THIBAUD LUTELLIER

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HIGHLIGHTS OF QUALIFICATIONS

- 8 papers in A* venues (4 **ICSE** [C1, C3, C6, C7], 1 **ASE** [C4] (**best paper award**), 1 **TSE** [J2], 1 **NeurIPS** [C2], 1 **FSE** (journal first/EMSE) [J1]); 1 paper in A venues (1 **ISSTA** [C5]) based on Core Ranking
- Proven student mentorship record (more than 20 undergrad and graduate students)
- Research Interest: software engineering, artificial intelligence, software reliability, defect detection and repair, software repository mining

EDUCATION

University of Waterloo, Waterloo, ON, Canada *Sep. 2015 - Dec. 2020*
Ph.D., Computer Software
Supervisor: Dr Lin Tan

University of Waterloo, Waterloo, ON, Canada *Sep. 2013 - Aug. 2015*
Master of Applied Science
Supervisor: Dr Lin Tan

Université Jean Monnet, Saint-Etienne, France *Sep. 2009 - Sep. 2012*
Ingénieur diplômé de Télécom Saint-Etienne

PUBLICATIONS

C1 Jiannan Wang, Thibaud Lutellier, Shangshu Qian, Hung Pham, and Lin Tan. *EAGLE: Creating Equivalent Graphs to Test Deep Learning Libraries.* (**ICSE 2022**). Acceptance Rate 26%.

C2 Shangshu Qian, Hung Pham, Thibaud Lutellier, Theo Hu, Jungwon Kim, Lin Tan, Yaoliang Yu, Jiahao Chen, and Sameena Shah. *Are My Deep Learning Systems Fair? An Empirical Study of Fixed-Seed Training.* (**NeurIPS 2021**). Acceptance Rate 26%.

C3 Nan Jiang, Thibaud Lutellier, and Lin Tan. *CURE: Code-Aware Neural Machine Translation for Automatic Program Repair.* The 2021 IEEE/ACM 43rd International Conference on Software Engineering. (**ICSE 2021**). 13 pages. Acceptance Rate 22% (138/615). [Cited 5 times].

C4 Hung Viet Pham, Shangshu Qian, Jiannan Wang, Thibaud Lutellier, Jonathan Rosenthal, Lin Tan, Yaoliang Yu, and Nachiappan Nagappan. *Problems and Opportunities in Training Deep-Learning Software Systems: An Analysis of Variance.* The 35th IEEE/ACM International Conference on Automated Software Engineering. (**ASE 2020**). 12 pages. Acceptance Rate 22.5% (93/414). **ACM SIGSOFT Distinguished Paper Award!**. [Cited 11 times].

C5 Thibaud Lutellier, Hung Viet Pham, Lawrence Pang, Yitong Li, Moshi Wei and Lin Tan. *CoCoNuT: Combining Context-Aware Neural Translation Models using Ensemble for Program Repair.* The ACM SIGSOFT International Symposium on Software Testing and Analysis (**ISSTA 2020**). 14 pages. Acceptance Rate 26.5% (43/162). [Cited 37 times].

C6 Hung Viet Pham, Thibaud Lutellier, Weizhen Qi, and Lin Tan. *CRADLE: Cross-Backend Validation to Detect and Localize Bugs in Deep Learning Libraries.* The 41st International Conference on Software Engineering (**ICSE 2019**). 12 pages. Acceptance rate 21% (109/529). [Cited 56 times].

J1 Tomasz Kuchta*, Thibaud Lutellier*, Edmund Wong, Lin Tan, and Cristian Cadar. *On the Correctness of Electronic Documents: Studying, Finding, and Localizing Inconsistency Bugs in PDF Readers*

and Files. Springer Empirical Software Engineering (**EMSE 2018 / FSE 2018**). Journal First Track. * The first two authors contributed equally to this paper. 34 pages. [Cited 16 times].

J2 Thibaud Lutellier, Devin Chollak, Joshua Garcia, Lin Tan, Derek Rayside, Nenad Medvidovic and Robert Kroeger. *Measuring the Impact of Code Dependencies on Software Architecture Recovery Techniques.* IEEE Transactions on Software Engineering (**TSE 2017**). 23 pages. [Cited 36 times].

C7 Thibaud Lutellier, Devin Chollak, Joshua Garcia, Lin Tan, Derek Rayside, Nenad Medvidovic and Robert Kroeger. *Comparing Software Architecture Recovery Techniques Using Accurate Dependencies.* The 37th IEEE International Conference on Software Engineering, Software Engineering in Practice (**ICSE-SEIP 2015**). 10 pages. Acceptance Rate: 22.5% (23/102). [Cited 77 times].

J3 Hossain Shahriar, Komminist Weldemariam, Mohammad Zulkernine and Thibaud Lutellier. *Effective detection of vulnerable and malicious browser extensions.* Computers & Security (**CoSe 2014**). 18 pages. [Cited 29 times].

C8 Hossain Shahriar, Komminist Weldemariam, Thibaud Lutellier, Mohammad Zulkernine. *A Model-Based Detection of Vulnerable and Malicious Browser Extensions.* The 7th IEEE International Conference on Software Security and Reliability (**SERE 2013**). 10 pages. [Cited 11 times].

FUNDING & SCHOLARSHIPS

- **UW Alumni @ Microsoft Graduate Scholarship**, 2018. $10,000.
- **Ontario Graduate Scholarship**, 2016-2018. $45,000.
- **President's Graduate Scholarship**, 2016-2018. $5,000.

AWARDS

- ACM SIGSOFT Distinguished Paper Award, ASE 2020
- ACM SIGSOFT CAPS Award, FSE 2018
- ACM SIGSOFT CAPS Award, ICSE 2015
- 3 Faculty of Engineers Awards, 2014, 2017, and 2018
- University of Waterloo Research Travel Assistanship, 2015

FORMAL TALKS

Conference Talks:

T1 *CoCoNuT: Combining Context-Aware Neural Translation Models using Ensemble for Program Repair,* **ISSTA'20**, virtual, July 2020.

T2 *On the Correctness of Electronic Documents: Studying, Finding, and Localizing Inconsistency Bugs in PDF Readers and Files*, Conference talk at the Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT International Symposium on the Foundations of Software Engineering **FSE'18 (Journal First track)**, Lake Buena Vista, Florida, Nov. 2018.

T3 *Comparing Software Architecture Recovery Techniques Using Accurate Dependencies,* Conference talk at the 37th IEEE International Conference on Software Engineering, Software Engineering in Practice (**ICSE-SEIP 2015**), Florence, Italy, May 2015.

Invited Talks:

T4 *CoCoNuT: Combining Context-Aware Neural Translation Models using Ensemble for Program Repair,* PurPL Retreat, virtual, Aug 2020.

T5 *On the Correctness of Electronic Documents: Studying, Finding, and Localizing Inconsistency Bugs in PDF Readers and Files,* Midwest PL Summit 2019, West Lafayette, Indiana, Sept. 2019.

T6 *AI-Powered Deep Software Defect and Vulnerability Detection System,* Shanghai Innovation Summit, Shanghai, China, Apr. 2019.

T7 *AI-Powered Deep Software Defect and Vulnerability Detection System,* 2nd China University Scientific and Technological Achievements Fair (CUSTAF), Huizhou, China, May 2018.

T8 *AI-Powered Deep Software Defect and Vulnerability Detection System,* 2nd China-Canada International Technology Transfer Conference, Xuzhou, China, Apr. 2018.

SERVICE ACTIVITIES

Organization:

- Web Chair of the 14th Working Conference on Mining Software Repositories (MSR 2017), May 20-21 2017, Buenos Aires, Argentina.

Reviewer:

- ACM Transactions on Software Engineering and Methodology (TOSEM) Reviewer, 2021.
- Transactions on Software Engineering (TSE) Reviewer, 2019, 2020, 2021.
- Empirical Software Engineering (EMSE) Reviewer, 2020, 2021.
- IEEE Access Reviewer 2021.
- Subreviewer, FairWare 2018, International Workshop on Software Fairness, 2018.

University Service:

- Guest Lecturer, University of Waterloo and Purdue University, 2017-2021.
- Administrator of the Coverity Static Analysis tool for University of Waterloo, 2017-2019.
- Referee, University of Waterloo Software Engineering Capstone Design Symposium Day, 2018.
- Conversation Facilitator for the English Conversation Circles, University of Waterloo Student Success Center, 2016.

RESEARCH EXPERIENCE

Postdoc Fellowship at the University of Waterloo *Jan. 2021 - Dec. 2021*

- Conducted research on automatic program repair, deep learning fairness, deep learning testing, and defect prediction.
- Mentored several graduate and undergrad students in the research lab
- Published research findings in A* and A software engineering and AI conferences
- Peer-reviewed papers for software engineering conferences and journals

Graduate Research Assistant at the University of Waterloo *Sep. 2013 - Dec. 2020*

- Conducted research on automatic program repair, deep-learning library testing, bug detection and repair in electronic documents and readers, software architecture recovery, and defect and vulnerability prediction
- Mentored several undergrad and international students in the research lab
- Published research findings in A and A* software engineering conferences and journals
- Peer-reviewed papers for A* and A software engineering conferences and journals

Research Assistant at Queen's Reliable Software Technology, Kingston *2012*

- Conducted research on Web security, investigated and profiled vulnerable, malicious and benign extensions for Firefox browser looking at malicious or vulnerable JavaScript code of the extensions.
- Published 2 papers in B conferences and journals.

TEACHING EXPERIENCE

Guest Lecturer at Purdue University *2021*

- Did a Guest lecture on automatic program repair using neural machine translation

Lab Instructor at University of Waterloo *2018*

- SE 465 Software Testing, Quality Assurance, and Maintenance (with Prof. Lin Tan)
- ECE 453 Software Testing, Quality Assurance, and Maintenance (with Prof. Arie Gurfinkel)

Teaching Assistant at University of Waterloo *2014-2017*

- ECE 653 Testing, Quality Assurance, and Maintenance. Winter 2017 (with Prof. Arie Gurfinkel)
- ECE 754 Software Bug Detection and Tolerance. Spring 2016 (with Prof. Lin Tan)
- SE 465 Software Testing, Quality Assurance, and Maintenance. Winter 2014, 2015, and 2016 (with Prof Lin Tan and Prof Patrick Lam)

EMPLOYMENT HISTORY

University of Waterloo, Waterloo, ON, Canada *Jan. 2021 - Dec. 2021*
Postdoc Fellowship
Supervisor: Dr M. Tripunitara and Dr L. Tan

QualDivine Inc. *Sep. 2018 - Dec. 2021*
CEO and Co-Founder

University of Waterloo, Waterloo, ON, Canada *Sep. 2013 - Dec. 2020*
Research Assistant
Supervisor: Dr L. Tan

QRST Lab, Queen's University, Kingston, ON, Canada *Jan 2012 - June. 2012*
Research Assistant
Supervisor: Dr M. Zulkernine

CieNum, Saint-Etienne, France *Mar 2011-Jun 2011*
Software Developer

SNCF, Nantes, France *Feb 2010*
Database Manager

STUDENTS MENTORED

Jiannan Wang (PhD, DL model testing project)	*2021*
Yuxuan Wu (URA, Fault Localization project)	*S-2021 and F-2021*
Qichen Li (URA, Automatic Program Repair project)	*W-2021 and S-2021*
Lu Yan (URA and PhD, Source code trace representation project)	*2020-2021*
Nan Jiang (Phd, Automatic Program Repair project)	*2020-2021*
Yitong Li (Masters, Automatic Program Repair project)	*2018-2020*
Ahan Gupta (URA, Automatic Program Repair project)	*W-2020 and S-2020*
Lawrence Pang (URA, Automatic Program Repair project)	*F-2018 and F-2019*
Jie Li (URA, Automatic Program Repair project)	*F-2019*
Joey Vinyard (URA, Automatic Program Repair project)	*F-2019*
Jiahe Nie (URA, Defect Prediction project)	*S-2019*
Kefan Xu (URA, Defect Prediction project)	*S-2019*
Nicholas Vadivelu (URA, Defect Prediction project)	*W-2019*
Bo Yuan Tan (URA, Automatic Program Repair project)	*W-2019*
Shruti Dembla (URA, Automatic Program Repair project)	*S-2018*
Moshi Wei (Masters, Automatic Program Repair project)	*2018-2019*
Michael Chong (URA and Masters, Vulnerability Prediction project)	*2015-2017*
Adam Hyde (UCEP, PDF Inconsistency Detection project)	*F-2015*
Lance Paje (UCEP, PDF Inconsistency Detection project)	*F-2015*
Ritcha Bindra (URA, Vulnerability Prediction project)	*S-2015*
Wen Sheng (Mitacs, Architecture Recovery project)	*S-2014*

CITIZENSHIP STATUS

Citizen of France.
Permanent Resident of Canada.

REFERENCES

Prof. Lin Tan: lintan@purdue.edu
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West Lafayette, IN 47907

Prof. Nenad Medvidovic: neno@usc.edu
SAL 338, Henry Salvatori Computer Science Center,
941 Bloom Walk,
Los Angeles, CA 90089, USC Mail Code: 781

Prof. Cristian Cadar: c.cadar@imperial.ac.uk
Huxley Building,
180 Queen's Gate,
London SW7 2RH, United Kingdom