2019, September). Student experience with software modeling tools. *Software & Systems Modeling*, 18(5), 3025-3047. <https://doi.org/10.1007/s10270-018-00709-6>
24. *Husseini, Orabi M., *Husseini, Orabi A. & Lethbridge, T.C. (2019, February). A Textual Notation for Modeling and Generating Code for Composite Structure. *Communications in Computer and Information Science*, 991, 355-379. https://doi.org/10.1007/978-3-030-11030-7_16
Extended version of Modelsward Article
23. *Adesina, O, Lethbridge, T.C., Somé, S., *Abdelzad, V. & *Boaye Belle, A. (2018, December). Improving Formal Analysis of State Machines with Particular Emphasis on And-Cross Transitions. *Computer Languages, Systems and Structures*, 54. <https://doi.org/10.1016/j.cl.2017.12.001>
22. *Boaye Belle, A, Lethbridge, T.C., *Garzón, M., *Adesina, O. (2018, April). Design and implementation of distributed expert systems: on a control strategy to manage the execution flow of rule activation. *Expert Systems with Applications*, 96, 129-148. <https://doi.org/10.1016/j.eswa.2017.11.033>

Conference Publications

140. Boaye Belle, A., Hemmati, H. & Lethbridge, T.C. (2023, September). Position paper: a vision for the dynamic safety assurance of ML-enabled autonomous driving systems. In *MoDRE 2023: Model Driven Requirements Engineering* IEEE. <https://doi.org/10.1109/REW57809.2023.00056>
139. *Ayeleso, E., and Lethbridge, T.C. (2022, November). Requirements Analysis Using Grounded Theory: A Case Study in the Domain of Textual Negotiation Tools. In *Cascon* (p. 199-206) ACM. Retrieved from <https://dl.acm.org/doi/abs/10.5555/3566055.3566080>
138. *Singh, L. and Lethbridge, T.C. (2022, November). Safe Cloud-Based Java Code Execution in UmpleOnline. In *Cascon* (p. 207-212) ACM. Retrieved from <https://dl.acm.org/doi/abs/10.5555/3566055.3566081>

137. *Kalantari, R., Lethbridge, T.C. (2022, November). Preliminary results of measuring flow experience in a software modeling tool: UmpleOnline. In *HuFaMO 2022* (p. 923-928) ACM. <https://doi.org/10.1145/3550356.3559099>
136. Lethbridge, T.C. (2021, October). Low-Code Is Often High-Code, So We Must Design Low-Code Platforms to Enable Proper Software Engineering. In *ISoLA 2021: Leveraging Applications of Formal Methods, Verification and Validation* (p. 202-212) Springer. https://doi.org/10.1007/978-3-030-89159-6_14
Research Type: Scientific Research
135. Lethbridge, T, and *Alghamdi, A. (2019). Framework, Model and Tool Use in Higher Education Enterprise Architecture: An International Survey. In *Cascon* (p. 138-147) ACM. Retrieved from <https://dl.acm.org/doi/abs/10.5555/3370272.3370287>
134. *Adesina, O., Lethbridge, T.C., Somé, S. (2019). Optimizing Hierarchical, Concurrent State Machines in Umple for Model Checking. In *16th Workshop on Model Driven Engineering, Verification and Validation (MoDeVVA) 2019* (p. 523-531) IEEE. <https://doi.org/10.1109/MODELS-C.2019.00082>
133. Lethbridge, TC. (2019). UmpleOnline as a Testbed for Modeling Empirical Studies: A Position Paper. In *Fourth International Workshop on Human Factors in Modeling (HuFaMo) 2019* (p. 412-413) IEEE. <https://doi.org/10.1109/MODELS-C.2019.00064>
132. *Boaye Belle, A., Lethbridge, T.C., Kpodjedo, S., Adesina, O., Garzón, M. (2019). A novel approach to measure confidence and uncertainty in assurance cases. In *9th International Model-Driven Requirements Engineering Workshop (MoDRE) 2019* IEEE. <https://doi.org/10.1109/REW.2019.00011>
131. Lethbridge, TC. (2019). Capstone Software Engineering Students Can Develop a High-Quality Complex System: A Case Study With Umple. In *Canadian Engineering Education Association Conference*. <https://doi.org/10.24908/pceea.vi0.13730>
130. *Husseini-Orabi, M., *Husseini-Orabi, A., Lethbridge, TC. (2019). Umple as a Template Language (Umple-TL). In *7th International Conference on Model-Driven Engineering and Software Development, MODELSWARD INSTCC*. <https://doi.org/10.5220/0007382000980106>
129. Badreddin, O., Khandoker, R., Forward, A., Masmali, O., Lethbridge, T.C. (2018). A decade of software design and modeling: A survey to uncover trends of the practice. In *Proceedings of the 21th ACM/IEEE International Conference on Model Driven Engineering Languages and Systems* (p. 245-255). <https://doi.org/10.1145/3239372.3239389>
128. Lethbridge, T.C, *Algablan, A. (2018). Using umple to synergistically process features, variants, UML models and classic code. In *International Symposium on Leveraging Applications of Formal Methods* (p. 69-88) Springer. https://doi.org/10.1007/978-3-030-03418-4_5
127. Lethbridge, T.C. and *Algablan, A. (2018). Applying Umple to the Rover Control Challenge Problem: A Case Study in Model-Driven Engineering. In *MDETools, Models 2018* (p. 386-395) CEUR. Retrieved from https://ceur-ws.org/Vol-2245/mdetools_paper_9.pdf
126. Sturm, A., Lethbridge, TC. (2018). Poster: Are Our Students Engaged in Their Studies? Professional Engagement vs. Study Engagement. In *2018 IEEE/ACM 40th International Conference on Software Engineering: Companion (ICSE-Companion)* (p. 149-150) IEEE. Retrieved from <https://ieeexplore.ieee.org/abstract/document/8449474>
125. *Husseini-Orabi, M., *Husseini-Orabi, A., and Lethbridge, T.C. (2018, January). Component-Based Modeling in Umple. In *Modelward 2018* (p. 247-255) SCITEPRESS. Retrieved from https://www.researchgate.net/profile/Timothy_Lethbridge/publication/322879081_Component-based_Modeling_in_Umple/links/5a7b01550f7e9b41dbd725f2/Component-based-Modeling-in-Umple.pdf

124. *Husseini-Orabi, M., *Husseini-Orabi, A., and Lethbridge, T.C. (2018, January). Concurrent Programming using Umple. In *Modelsward 2018* (p. 575-585) SCITEPRESS. Retrieved from https://www.researchgate.net/profile/Timothy_Lethbridge/publication/322870960_Concurrent_Programming_using_Umple/links/5a7b01c0aca2722e4df60555/Concurrent-Programming-using-Umple.pdf
123. Lethbridge, T.C., Peyton, L., Amyot, D., Somé, S. (2017, October). The University of Ottawa Undergraduate Software Engineering Program: Leading and Innovative. In *CSEE&T 2017* (p. 5-6) IEEE. <https://doi.org/10.1109/CSEET.2017.12>
122. *Agner, Luciane T. W. and Lethbridge, T.C. (2017, September). A Survey of Tool Use in Modeling Education. In *Models 2017* (p. 303-322) IEEE Computer Society. <https://doi.org/10.1109/MODELS.2017.1>
121. Lima, E., *Resende, A., Lethbridge, TC. (2016, August). The Uncomfortable Discrepancies of Software Metric Thresholds and Reference Values in Literature. In *ICSEA 2016, The Eleventh International Conference on Software Engineering Advances* (p. 1-9). Retrieved from https://www.thinkmind.org/index.php?view=article&articleid=icsea_2016_1_10_10013
120. *Adesina O, Somé, S, Lethbridge TC. (2016). Modeling State Diagrams with And-Cross Transitions. In *MoDeVVa 2016, Models 2016* CEUR 1713. Retrieved from https://ceur-ws.org/Vol-1713/MoDeVVa_2016_paper_6.pdf
119. *Abdelzad, V, Lethbridge, TC, Hosseini, M. (2016). The role of semiotic engineering in software engineering. In *Proceedings of the 5th International Workshop on Theory-Oriented Software Engineering* (p. 15-21). <https://doi.org/10.1145/2897134.2897136>
118. *Husseini Orabi, A, *Husseini Orabi, M, Lethbridge, TC. (2016). Psychophysiological observing and analysis tool for user experience. In *Proceedings of the 1st International Workshop on Emotion Awareness in Software Engineering* (p. 22-25). <https://doi.org/10.1145/2897000.2897004>
117. *Adesina, O, Lethbridge, TC, Somé, S. (2016). A fully automated approach to discovering non-determinism in state machine diagrams. In *10th International Conference on the Quality of Information and Communications Technology, Portugal*. <https://doi.org/10.1109/QUATIC.2016.021>
116. Lethbridge, TC, *Abdelzad, V, *Husseini Orabi, M, *Husseini Orabi, A, *Adesina, O. (2016). Merging modeling and programming using Umple. In *International Symposium on Leveraging Applications of Formal Methods* (p. 187-197). https://doi.org/10.1007/978-3-319-47169-3_14
115. Badreddin, O., *Abdelzad, V., Lethbridge, TC, Elaasar, M. (2016). fSysML: Foundational Executable SysML for Cyber-Physical System Modeling. In *GEMOC workshop*. Retrieved from https://ceur-ws.org/Vol-1731/paper_3.pdf
114. George, A., Lethbridge, TC., Peyton, L. (2016). Graduate Attribute Assessment In Software Engineering Program At University Of Ottawa – Continual Improvement Process. In *2016 Canadian Engineering Education Conference*. Retrieved from <https://ojs.library.queensu.ca/index.php/PCEEA/article/view/6484/6032>
113. Shahandashti, K.K., Sivakumar, M., Mohajer, M.M., Belle, A., Wang, S., Lethbridge, T.C. (2024, April). Assessing the Impact of GPT-4 Turbo in Generating Defeaters for Assurance Cases. In *AI Foundation Models and Software Engineering (FORGE 2024) in ICSE 2024* IEEE.
112. Lethbridge, T.C. (2024, April). TAMVE: Properties of Design Technologies to Address Challenges to Software Design in the Era of Agility and Frameworks. In *Designing 2024 at ICSE 2024* IEEE.
111. *Kalantari, R and Lethbridge, T.C. (2023, October). Unveiling Developers' Mindset Barriers to Software Modeling Adoption. In *HuFaMo at Models 2023* (p. 737-746) IEEE. <https://doi.org/10.1109/MODELS-C59198.2023.00120>

Reports

5. Shahandashti, K.K., Belle, A.B., Lethbridge, T.C., Odua, O., and Sivakumara, M. (2023, November). *A PRISMA-driven systematic mapping study on system assurance weakeners*. Retrieved from <https://arxiv.org/pdf/2311.08328.pdf>

PRESENTATIONS:

4. Keynote Address. (2019, June). "Model-Based Systems Engineering: Some Messages for Digital Transformation in Government". Local Digital Transformation in Government Conference, ISACA and Association of Enterprise Architects, Ottawa, Canada.
Research Type: Scientific Research
3. Keynote Address. (2018, February). "Teaching Effective UML Modeling by Combining it with Programming". National 6th Kinneret Conference on Software Engineering Education, Kinneret, Israel. Retrieved from <http://www.site.uottawa.ca/~tcl/presentations/KinneretUmpleKeynote.pptx>
Research Type: Scientific Research
2. Lecture. (2018, February). "Practical Model-Based Programming: When Agile and Modeling Meet". National ITLAM, 2-day mini-course, Herzlia, Israel. Retrieved from <http://www.site.uottawa.ca/~tcl/presentations/AgileAndModelingMeetWithUmple.pptx>
Research Type: Scientific Research
1. Lecture. (2017, June). "The Benefits of Text-Diagram Duality in Modeling". Local Modeling Day, Ben-Gurion University of the Negev, Beer Sheva, Israel.
Research Type: Scientific Research

INTELLECTUAL PROPERTIES:Patents

1. Farah, H.*, Antkiewicz, M., Mindel, M.; Murray, A.*. Lethbridge, T.C. (2016, May). Systems, Method and Computer Program Products for Tracking and Viewing Changes to Information Stored in a Data Structure Patent No. 9348581. Retrieved from <https://patentimages.storage.googleapis.com/23/19/2d/917399f9e991fc/US9348581.pdf>
Core feature enabling real-time reviewing of software models to understand their evolution

OTHER CONTRIBUTIONS:Online Resources

2. Timothy C. Lethbridge et al. (2021, April). *Umple: Model-Oriented Programming Software Release*. <https://doi.org/10.5281/zenodo.4677562>

Manuals

1. Lethbridge, T.C. (2021, April). Umple User Manual. uO Research, pp. 526. Ottawa: University of Ottawa. <https://doi.org/10393/42044>

Software

1. Umple. (n.d.). University of Ottawa. Retrieved from <http://www.umple.org>

Research Type: Scientific Research

A compiler that combines UML class diagrams, state diagrams, traits, mixins and other techniques into Java, PHP, C++ and other languages. Includes an online website, a command-line tool, plugins for IDEs and extensive manual. Used widely for education in universities around the world

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