Ali Ouni, P.Eng., Ph.D.

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SUMMARY OF QUALIFICATIONS AND ACHIEVEMENTS

- Laureate of the Excellence Award at the University of Quebec, from all disciplines in Engineering, Natural Sciences, and Health Sciences, 2023. The highest honor that a faculty member can obtain at the University of Quebec (Selected among 7,500+ professors from the 10 institutions under the Univ. of Quebec).
- Early Career Research Excellence Award, from ETS Montreal, University of Quebec, 2021.
- International experience in funding and research in many countries including, Canada, USA, Japan, and UAE.
- Founder and leader of the Software Technology and Intelligence Research Lab (STIL) at ETS Montreal, 2017.
- Active industry collaboration (JetBrains, Xerox, eBay, Ford, etc.) bringing research to practice.
- Ranked among the *Most Impactful* and *Most Active Early Career* Software Engineering Researchers in Top-Quality Journals, according to a recent bibliometric assessment of Software Eng. scholars and institutions[1].
- Ranked among TOP-3 researchers in the field of search-based software refactoring, in terms of publications, according to a field survey[2].
- Co-editor of the *Software Engineering Body of Knowledge (SWEBOK)* book[3], version V4 (2024). Editor of the knowledge Area on "Software Maintenance". SWEBOK is an official international guide in teaching software engineering as identified by the IEEE Computer Society and used by several universities in the world.
- Awarded the Outstanding Research Excellence Award from the University of Montreal, 2014. The highest University honor for PhD student excellence.
- Awarded the 10-Year Most Influential Paper Award at ICPC 2021.
- Strong record of Best Paper Awards: eight (8) Best/Distinguished Paper Awards in several leading conferences (SIGCSE 2024, ICSOC 2022, MSR 2022, ICSR 2020, ICGSE 2020, Energies 2020, IWoR 2019, ICWS 2017).
- Strong publication record at the top-tier venues for Software Engineering research: over 60 journal papers including TSE, TOSEM, TSC, EMSE, ASE, JSS, IST, and 80 conference papers including ICSE, FSE, ASE, ICSME, GECCO, ICWS and ICSOC.
- Hold the scolarship award to pursue PhD studies in Canada, the most prestigious national-level award by the Government of Tunisia, 2011−2014.
- Follow the Open Science initiative, publishing several research tools, datasets and benchmarks as Open Source.
- Co-founder of the first International Workshop on Software Refactoring (IWoR) 2016.
- Broad network of academic collaborators from different institutions including the U. of Michigan, U. College Dublin, U. of Victoria, Thompson Rivers University, Michigan-State U, U. of Melbourne, Vienna University of Technology, Singapore Management University, U. of Tunis, Rochester Institute of Technology, Steven's Institute of Technology, Auckland U, U of Hawaii, Osaka University, Nara Institute of Science and Technology, U of North Texas, Drexel University, U of Montreal, U of Salerno, UAE University, U of Sao Paulo.
- Regularly invited as PC member and reviewer for the leading conferences and journals in Software Engineering.
- Familairity with multiple education systems in North-America, Europe, Middle-East, North-Africa, and Asia.

[1] W. E. Wong, N. Mittas, E. M. Arvanitou, Y. Li, "*A Bibliometric Assessment of Software Engineering Scholars and Institutions (2013-2020)*", Journal of Systems and Software, Elsevier, 2021. https://doi.org/10.1016/j.jss.2021.111029

[2] Thaina Mariani, Silvia Regina Vergilio, "*A systematic review on search-based refactoring*", Journal of Information and Software Technology, Elsevier, 2016. Available at: http://dx.doi.org/10.1016/j.infsof.2016.11.009

[3] SWEBOK: https://www.computer.org/education/bodies-of-knowledge/software-engineering

RESEARCH INTERESTS

My research interests are in software engineering (SE). I have a specific interest in software maintenance and evolution, software quality, code review, DevOps, service-based systems, software reuse, search-based software engineering, and the application of AI techniques solve SE problems.

CURRENT AND PREVIOUS ACADEMIC EXPERIENCE

ETS Montreal, University of Quebec, QC, Canada	Associate Professor	*Sept. 2017 – current*
UAE University, UAE	Assistant Professor	*Aug. 2016 – Aug. 2017*
Osaka University, Osaka, Japan	Research Assistant professor	*Dec. 2014 – Aug. 2016*
University of Montreal, Montreal, QC, Canada	Research and Teaching Assistant	*Jan. 2011–Nov. 2014*
University of Sousse, Sousse, Tunisia	Teaching Assistant	*Jan. 2009–Dec. 2010*

Visiting Research Graduate Student

University of Michigan, Dearborn, MI, USA	Visiting Researcher	*Jan. 2014–May. 2014*
Missouri University of Science and Technology, Rolla, Missouri, USA	Visiting Researcher	*Feb. 2013–June. 2013* and *Sept. 2012–Dec. 2012*

EDUCATION

Ph.D. in Computer Science — *2011 – 2015*
University of Montreal — Montreal, Canada
Topics: Software Engineering, Artificial intelligence
Degree completion date: 18 February 2015.
PhD defense date: 12 November 2014.

M.Sc. in Computer Science — *2008 – 2010*
University of Kairouan — Kairouan, Tunisia

B.Sc. in Computer Science — *2004 – 2008*
University of Sousse — Sousse, Tunisia

RESEARCH GRANTS

- **Development of AI-based systems to support the production and maintenance in aeronautics**. (2023-2025)
  Natural Sciences and Engineering Research Council of Canada (NSERC): $ 770,000 CAD
  IP: Francois Morency
  Co-IP: Ali Ouni
- **An Intelligent Framework for Maintenance of Microservice-based Software Systems**. (2023-2026)
  Research Funds of Quebec in Nature and Technology (FRQNT): $ 190,500 CAD
  PI: Ali Ouni
  Co-PI: Aymen Saied, Mohammed Sayagh
- **Leveraging Artificial Intelligence and Big data Analytics to Understand COVID-19 Behavior and to Recommend Effective Responses to Curb the Pandemic**. (2022-2025)
  ASPIRE Award for Research Excellence, United Arab Emirates (Acceptance rate 5%): 965.000 AED (365,000 $CAD)
  PI: Salah Bouktif
  Co-PI: Ali Ouni

- **Technological enhancement and ergonomic redesign of the front-end part of the Famic technical support application**. (2022)
  Mitacs Accelerate: $ 10,000 CAD
  PI: Ali Ouni
- **Leveraging software quality and user opinion to support maintenance and evolution of mobile software systems**. (2018-2025)
  Natural Sciences and Engineering Research Council of Canada (NSERC), Discovery Grant: $ 266,500 CAD
  PI: Ali Ouni
- **Agent-Based Modelling with Big Data and Artificial Intelligence Methods to Simulate and Optimize Traffic Flow.** (2020-2021)
  UAEU Center-based Research Program, UAE : $80,000 USD
  PI: Salah Bouktif
  Co-PI: Ali Ouni
- **Traffic big data analytics using advanced artificial intelligence approaches : deep learning and multi-objective optimization.** (2019-2020)
  Abu Dhabi Education and Knowledge Council (ADEK) Award for Research Excellence, UAE : 300,000 AED ($84,000 USD)
  PI: Salah Bouktif
  Co-PIs: Ali Ouni, Hisham AlSayad
- **Empirical Investigation on Software Libraries Migration**, FIR - Collaborative project between Ecole de Technologie Superieure (ETS) and Rochester Institute of Technology (RIT). (2019)
  ETS Research Internationalization Fund (RIF) : $16,500 CAD
  PI: Ali Ouni
- **Search-based software engineering to support software maintenance and evolution.**. (2017-2020)
  Ecole de technologie superieure (ETS), University of Quebec, Start-up Research Grant: $87,500 CAD
  PI: Ali Ouni
- **Search-Based Software Engineering For Cost-effective System Development**. (2017-2018)
  UAEU Program for Advanced Research: $ 115,000 USD
  PI: Ali Ouni
- **I-Corps**: Search-Based Interactive Software Refactoring Technology. (2016-2017)
  National Science Foundation (NSF): $ 50,000 USD
  PI: Marouane Kessentini.
- **RefRec**: Automated Code Smells Detection and Refactoring. (2014-2016)
  Ford-University of Michigan alliance Program: $ 110,000 USD
  PI: Marouane Kessentini.

RECOGNITION & SCHOLARSHIP

International Recognition, Reputation, and Leadership

- **Ranked #2** in Canada and **#7** in the world among *most active early-stage researchers* across all sub-areas of software engineering, and ranked **#2** in Canada and **#11** in the world among the most impactful early-stage researchers based a recent bibliometric assessment of software engineering scholars by Elsevier Journal of Systems and Software (`https://doi.org/10.1016/j.jss.2021.111029`).
- **Ranked among Top-3** scholars in the field of search-based software refactoring, in terms of publications, according to a survey by Elsevier Journal of Information and Software Technology (`http://dx.doi.org/10.1016/j.infsof.2016.11.009`).
- Over **5,800** ***citations*** with an ***h-index*** of **39** (as of January 10, 2024) based on Google Scholar.

Distinction and Awards

- **Research Excellence Award**: University of Quebec (UQ), 2023. The highest honor that a Professor can obtain at the University of Quebec (15,000$). Selected among 7,500+ professors from the 10 institutions under the U. of Quebec (*only 1 professor obtains this award annually from all disciplines in Engineering, Natural Sciences, and Health Sciences*). Prize awarded by the Minister of Higher Education and the President of the UQ.
- **Research Excellence Award (Emerging Researcher)**: ETS Montreal, University of Quebec, 2021 (7,000$). Selected from 5 departments at ETS (230+ professors), based on research quality, productivity, innovation and impact. A highly competitive and prestigeous award that an Early Career Professor can obtain at ETS Montreal.
- **Dean's Honor List**: University of Montreal, November 2014.
- **Best thesis Excellence Award:** University of Montreal, November 2014 ($10,000 + $12,000). The most competitive university Award that PhD students engaged in research can receive (*Awarded to one graduate student selected among 130+ graduate students in 2014*).
- **Graduate Student Excellence Award**: J. Armand Bombardier Foundation, Montreal, Canada, 2014.
- **Outstanding Graduate Student Excellence Award**: Department of Computer Science and Operations Research (DIRO), University of Montreal, February 2013. ($5,200). The highest departmental Award for excellent graduate students.
- **Doctoral scholarship award**: MESR, Government of Tunisia, 2011−2014, (*Only two candidates are selected among all universities in Tunisia*).

Most Influential Paper Award

- The 10-Year Most Influential Paper Award, at the *29th IEEE/ACM International Conference on Program Comprehension (ICPC)*, 2021. [Paper: "*Design Defects Detection and Correction by Example*"]. IEEE ICPC's largest solely supported Software Engineering Conference – The award recognizes the impact of my research on software engineering research in the past decade.

Best and Distinguished Paper Awards

- **Best Paper Award**, *55th ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2024. [Paper: "*Automating Source Code Refactoring in the Classroom*"].
- **Best Paper Award**, *19th ACM International Conference on Mining Software Repositories (MSR)*, Mining Challenge, 2022. [Paper: "*Refactoring Debt: Myth or Reality? An Exploratory Study on the Relationship Between Technical Debt and Refactoring*"].
- **Distinguished Paper Award**, 20th International Conference on Service-Oriented Computing (ICSOC), 2022. [Paper: "*Combining Static and Dynamic Analysis to Decompose Monolithic Application into Microservices*"].
- **ACM SIGSOFT Best Paper Award**, *15th ACM/IEEE International Conference on Global Software Engineering (ICGSE)*, 2020. [Paper: "*On the detection of community smells using genetic programming-based ensemble classifier chain*"].
- **Best Paper Award Finalist**, *19th International Conference on Software and Systems Reuse (ICSR)*, 2020. [Paper: "*How Do Developers Refactor Code to Improve Code Reusability?*"].
- **Best Paper award** of the Journal of Energies for 2018. [Paper: "*Optimal Deep Learning LSTM Model for Electric Load Forecasting using Feature Selection and Genetic Algorithm: Comparison with Machine Learning Approaches*"]. `https://www.mdpi.com/journal/energies/awards/621`
- **Best Paper Award**, the *3rd International Workshop on Refactoring (IWoR@ICSE)*, 2019. [Paper: "*Can Refactoring be Self-Affirmed? An Exploratory Study on How Developers Document Their Refactoring Activities in Commit Changes*"].

- **Best Paper Award Runner-up**, *23rd IEEE International Conference on Web Services* (ICWS), 2016. [Paper: "*SIM: An Automated Approach to Improve Web Service Interface Modularization*"].

Publication Record and Scholarship

- Over 140 peer-reviewed publications in high-impact venues
- Supervised over 40 graduate students
- 8 Best Paper Awards, 1 Most Influential Paper Award

MENTORSHIP

I am supervising or co-supervising the following students:

Current graduate students

- *Mahi Begoug*, PhD student. (January 2023 - current)
  Topic: *Improving continuous software development practices.*
  Publications: MSR 2024, SANER 2024, ICPC Tool track 2024, ESEM 2023.
- *Amine Batoun*, PhD student. Co-supervised with Dr. Mohammed Sayagh (September 2022 - current)
  Topic: *Monitoring of multi-component software systems.*
  Publications: EMSE 2024.
- *Moataz Chouchen*, PhD student. (September 2020 - current)
  Topic: *An Automated Framework to Improve Modern Code Review Practices.*
  Publications: EMSE 2024, EMSE 2023, JSEP 2023, MSR 2022, FSE tool 2022, SANER 2021, ASOC 2021, IST 2020, 2 × GECOO 2020, ICGSE 2020, ICSR 2020.
- *Narjes Bessghaier*, PhD student. (September 2020 - current)
  Topic: *Maintenance and Evolution of Web Applications*
  Publications: SANER 2024, TOSEM 2023, SQJ 2021, SCC 2020.
- *Francener Alezy*, M.Sc. student. (May. 2022 - current)
  Topic: *Investigating software security practices for Kubernetes.*
- Benzaamia, Errabia, M.Ing. student. (May 2023 - current)
  Topic: An automated approach for developer recommendation in crowdsourcing
- Taib, Meriem, M.Ing. student. (Sept. 2023 - current)
  Topic: Improving Continuous Integration (CI) process through machine learning
- Benali, Zakaria, M.Ing. student. (Sept 2023 - current)
  Topic: An empirical study on continuous integration build duration
- Lakhdari, Nassima, M.Ing. student. (Sept 2023 - current)
  Topic: An empirical study on the diffusion of code and architectural smells in microservices
- Mohdeb, Kenza, M.Ing. student. (Sept 2023 - current)
  Topic: Quality assurance for microservice architectures

Alumni students

- *Nuri Almarimi*, PhD student.
  Topic: *The impact of community and social aspects in software engineering.* (May 2018 - November 2023)
  Publications: 1*JSEP 2022, 1*FSE 2021, 1* ICGSE 2020, 1* KNOSYS 2020, 1* ASOC 2019.
- *Islem Saidani*, PhD student. (January 2019 - August 2022)
  Topic: *The impact of Continuous Integration on Software Quality.*
  Publications: TSE 2022, EMSE 2022, ASE 2022, FSE 2021, IST 2021, IST 2020, GECOO 2020, ICWS 2020, ICSOC 2019.

- *Marwa Daagi*, PhD student.
  University of Tunis, (co-supervised with Dr. M. M. Gammoudi). (Sept. 2016 - June 2021)
  Topic: *Quality assessment for Object and Service oriented software systems.*
  Publications: 1* JSS 2022, 1* TOIT 2020, 2* ICWS 2017.
- *Farah Hachina*, M.Sc. student.
  Topic: *Improving DevOps practices with automated workflow.* (Jan. 2023 - Sept. 2023)
- *Jouhaina Nasri*, M.Sc. student.
  Topic: *Software Quality Assurance for Machine Learning-enabled systems.* (Jan. 2023 - Sept. 2023)
- *Chemseddine Mebarki*, M.Ing. student.
  Topic: *Bad coding practices in Infrastructure as Code.* (Jan. 2023 - Sept. 2023)
- *Nathan Babaka Kinalendele*, M.Ing. student.
  Topic: *Towards understanding DevOps practices in Open Source Projects.* (Jan. 2023 - Sept. 2023)
- *Jack Rayane Djapa Tchagwo*, M.Ing. student.
  Topic: *On the use of Lean Six Segma for continuous software quality improvement.* (Sept. 2022 - May 2023)
- Wilfried Nkouekam Mbouga, M.Ing., 2022. Now Software Engineer at Famic Technologies
  Topic: Refactoring of an ergonomic Front-end of the technical support of FAMIC
- Hinda Abassi, M.Ing., 2022.
  Topic: Anayisis of code and architectural smells in microservice-based software applications.
- Lea Charara, M.Ing., 2022. Now Full Stack Developer at Hubelia
  Topic: Development of an approach "Low Code" for Fusio 2.0
- Mohamad Kredly, M.Ing., 2022
  Topic: Software Migration from WordPress to Kubernetes
- Abdelkerim Haroun Ibrahim, M.Ing., 2022. Now software engineer at ABB Canada
- Bayes Diarra, M.Ing., 2021. Now Software developer at Ministere de la sante et des services sociaux (MSSS), Quebec
  Topic: Development and integration of a licence management application
- Mohamed Larbi Skalli, M.Ing., 2021. Now Software developer at COGITO Coatching
  Topic: Software development of a waste characterization platform
- Mahar Benmesbah, M.Ing., 2020. Now Software engineer at Berger-Levrault North America
- Moulay Taieb Alaoui Harouni, M.Ing., 2021. Now Data Engineer at Bombardier
  Topic: Development a support application for the process of relocating disaster victims
- Soufiane Alami, M.Ing., 2021. Now Software Analyst at Desjardins
  Topic: Identification of process bad practices in code review
- Mustapha Felfoul, M.Ing., 2022. Now Software analyst at Purkinje
  Topic: An empirical study of the survivability of code smells in mobile applications
- Ilyas Chahid, M.Ing., 2021. Now Full Stack developer at Koolskools
  Topic: A longitidunal study of the lifespan of code smells in mobile applications
- *Yassine Rabbouh*, M.Ing. student.
  Topic: *Data virtualisation in software development.* (May. 2022 - Sept .2023)
- *Oumayma Hamdi*, MSc student. (January 2020 - December 2021)
  Topic: *The impact of refactoring activities on Android software development.*
  Publications: IST 2021, MOBILESoft 2021, IWoR 2021.
- Richardson Alexandre, M.Ing. Student. (September 2020 - December 2021)
  Topic: *Detecting Third-Party libraries usage patterns in Android apps.*
  Publications: EASE 2022.

- Olongo Onana Noah, Aurelien Jefferson, M.Ing. Student. (September 2020 - December 2021)
  Topic: *On the prediction of Code Review duration : A Machine Learning-based Approach.*
- *Francener Alexy*, MSc Student. (May 2019 - October 2020)
  Topic: *Towards an automated migration of Web applications towards Laravel.*
- Miguel Gonzales Hernandez, M.Ing. Student, ETS Montreal.
  Topic : *Mise en Place, Integration et Assurance Qualite d'un Systeme Medical electronique Ã Base de Services Web : Cas de TELUS Sante* (Janvier 2020 - Aout 2020)
- *Yacine Thabet*, M.Ing. Student, ETS Montreal, (September 2019 - April 2020)
  Topic : *Developpement d'outils logiciels de diagnostic moteur.* (September 2019 - April 2020)
- *Moataz Chouchen*, MSc student. (January 2019 - December 2019)
  Topic: *On the value of Seach-based Software Engineering in cross-projects Defects Prediction.*
  Publications : ICGSE 2020, GECCO 2020, IST 2020
- *Sabrine Boukharata*, MSc StudentETS Montreal. (Sept 2017 - December 2019)
  Topic: *Identifying extract class refactoring opportunities.*
  Publications : Journal ASE 2019.
- *Safouene Bani*, ETS Montreal, M.Ing. Student. Capstone project. (January 2019 - December 2019)
  Topic: *An empirical study of the mobile apps quality.*
- *Hanzhang Wang*, Ph.D., (co-supervised with Dr. Marouane Kessentini). (Jan. 2015 - Dec. 2017)
  Topic: *Refactoring of Service-based Software Systems.*
  Publications: 1*ICWS 2016, 2*ICSOC 2016, 1*ICWS 2017, 1*TSC 2018.
- *Naoya Ujihara*, M.Sc. Student, Osaka University, (co-supervised with Dr. Takashi Ishio) (April 2015 - March 2017)
  Topic: *Identification of move method refactoring opportunities in large scale software systems.*
  Publications: SANER 2017.
- *Tsubasa Saika*, M.Sc. Student, Osaka University, (co-supervised with Dr. Norihiro Yoshida), (Graduated, Winter 2016)
  Topic: *The effect of code-smells and refactoring: An empirical study.*
  Publications: ICPC 2016.
- *Zouhour Salem*, M.Sc. Student, University of Gabes, (co-supervised with Dr. Makram Soui). (Graduated, Winter 2016)
  Topic: *Refactoring of god-object Web services.*
  Publications: ICWS 2016 (Best paper runner-up).
- *Soumaya Dhiab*, M.Sc. Student, University of Gabes, (co-supervised with Dr. Makram Soui). (Graduated, Winter 2016)
  Topic: *An Ontology-based Approach for User Interface Adaptation.*
  Publications: AISC 2016.
- *Patrice Koligheu*, M.Sc. student, University of Michigan, (co-supervised with Dr. Marouane Kessentini)
  Topic: *Many-objective Software Re-modularization.* (Graduated, Winter 2014).
  Publications: TOSEM 2015.

🏛 TEACHING EXPERIENCE

TEXTBOOK AND EDUCATION AUTHORSHIP

- **[SWEBOK 2024]** Co-editor of the **Software Engineering Body of Knowledge (SWEBOK)** book, V4 (2024). I had the privilege to serve as co-editor of the SWEBOK v4 which is an official international guide in teaching software engineering as identified by the IEEE Computer Society and used by several universities in all over the world (`https://www.computer.org/education/bodies-of-knowledge/software-engineering`).

- [**SIGCSE 2024**] Eman Alomar, Mohamed Wiem Mkaouer, Ali Ouni, "Automating Source Code Refactoring in the Classroom", *ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2024 (accepted). *Core-A ranked conference.* **Won the Best Paper Award.**

LECTURER

- LOG530 - Software re-engineering. *Undergraduate course*, ETS Montreal, University of Quebec, Winter 2024, Winter 2023, Winter 2022, Winter 2021, Winter 2020, Winter 2019, Winter 2018. 25 - 60 students.
- MGL804 - Software Maintenance. *Graduate course*, ETS Montreal, University of Quebec, Winter 2024, Winter 2023, Winter 2022, Summer 2022, Winter 2021, Winter 2020, Summer 2019. 20 - 40 students.
- MGL843 - Advanced Topics in Software Design. *Graduate course*, ETS Montreal, University of Quebec, Winter 2019, 18 students.
- LOG100 - Programming for Software Engineering. *Undergraduate course*, ETS Montreal, University of Quebec, summer 2023, Summer 2020, Summer 2018, 30 - 45 students.
- Search-Based Software Engineering. *Graduate course*, Osaka University, Winter 2015, Winter 2016, 9−11 students.
- Software Engineering Fundamentals, undergraduate course, UAEU, Spring 2017.
- Data Structures. *Undergraduate course*, UAEU, Fall 2016.
- Introduction to Programming c++. *Undergraduate course*, UAEU, Fall 2016.
- Certification in Computer and Internet C2I. *Undergraduate course*, University of Sousse, Fall 2010, Winter 2010, 16−20 students.

TEACHING ASSISTANT

- Introduction to Computer Science. *Undergraduate course*, University of Montreal, Winter 2012, 15 students.
- Software Engineering 1. *Undergraduate course*, University of Montreal, Fall 2013, 12 students.
- Introduction to Programming C++. *Undergraduate course*, University of Montreal, Fall 2013, 21 students.
- Programming languages: Java. *Undergraduate course*, University of Montreal, Fall 2011, 16 students.
- Artificial Intelligence I: Basic concepts and Applications. *Undergraduate course*, University of Sousse, Fall 2010, 18 students.

Open Science: Research Tools and Datasets

Open Science maximizes the benefits and impact of research as it enables discovery, creates opportunities to build on knowledge, and develops trust with the public through transparent research practices. Following the Open Science initiative as recently advocated by the UNESCO[4], NSERC, and FRQ, I have adopted a sharing approach by publishing tools, prototypes, and benchmarks developed within my research team as open Source[5] along with associated documentation and video demonstrations. Examples of Open Source tools and benchmarks developed in my research group include:

OS1. **Anti-CopyPaster 2.0** (`https://github.com/refactorings/anti-copy-paster`): a white-box Open Source tool to detect duplicate code on-the-fly when the developer is writing their code using Deep Learning. A demo video is available at: `https://www.youtube.com/watch?v=nKfybTsSoXc`. Published as a tool paper at ICSE 2024.

[4]UNESCO Open Science initiative: `https://www.unesco.org/en/open-science`

[5]STIL Lab Open Source tools and data: `https://github.com/stilab-ets?tab=repositories`

OS2. **TerraMetrics** (`https://github.com/stilab-ets/terametrics`): an Open Source tool for quality assurance in Infrastructure code. This a lightweight tool to calculate various quality metrics in Terraform. A demo video is available at: `https://www.youtube.com/watch?v=DGeyDlu1fac`. Published as a tool paper at ICPC 2024.

OS3. **Anti-CopyPaster** (`https://github.com/JetBrains-Research/anti-copy-paster`): An Open Source tool to detect duplicate code on the fly using Deep Learning. The tool is implemented as an IntelliJ plug-in in collaboration with the company JetBrains. A demo video is available at: `https://youtu.be/_wwHg-qFjJY`. Published as a tool paper at ASE 2022.

OS4. **BF-Detector** (`https://github.com/stilab-ets/BF-Detector`): a Command Line-based tool to automatically detect software build failures using multi-objective evolutionary search.A demo video is available at: `https://www.youtube.com/watch?v=E9HPErvT3Sw`. Published as a tool paper at FSE 2021.

OS5. **CS-Detector** (`https://github.com/Nuri22/csDetector`): an Open Source tool that detects soci-technical issues in software developments teams using evolutionary algorithms. A demo video is available at: `https://www.youtube.com/watch?v=AarXmePrEXA`. Published as a tool paper at FSE 2021.

OS6. **TSDetect** (`https://testsmells.org/`) an Open Source tool that is able to identify bad design and programming practices in test files. A demo video is available at: `https://www.youtube.com/watch?v=clJBz6OGq_M&t=2s`. Published as a tool paper at FSE 2020.

OS7. **MigrationMiner** (`https://github.com/hussien89aa/MigrationMiner`): an Open Source tool that is able to mine and identify migration opportunities between third-party software libraries. A demo video is available at: `https://www.youtube.com/watch?v=sAlR1HNetXc`. Published as a tool paper at ICSME 2019.

PUBLICATIONS

BOOK CHAPTERS

B1. Eman Abdullah AlOmar, Mohamed Wiem Mkaouer, Ali Ouni, "Mining and Managing Big Data Refactoring for Design Improvement: Are We There Yet?", *Knowledge Management in the Development of Data-Intensive Systems* (KMDDIS), 2021.

REFEREED JOURNAL PAPERS

J1. **[EMSE 2024]** Mohamed Amine Batoun, Mohammed Sayagh, Roozbeh Aghili, Ali Ouni, Heng Li, "A Literature Review and Existing Challenges on Software Logging Practices - From the Creation to the Analysis of Software Logs", *Empirical Software Engineering (EMSE)*, Springer, 2023. [Impact Factor: 4.1]. accepted

J2. **[TSE 2024]** Eman Alomar, Mohamed Wiem Mkaouer, Ali Ouni, "Behind the Intent of Extract Method Refactoring: A Systematic Literature Review", *IEEE Transactions on Software Engineering (TSE)*, 2023. [Impact Factor: 9.32]. accepted

J3. **[EMSE 2023]** Moataz Chouchen, Ali Ouni, "A Multi-Objective Effort-Aware Approach for Early Code Review Prediction and Prioritization", *Empirical Software Engineering (EMSE)*, Springer, 2023. [Impact Factor: 4.1].

J4. **[TOSEM 2023]** Narjes Bessghaier, Mohammed Sayagh, Ali Ouni, Mohamed Wiem Mkaouer, "What Constitutes the Deployment and Run-time Configuration System? An Empirical Study on OpenStack Projects", *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 2023. [Impact Factor: 4.4].

J5. **[JSS 2023]** Ali Ouni, Eman Alomar, Oumayma Hamdi, Mel O Cinneide, Mohamed Aymen Saied, Mohamed Wiem Mkauer, "On the Impact of Single and Co-occurrent Refactorings on Quality Attributes in Android Applications", *Journal of Systems and Software (JSS)*, Elsevier, 2023. [Impact Factor: 3.51].

J6. **[SWEVO 2023]** Niranjana Deshpande, Mohamed Wiem Mkaouer, Ali Ouni, Naveen Sharma, "Third-Party Software Library Migration at the Method-Level Using Multi-Objective Evolutionary Search", Journal of Swarm and Evolutionary Computation (SWEVO), 2023. [Impact Factor: 10].

J7. [**JSS 2023**] Marwa Daagi, Ali Ouni, M. Mohsen Gammoudi, Salah Bouktif, Mohamed Wiem Mkaouer, "BPEL Process Defects Prediction Using Multi-objective Evolutionary Search", *Journal of Systems and Software (JSS)*, Elsevier, 2023. [Impact Factor: 3.51].

J8. [**KNOSYS 2023**] Salah Bouktif, Abderraouf Cheniki, Ali Ouni, Hesham El-Sayed, "Deep Reinforcement Learning for Traffic Signal Control with Consistent State and Reward Design Approach", Journal of *Knowledge-Based Systems (KNOSYS)*, Elsevier, 2023. [Impact Factor: 8.13].

J9. [**EMSE 2023**] Moataz Chouchen, Ali Ouni, Jefferson Olongo, Mohamed Wiem Mkaouer,"Learning to Predict Code Review Completion Time In Modern Code Review", *Empirical Software Engineering (EMSE)*, Springer, 2023. [Impact Factor: 4.1].

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REFEREED INTERNATIONAL CONFERENCE PROCEEDINGS

C1. **[MSR 2024]** Mahi Begoug, Moataz Chouchen, Ali Ouni, Eman Alomar, Mohamed Wiem Mkaouer, "Fine-Grained Just-In-Time Defect Prediction at the Block Level in Infrastructure-as-Code (IaC)", *21st IEEE International Conference on Mining Software Repositories (MSR)*, Research track, 2024. [Acceptance rate 42/149 = 29%]

C2. **[MSR 2024]** Moataz Chouchen, Narjes Bessghaier, Mahi Begoug, Ali Ouni, Eman Alomar, Mohamed Wiem Mkaouer, "How Do Software Developers Use ChatGPT? An Exploratory Study on GitHub Pull Requests", *21st IEEE International Conference on Mining Software Repositories (MSR)*, Mining challenge track, 2024.

C3. **[MSR 2024]** Eman Alomar, Anushkrishna Venkatakrishnan, Mohamed Wiem Mkaouer, Christian Newman, Ali Ouni, "How to Refactor this Code? An Exploratory Study on Developer-ChatGPT Refactoring Conversations", *21st IEEE International Conference on Mining Software Repositories (MSR)*, Mining challenge track, 2024.

C4. **[SANER 2024]** Narjes Bessghaier, Mahi Begoug, Chemseddine Mebarki, Ali Ouni, Mohammed Sayagh, Mohamed Wiem Mkaouer, "On the Prevalence, Co-occurrence, and Impact of Infrastructure-as-Code Smells", *IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER)*, 2024. [Acceptance rate 62/242 = 25%]

C5. [**ICSE 2024**] Eman AlOmar, Benjamin Knobloch, Thomas Kain, Christopher Kalish, Mohamed Wiem Mkaouer, Ali Ouni, "AntiCopyPaster 2.0: Whitebox Just-in-Time Code Duplicates Extraction", *46th IEEE/ACM International Conference on Software Engineering (ICSE)*, Tool Track, 2024.

C6. [**ICPC 2024**] Mahi Begoug, Moataz Chouchen, Ali Ouni, "TerraMetrics: An Open Source Tool for Infrastructure-as-Code (IaC) Quality Metrics in Terraform", *32nd IEEE/ACM International Conference on Program Comprehension (ICPC)*, Tool Track, 2024.

C7. [**SIGCSE 2024**] Eman Alomar, Mohamed Wiem Mkaouer, Ali Ouni, "Automating Source Code Refactoring in the Classroom", *55th ACM Technical Symposium on Computer Science Education (SIGCSE)*, 2024.

🏆 **Best Paper Award**

C8. [**ESEM 2023**] Mahi Begoug, Narjes Bessghaier, Ali Ouni, Eman Alomar, Mohamed Wiem Mkaouer, "What Do Infrastructure-as-Code Practitioners Discuss: An empirical Study on Stack Overflow", *ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM)*, 2023. [Acceptance rate: 28%]

C9. [**EASE 2023**] Ali Ouni, Islem Saidani, Eman Alomar, Mohamed Wiem Mkaouer, "An Empirical Study on Continuous Integration Trends, Topics and Challenges in Stack Overflow", *27th ACM International Conference on Evaluation and Assessment in Software Engineering (EASE)*, 2023.

C10. [**W4A 2023**] Wajdi Aljedaani, Mohammed Alkahtani, Stephanie Ludi, Mohamed Wiem Mkaouer, Marcelo M. Eler, Marouane Kessentini, Ali Ouni, "The State of Accessibility in Blackboard: Survey and User Reviews Case Study", *20th International Web for All Conference (Web4All)*, 2023.

C11. [**ICOA 2023**] Akib Khanday, Salah Bouktif, Ali Ouni, "RNN-based Model for an Optimal COVID-19 Cases Detection using Clinical Reports", *9th International Conference on Optimization and Applications (ICOA)*, 2023.

C12. [**CSER 2023**] Eman Alomar, Anthony Peruma, Mohamed Wiem Mkaouer, Christian Newman, Ali Ouni, "How is Software System Reuse Discussed in Stack Overflow?", *20th Annual Conference on Systems Engineering Research (CSER)*, 2023.

C13. [**ICRETS 2023**] Salah Bouktif, Akib Khanday, Ali Ouni, "Bi-Directional LSTM-Based COVID-19 Detection Using Clinical Reports", *International Conference on Research in Engineering, Technology and Science (ICRETS)*, 2023.

C14. [**ICSOC 2022**] Khaled Sellami, Mohamed Aymen Saied, Ali Ouni, Rabe Abdalkareem, "Combining Static and Dynamic Analysis to Decompose Monolithic Applications into Microservices", *20th International Conference on Service Oriented Computing (ICSOC)*, 2022. [Acceptance rate 13%: 30/221]

🏆 **Distinguished Paper Award**

C15. [**ASE 2022**] Eman AlOmar, Anton Ivanov, Zarina Kurbatova, Yaroslav Golubev, Mohamed Wiem Mkaouer, Ali Ouni, Timofey Bryksin, Le Nguyen, Amit Kini, Aditya Thakur, "DuplicatesExtractor: Extracting Code Duplicates As Soon As They Are Introduced in the IDE", *37th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, Tool Track, 2022.

C16. [**EASE 2022**] Ayano Ikegami, Raula Gaikovina Kula, Bodin Chinthanet, Vittunyuta Maeprasart, Ali Ouni, Takashi Ishio, Kenichi Matsumoto, "On the Use of Refactoring in Security Vulnerability Fixes: An Exploratory Study on Maven Libraries", *26th ACM International Conference on Evaluation and Assessment in Software Engineering (EASE)*, 2022.

C17. [**EASE 2022**] Richardson Alexandre, Ali Ouni, Mohamed Aymen Saied, Salah Bouktif, Mohamed Wiem Mkaouer, "On the Identification of Third-Party Library Usage Patterns for Android Applications", *26th ACM International Conference on Evaluation and Assessment in Software Engineering* (EASE), 2022.

C18. [**EASE 2022**] Khaled Sellami, Mohamed Aymen Saied, Ali Ouni, "A Hierarchical Clustering based method for Extracting Microservices from Monolithic Applications", *26th ACM International Conference on Evaluation and Assessment in Software Engineering* (EASE), 2022.

C19. [**MSR 2022**] Eman Abdullah AlOmar, Moataz Chouchen, Mohamed Wiem Mkaouer, Ali Ouni, "Code Review Practices for Refactoring Changes: An Empirical Study on OpenStack", *ACM International Coference on Mining Software Repositories (MSR)*, 2022.

C20. [**MSR 2022**] Eman Alomar, Anthony Peruma, Mohamed Wiem Mkaouer, Christian Newman, Ali Ouni, "An Exploratory Study on Refactoring Documentation in Issues Handling", *ACM International Coference on Mining Software Repositories (MSR)*, Mining Challenge Track, 2022.

C21. [**MSR 2022**] Anthony Peruma, Christian Newman, Eman Alomar, Mohamed Wiem Mkaouer, Ali Ouni, "Refactoring Debt: Myth or Reality? An Exploratory Study on the Relationship Between Technical Debt and Refactoring", *ACM International Coference on Mining Software Repositories (MSR)*, Mining Challenge Track, 2022.

🏆 **Best Paper Award**

C22. [**STC 2022**] Deema Alshoaibi, Ikram Chaabane, Kevin Hannigan, Mohamed Wiem Mkaouer, Ali Ouni, "On the Detection of Performance Regression Introducing Code Changes: Experience from the Git Project", *29th IEEE Software Technology Conference (STC)*, 2022.

C23. [**W4A 2022**] Wajdi Aljedaani, Mohamed Wiem Mkaouer, Ali Ouni, Stephanie Ludi, Ilyes Jenhani, "On the Identification of Accessibility Bug Reports in Open Source Systems", *19th International Web for All Conference (Web4All)*, 2022.

C24. [**EvoApps 2022**] Niranjana Deshpande, Mohamed Wiem Mkaouer, Ali Ouni, Naveen Sharma, "Search-Based Third-Party Library Migration at the Method-Level", *25th International Conference on the Applications of Evolutionary Computation (EvoApplications)*, 2022.

C25. [**IWoR 2021**] Islem Saidani, Ali Ouni, "Towards a Smell-aware Prediction of CI Build Failures", *5th International Workshop on Refactoring (IWoR@ASE)*, co-located with the International Conference on Automated Software Engineering (ASE), 2021.

C26. [**IWoR 2021**] Oumayma Hamdi, Ali Ouni, Eman Alomar and Mohamed Wiem Mkaouer, "An Empirical Study on Code Smells Co-occurrences in Android Applications", *5th International Workshop on Refactoring (IWoR@ASE)*, co-located with the International Conference on Automated Software Engineering (ASE), 2021.

C27. [**NLP-SEA 2021**] Wajdi Aljedaani, Furqan Rustam, Stephanie Ludi, Ali Ouni and Mohamed Wiem Mkaouer, "Learning Sentiment Analysis for Accessibility User Reviews", *International Workshop on Software Engineering Automation: A Natural Language Prospective (NLP-SEA)*, co-located with ASE, 2021.

C28. [**ESEC/FSE 2021**] Islem Saidani, Ali Ouni, Moataz Chouchen, Mohamed Wiem Mkaouer, "BF-Detector: An Automated Tool for CI Build Failure Detection", *The 29th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)*, Tool Track, 2021.

C29. [**ESEC/FSE 2021**] Nuri Almarimi, Ali Ouni, Moataz Chouchen, Mohamed Wiem Mkaouer, "csDetector: An Open Source Tool for Community Smells Detection", *The 29th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)*, Tool Track, 2021.

C30. [**EASE 2021**] Wajdi Aljedaani, Anthony Peruma, Ahmed Aljohani, Mazen Alotaibi, Mohamed Wiem Mkaouer, Ali Ouni, Christian D. Newman, Abdullatif Ghallab, Stephanie Ludi, "Test Smell Detection Tools: A Systematic Mapping Study", *25th ACM International Conference on Evaluation and Assessment in Software Engineering* (EASE), 2021.

C31. [**MOBILESoft 2021**] Oumayma Hamdi, Ali Ouni, Eman AlOmar, Mel Ó Cinnéide, Mohamed Wiem Mkaouer, "An Empirical Study on the Impact of Refactoring on Quality Metrics in Android Applications", *8th IEEE/ACM International Conference on Mobile Software Engineering and Systems* (MOBILESoft 2021).

C32. [**ICSE 2021**] Eman Alomar, Hussein Alrubaye, Mohamed Wiem Mkaouer, Ali Ouni and Marouane Kessentini, "Refactoring Practices in the Context of Modern Code Review: An Industrial Case Study at Xerox", 43rd ACM/IEEE International Conference on Software Engineering (ICSE), SEIP, 2021.

C33. [**SANER 2021**] Moataz Chouchen, Ali Ouni, Raula G. Kula, Dong Wang, Patanamon Thongtanunam, Mohamed Wiem Mkaouer and Kenichi Matsumoto, "Anti-patterns in Modern Code Review: Symptoms and Prevalence" *28th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER)*, ERA Track, 2021.

C34. [**ICAIBD 2021**] Salah Bouktif, Abderraouf Cheniki, Ali Ouni and Hesham El Sayed, "Traffic Signal Control Based on Deep Reinforcement Learning with Simplified State and Reward Definitions", *4th IEEE International Conference on Artificial Intelligence and Big Data* (ICAIBD), 2021.

C35. [**ICSR 2020**] Moataz Chouchen, Ali Ouni, Mohamed Wiem Mkaouer, "AndroLib: Third-Party Software Library Recommendation for Android Apps", *19th International Conference on Software and Systems Reuse (ICSR)*, 2020.

C36. [**ICSR 2020**] Eman Alomar, Philip T. Rodriguez, Jordan Bowman, Tianjia Wang, Benjamin Adepoju, Kevin Lopez, Christian Newman, Ali Ouni and Mohamed Wiem Mkaouer, "How Do Developers Refactor Code to Improve Reusability?", *19th International Conference on Software and Systems Reuse (ICSR)*, 2020.

🏆 **Best Paper Award Finalist (second place)**

C37. [**ICSR 2020**] Hussein Alrubaye, Deema Alshoaibi, Eman Alomar, Mohamed Wiem Mkaouer, Ali Ouni, "How Does Library Migration Impact Software Quality and Comprehension? An Empirical Study", *19th International Conference on Software and Systems Reuse (ICSR)*, 2020.

C38. [**ICSR 2020**] Eman Alomar, Diego Barinas, Jiaqian Liu, Mohamed Wiem Mkaouer, Ali Ouni, Christian Newman, "How can I reuse this code? a Study on how Reusability is Discussed in StackOverflow", *19th International Conference on Software and Systems Reuse (ICSR)*, 2020.

C39. [**ESEC/FSE 2020**] Anthony Peruma, Khalid Almalki, Christian D. Newman, Mohamed Wiem Mkaouer, Ali Ouni, Fabio Palomba, "tsDetect: An Open Source Test Smells Detection Tool", *28th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)*, Tool Track, 2020.

C40. [**ICDS 2020**] Salah Bouktif, Ali Fiaz, Ali Ouni, Badreyya Alnaqbi, Fatmah Alsereidi, Fatma Alsereidi, "Bayesian Optimized XGBoost Model for Traffic Speed Prediction Incorporating Weather Effects", *International Conference on Intelligent Computing in Data Sciences (ICDS)*, 2020.

C41. [**ICWS 2020**] Islem Saidani, Ali Ouni, Mohamed Wiem Mkaouer, "Web Service API Anti-patterns Detection as a Multi-Label Learning Problem", *International Conference on Web Services (ICWS)*, 2020.

C42. [**SCC 2020**] Narjes Bessghaier, Ali Ouni, Mohamed Wiem Mkaouer, "On the Diffusion and Impact of Code Smells in Web Applications", *International Conference on Services Computing (SCC)*, 2020.

C43. [**GECCO 2020**] Moataz Chouchen, Ali Ouni, Mohamed Wiem Mkaouer, Raula Gaikovina Kula, Katsuro Inoue, "Recommending Peer Reviewers in Modern Code Review : A Multi-Objective Search-based Approach", *The International ACM Genetic and Evolutionary Computation Conference (GECCO)*, 2 pages, 2020.

C44. [**GECCO 2020**] Islem Saidani, Ali Ouni, Mohamed Wiem Mkaouer, "On the Prediction of Continuous Integration Build Failures Using Search-Based Software Engineering", *The International ACM Genetic and Evolutionary Computation Conference (GECCO)*, 2 pages, 2020.

C45. [**ICGSE 2020**] Nuri Almarimi, Ali Ouni, Moataz Chouchen, Islem Saidani, Mohamed Wiem Mkaouer, "On the Detection of Community Smells using Genetic Programming-based Ensemble Classifier Chain", *15th ACM/IEEE International Conference on Global Software Engineering (ICGSE)*, 2020.

🏆 **ACM SIGSOFT Best Paper Award**

C46. [**IWoR 2020**] Anthony Peruma, Christian Newman, Mohamed Wiem Mkaouer, Ali Ouni, Fabio Palomba, "An Exploratory Study on the Refactoring of Unit Test Files in Android Applications", *4th International Workshop on Refactoring (IWoR@ICSE)*, co-located with the International Conference on Software Engineering (ICSE), 2020.

C47. [**IWoR 2020**] Eman Abdullah Alomar, Anthony Peruma, Christian Newman, Mohamed Wiem Mkaouer, Ali Ouni, "On the Relationship Between Developer Experience and Refactoring: An Exploratory Study and Preliminary Results", *4th International Workshop on Refactoring (IWoR@ICSE)*, co-located with the International Conference on Software Engineering (ICSE), 2020.

C48. [**IWoR 2020**] Alex Bogart, Eman Abdullah Alomar, Mohamed Wiem Mkaouer, Ali Ouni, "Increasing the Trust In Refactoring Through Visualization", *4th International Workshop on Refactoring (IWoR@ICSE)*, co-located with the International Conference on Software Engineering (ICSE), 2020.

C49. [**ICSOC 2019**] Islem Saidani, Ali Ouni, Mohamed Wiem Mkaouer, Mohamed Aymen Saied, "Towards Automated Microservices Extraction Using Muti-objective Evolutionary Search", *17th International Conference on Service Oriented Computing (ICSOC)*, 2019.

C50. [**CASCON 2019**] Anthony Peruma, Khalid Almalki, Christian Newman, Mohamed Wiem Mkaouer, Ali Ouni, Fabio Palomba, "On the Distribution of Test Smells in Open Source Android Applications: An Exploratory Study", *29th Annual International Conference on Computer Science and Software Engineering (CASCON)*, 2019.

C51. [**ICSME 2019**] Hussein Alrubaye, Mohamed Wiem Mkaouer, Ali Ouni, "MigrationMiner: An Automated Detection Tool of Third-Party Java Library Migration at the Method Level", *35th IEEE International Conference on Software Maintenance and Evolution (ICSME)*, Tool Track, 2019.

C52. [**ESEM 2019**] Eman Abdullah Alomar, Mohamed Wiem Mkaouer, Ali Ouni and Marouane Kessentini, "On the Impact of Refactoring on the Relationship Between Quality Attributes and Design Metrics", *ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM)*, 2019. [Acceptance rate: 19%]

C53. [**ICPC 2019**] Hussein Alrubaye, Mohamed Wiem Mkaouer, Ali Ouni, "On the Use of Information Retrieval to Automate the Detection of Third-Party Java Library Migration At The Function Level", *27th IEEE/ACM International Conference on Program Comprehension (ICPC)*, 2019. [Acceptance rate: 25%]

C54. [**IWoR 2019**] Eman A. Alomar, Mohamed Wiem Mkaouer and Ali Ouni, "Can Refactoring be Self-Affirmed? An Exploratory Study on How Developers Document Their Refactoring Activities in Commit Changes", *3rd International Workshop on Refactoring (IWoR@ICSE)*, co-located with the International Conference on Software Engineering (ICSE), 2019.

C55. [**SANER 2019**] Raula G. Kula, Ali Ouni, Daniel M. German, Katsuro Inoue, "An Exploratory Study on the Impact of Refactoring Activities on Evolving Client-Used APIs", *26th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER)*, Journal First Track, 2019.

C56. [**FSE 2017**] Raula Kula, Daniel M. German, Ali Ouni, Takashi Ishio, Katsuro Inoue, "Do Developers Update their Library Dependencies? An Empirical Study on the Impact of Security Advisories on Library Migration", *25th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE)*, Journal First Track *Empirical Software Engineering Journal (EMSE)*, Springer, 2017.

C57. [**ICWS 2017**] Ali Ouni, Marwa Daagi, Marouane Kessentini, Salah Bouktif, M. Mohsen Gammoudi, "A Machine Learning-Based Approach to Detect Web Service Design Defects", *24th IEEE International Conference on Web Services (ICWS)*, Honolulu, Hawaii, USA, June 25-30, 2017. [Acceptance rate: 21%]

C58. [**ICWS 2017**] Marwa Daagi, Ali Ouni, Marouane Kessentini, M. Mohsen Gammoudi, Salah Bouktif, "Web Service Interface Decomposition Using Formal Concept Analysis", *24th IEEE International Conference on Web Services (ICWS)*, Honolulu, Hawaii, USA, June 25-30, 2017. [Acceptance rate: 21%]

C59. [**ICWS 2017**] Marouane Kessentini, Josselin Troh Dea, Ali Ouni, "Improving Web Services Design Quality Using Heuristic Search and Machine Learning", *24th IEEE International Conference on Web Services (ICWS)*, Honolulu, Hawaii, USA, June 25-30, 2017. [Acceptance rate: 21%]

C60. [**ICWS 2017**] Hanzhang Wang, Marouane Kessentini, Taghreed Hassouna, Ali Ouni, "On the Value of Quality of Service Attributes for Detecting Bad Design Practices", *24th IEEE International Conference on Web Services (ICWS)*, Honolulu, Hawaii, USA, June 25-30, 2017. [Acceptance rate: 21%]

C61. [**GECCO 2017**] Josslin Troh Dea, Marouane Kessentini, Ali Ouni, "A Context-Based Refactoring Recommendation Approach Using Simulated Annealing: Two Industrial Case Studies" *The International ACM Genetic and Evolutionary Computation Conference (GECCO 2017)*, Berlin, Germany, July 15-19, 2017.

C62. [**MOBILESoft 2017**] Marouane Kessentini, Ali Ouni, "Detecting Android Smells Using Multi-Objective Genetic Programming", *4th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft 2017)*, Buenos Aires, Argentina, May 22-23, 2017. [Acceptance rate: 23%]

C63. [**SANER 2017**] Naoya Ujihara, Ali Ouni, Takashi Ishio, Katsuro Inoue, "c-JRefRec: Change-Based Identification of Move Method Refactoring Opportunities", *24th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER 2017)*, Tool track, Klagenfurt, Austria, February 20-24, 2017.

C64. [**SANER 2017**] Raula Gaikovina Kula, Daniel German, Takashi Ishio, Ali Ouni, Katsuro Inoue, "An Exploratory Study on Library Aging by Monitoring Client Usage in a Software Ecosystem", *24th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER 2017)*, ERA track, Klagenfurt, Austria, February 20-24, 2017. [Acceptance rate: 32%]

C65. [**ASE 2016**] Rafi Almhana, Wiem Mkaouer, Marouane Kessentini, Ali Ouni, "Recommending Relevant Classes for Bug Reports Using Multi-Objective Search", *31st IEEE/ACM International Conference on Automated Software Engineering (ASE 2016)*, Singapore, Singapore, September 3-7, 2016. [Acceptance rate: 16% (57/353)]

C66. [**FSE 2015**] Wiem Mkaouer, Marouane Kessentini, Kalyanmoy Deb, Slim Bechikh, Ali Ouni, "Many-Objective Software Remodularization Using NSGA-III", *23rd ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE)*, "Journal-First" presentation (TSE and TOSEM session), Bergamo, Italy, 2015.

C67. [**ICSME 2016**] Ali Ouni, Raula Gaikovina Kula and Katsuro Inoue, "Search-Based Peer Reviewers Recommendation in Modern Code Review", *32nd IEEE International Conference on Software Maintenance and Evolution (ICSME'16)*, Raleigh, North Carolina, USA, October 2-10, 2016. [Acceptance rate: 29% (37/127)]

C68. [**ICWS 2016**] Ali Ouni, Zouhour Salem, Katsuro Inoue, Makram Soui, "SIM: An Automated Approach to Improve Web Service Interface Modularization", *23rd IEEE International Conference on Web Services (ICWS'16)*, San Francisco, USA, June 27 - July 2, 2016. [Acceptance rate: 14% (30/230)]

Best Paper Award Runner-up

C69. [**ICWS 2016**] Hanzhang Wang, Ali Ouni, Marouane Kessentini, Bruce Maxim, William I. Grosky, "Identification of Web Service Refactoring Opportunities as a Multi-Objective Problem", *23rd IEEE International Conference on Web Services (ICWS'16)*, pp.586-593, San Francisco, USA, June 27 - July 2, 2016. [Acceptance rate: 14% (30/230)]

C70. [**SERVICES 2016**] Ali Ouni, Marouane Kessentini, Katsuro Inoue, Mel Ó Cinnéide, "Search-Based Web Service Antipatterns Detection", *12th IEEE World Congress on Services (SERVICES'16)*, Special Track for TSC, San Francisco, USA, June 27 - July 2, 2016.

C71. [**ICSOC 2016**] Wang Hanzhang, Marouane Kessentini, Ali Ouni, "Prediction of Web Services Evolution" *14th International Conference on Service Oriented Computing (ICSOC 2016)*, pp.282-297, Banff, Alberta, Canada, October 10-13, 2016. [Acceptance rate: 21% (30/137)]

C72. [**ICSOC 2016**] Wang Hanzhang, Marouane Kessentini, Ali Ouni, "Bi-Level Identification of Web Service Defects" *14th International Conference on Service Oriented Computing (ICSOC 2016)*, Banff, pp. 352-368, Alberta, Canada, October 10-13, 2016. [Acceptance rate: 21% (30/137)]

C73. [**ICPC 2016**] Norihiro Yoshida, Tsubasa Saika, Eunjong Choi, Ali Ouni, Katsuro Inoue, "Revisiting the Relationship Between Code Smells and Refactoring", *24th IEEE International Conference on Program Comprehension (ICPC'16)*, Austin, Texas, USA, 2016.

C74. [**AISC 2016**] Makram Soui, Soumaya Diab, Ali Ouni, Aroua Essayeh, Mourad Abed, "An Ontology-Based Approach for User Interface Adaptation", *Advances in Intelligent Systems and Computing*, pp.199-215, Springer, 2016.

C75. [**GECCO 2015**] Ali Ouni, Raula Gaikovina Kula, Marouane Kessentini, Katsuro Inoue, "Web Service Antipatterns Detection Using Genetic Programming", *24th ACM International Genetic and Evolutionary Computation Conference (GECCO)*, Madrid, Spain, 2015. [Acceptance rate 36% (182/505)]

C76. [**NASBASE 2015**] Ali Ouni, Marouane Kessentini, Houari Sahraoui, Mel Ó Cinnéide, Kalyanmoy Deb, Katsuro Inoue, "A Multi-Objective Refactoring Approach to Introduce Design Patterns and Fix Anti-Patterns", *North American Search Based Software Engineering Symposium (NasBASE)*, Detroit, Michigan, USA, 2015. (*invited for a special issue of the Journal of Software: Evolution and Process*).

C77. [**NASBASE 2015**] Mohamed Wiem Mkaouer, Marouane Kessentini, Slim Bechikh and Ali Ouni, "Many-Objective Software Engineering using Preference-based Evolutionary Algorithms: A Case Study in Software Refactoring", *North American Search Based Software Engineering Symposium (NasBASE)*, Detroit, Michigan, USA, 2015.

C78. [**GECCO 2013**] Ali Ouni, Marouane Kessentini, Houari Sahraoui and M. S. Hamdi, "The Use of Development History in Software Refactoring Using a Multi-Objective Evolutionary Algorithm", *22nd ACM International Genetic and Evolutionay Computation Conference (GECCO)*, Amsterdam, The Netherlands, July 2013. [Acceptance rate: 36% (204/570)]

C79. [**CSMR 2013**] Ali Ouni, Marouane Kessentini and Houari Sahraoui, "Search-based Refactoring Using Recorded Code Changes", *17th IEEE European Conference on Software Maintenance and Reengineering (CSMR)*, Genova, Italy, March 2013. [Acceptance rate: 30% (24/80)]

C80. [**ICSM 2012**] Ali Ouni, Marouane Kessentini, Houari Sahraoui and M. S. Hamdi, "Search-based Refactoring: Towards Semantics Preservation", *28th IEEE International Conference on Software Maintenance (ICSM)*, September 23-30, 2012, Riva del Garda, Italy. [Acceptance rate: 25% (46/181)]

C81. [**ICPC 2011**] Marouane Kessentini, Wael Kessentini, Houari Sahraoui, Mounir Boukadoum, and Ali Ouni, "Design Defects Detection and Correction by Example", *19th IEEE International Conference on Program Comprehension (ICPC)*, 22-24 June 2011, pp 81-90, Kingston- Canada. [Acceptance rate: 24%]

TUTORIALS

T1. [**GECCO 2021**] Search-Based Software Engineering: challenges, opportunities and recent applications, in *Genetic and Evolutionary Computation Conference (GECCO 2021)*, July 2021. (20−25 attendees)

T2. [**ICSR 2020**] Third-Party Software Library Reuse: From Adoption to Migration, *International Conference on Software Reuse (ICSR 2020)*, December 2020. (40−45 attendees)

T3. [**GECCO 2020**] Search-Based Software Engineering: challenges, opportunities and recent applications, in *Genetic and Evolutionary Computation Conference (GECCO 2020)*, July 2020. (20−25 attendees)

T4. [**ASE 2016**] Search-Based Software Engineering: Foundations, Challenges and Recent Advances, in *31st IEEE/ACM International Conference on Automated Software Engineering (ASE 2016)*, Singapore, Singapore, September, 2016. (20−25 attendees)

TALKS

- Keynote speaker, "The Next Generation of AI Applications to Software Engineering : Challenges and Opportunities", Software Engineering seminar in Montreal (SE@MTL), 24 February 2023.
- Invited Speaker, "On the Adoption and Maintenance of Third-Party Web Service and Library APIs", SEMLA, Montreal, QC, Canada, 2 June 2022.
- Invited Speaker, "Mining Software Repository Newcomer Orientation", 19th IEEE/ACM International Conference on Mining Software Repositories (MSR), 17 May 2022.
- Invited Seminar (online), "Search-Based Software Engineering: Improving Continuous Integration Practices", *Rochester Institute of Technology (RIT)*, Rochester, NY, USA, 12 November 2021.
- Panelist, "Tomorrow's Smart Devices", *17th International Conference on Service-Oriented Computing (ICSOC)*, Montpellier, France, 14 November 2022.

- Invited Talk, "Search Based Software Engineering for Improving Software Quality", *Nara Institute of Science and Technology (NAIST)*, Nara, Japan, November 2018.
- Invited Talk, "'Search-based Software Engineering: Principles and Recent Applications", *Nara Institute of Science and Technology (NAIST)*, Japan, December 7, 2015.
- Invited Talk, "Recommending Software Refactoring Using Search-based Software Engineering", *Graduate School of Information Science and Technology, Osaka University*, Japan, December 10, 2014.
- Invited Talk, "Software Refactoring Using Multi-Objective Optimization", *McDonnell Douglas Software Engineering Lab, Missouri University of Science and Technology*, Rolla, MO, USA, March 22, 2013.
- Invited Talk, "Software Refactoring: A Search-based Approach", *Missouri University of Science and Technology*, Rolla, MO, USA, March 20, 2013.
- Invited Talk, "Design defects detection and correction as an optimization problem", *McDonnell Douglas Software Engineering Lab, Missouri University of Science and Technology*, Rolla, MO, USA, November 15, 2012.
- Invited Talk, "Optimisation multi-objective pour le refactoring des logiciels", *GEODES Software Engineering Lab, University of Montreal*, Montreal, QC, Canada, November 17, 2011.

COMMUNITY & PROFESSIONAL SERVICES

Journal Editor

- Editorial Board member: Journal of Empirical Software Engineering (EMSE), Springer, since 2021.
- Guest Editor, Journal of Systems and Software, Elsevier, SI on "Service Oriented Software Engineering", 2022.
- Guest Editor, Journal of Empirical Software Engineering, Elsevier, SI on "Recommendation Systems for Software Engineering", 2020.
- Guest Editor, Journal of Information and Software Technology, Elsevier, SI on "Software Refactoring", 2016.
- Distinguished Review Board, ACM Transactions on Software Engineering and Methodology (TOSEM), 2019.

Conference Organization

- Co-chair of the Journal-first Track, IEEE International Conference on Program Comprehension (ICPC), 2023.
- Co-chair of the Tool Demos Track, 9th IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft) 2022.
- Co-chair of the Doctoral Symposium, International Conference on Software and Systems Reuse (ICSR), 2020.
- Publicity co-chair, International Symposium on Search Based Software Engineering (SSBSE), 2019.
- General Chair of the 2nd International Workshop on Refactoring (IWoR 2018), co-located with ASE 2018.
- PC co-chair of the 9th IEEE International Conference on Management of Digital EcoSystems (MEDES) 2017.
- Founder of the International Workshop on Refactoring (IWoR), 2016.
- General Chair of the International Workshop on Refactoring (IWoR 2016), co-located with ASE 2016.
- Chair of the PhD Track, International Symposium on Search Based Software Engineering (SSBSE), 2016.
- Local organization committee, SSBSE 2016, Raleigh, NC, USA.
- Local organization committee, SANER 2016, Osaka, Japan.
- Organization committee, 1st North American Symposium on SBSE (NASBase) 2015, Dearborn, MI, USA.

Program Committee Member

- 18th IEEE International Conference on Software and Systems Process (ICSSP), 2024.
- 21st IEEE Mining Software Repositories Conference (MSR), Mining Challenge Track, 2024.
- 33rd International Workshop on Software Measurement and 18th Conference on Software Measurement Product Measurement (IWSM-MENSURA), 2024.
- 38th IEEE/ACM International Conference on Automated Software Engineering (ASE), NIER Track, 2023.
- 16th International Conference on Cooperative and Human Aspects of Software Engineering (CHASE), RR Track, 2023.
- ACM/IEEE International Conference on Software Engineering (ICSE), SEET Track, 2023.
- IEEE Mining Software Repositories Conference (MSR), Registered Reports Track, 2023.
- IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM), Research and Engineering Tracks, 2023.
- IEEE International Conference on Web Services (ICWS), 2023.
- 17th IEEE International Conference on Software and System Processes (ICSSP), 2023.
- ACM Technical Symposium on Computer Science Education (SIGCSE), 2023.
- ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2023).
- IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER), NIER Track, 2023.
- International Conference on Service Oriented Computing (ICSOC), 2022.
- IEEE International Workshop on Refactoring (IWoR), 2022.
- International Conference on Software Maintenance and Evolution (ICSME), Tool Track, 2022.
- IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM), Engineering Track, 2022.
- IEEE International Conference on Web Services (ICWS), 2022.
- Mining Software Repositories Conference (MSR), Registered Report Track, 2022.
- 16th International Conference on Global Software Engineering (ICGSE), 2022.
- 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER), 2022.
- ACM/IEEE International Conference on Software Engineering (ICSE), SEET Track, 2022.
- International Conference on Web Services (ICWS), 2021.
- IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM), 2021.
- International Conference on Software Maintenance and Evolution (ICSME), Tool Track, 2021.
- IEEE International Conference on Artificial Intelligence and Big Data (ICAIBD) 2021.
- IEEE International Conference on Program Comprehension (ICPC) ERA Track, 2021.
- IEEE/ACM Automated Software Engineering Conference (ASE), Late Breaking Result Track, 2020.
- International Conference on Decision Aid Sciences and Application (DASA), 2020.
- 14th International Conference on Innovations in Information Technology (IIT), 2020.
- 20th IEEE Int. Working Conf. on Source Code Analysis and Manipulation (SCAM), Engineering Track, 2020.
- ACM International Workshop on Software Health (SoHeal) 2020.
- IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM) 2020.
- IEEE International Workshop on Refactoring (IWoR), 2020.
- IEEE International Conference on Program Comprehension (ICPC), Tool Demonstration Track, 2020.
- IEEE International Conference on Web Services (ICWS), 2020.
- IEEE International Conference on Services Computing (SCC), 2020.

- IEEE International Workshop on Software Engineering Intelligence (SEI), co-located with ASE, 2019.
- 19th IEEE Int. Working Conf. on Source Code Analysis and Manipulation (SCAM), Engineering Track, 2019.
- 23rd International Computer Science and Engineering Conference (ICSEC), 2019.
- IEEE International Workshop on Refactoring (IWoR), 2019.
- IEEE International Conference on Web Services (ICWS), 2019.
- IEEE 13th International Conference on Innovations in Information Technology (IIT), 2018.
- ACM Genetic and Evolutionary Computation Conference (GECCO), 2018.
- International Conference on Advanced Service Computing (SERVICE COMPUTATION), 2018.
- IEEE Working Conference on Software Visualization (VISSOFT), NIER and Tool tracks, 2017.
- ACM Genetic and Evolutionary Computation Conference (GECCO), 2017.
- International Conference on Software Analysis, Evolution, and Reengineering (SANER 2017 Tool Track), 2017.
- ACM Genetic and Evolutionary Computation Conference (GECCO), 2016.
- International Conference on Software Analysis, Evolution, and Reengineering (SANER 2016 Tool Track), 2016.
- International Symposium on Search Based Software Engineering (SSBSE), 2016.
- International Conference on Model and Data Engineering (MEDI), 2015.
- ACM Genetic and Evolutionary Computation Conference (GECCO), 2015.
- North American Search Based Software Engineering Symposium (NasBASE), 2015.
- ACM Genetic and Evolutionary Computation Conference (GECCO), 2014.
- Workshop on Combining Modelling with Search- and Example-Based Approaches (CMSEBA), 2014.

Journal Referee

- IEEE Transactions on Software Engineering (TSE), IEEE Computer Society.
- IEEE Transactions on Evolutionary Computation (TEVC), IEEE Computer Society.
- ACM Transactions on Software Engineering and Methodology (TOSEM), ACM.
- IEEE Transactions on Services Computing (TSC), IEEE Computer Society.
- Software Testing, Verification and Reliability (STVR).
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS).
- Empirical Software Engineering (EMSE), Springer.
- Journal of Systems and Software (JSS), Elsevier.
- Journal of Automated Software Engineering (ASE), Springer.
- Journal of Information and Software Technology (IST), Elsevier.
- Journal of Software Quality (SQJ), Springer.
- IEEE Transactions on Reliability, IEEE Computer Society.
- Journal of Software: Evolution and Process (JSEP), John Wiley & Sons.
- Journal Applied Soft Computing (ASOC), Elsevier.
- Computer Standards & Interfaces Journal (CSI), Elsevier.
- Journal of Intelligent Systems (JISYS).
- IEEE Transactions on Emerging Topics in Computational Intelligence, IEEE Computer Society.
- IEEE Access, IEEE Computer Society.
- IET Software, IEEE Computer Society.
- Journal of Reliable Intelligent Environments, Elsevier.
- IEEE Software, IEEE Computer Society.

Research Grants Referee

- Swiss National Science Foundation (SNSF).
- Natural Sciences and Engineering Research Council, Canada (NSERC), Discovery Grant.
- MITACS, Accelerate program.
- FRQNT, Postdoctoral Scholarship program.
- Natural Sciences and Engineering Research Council, Canada (NSERC), RDC grant.
- Natural Sciences and Engineering Research Council, Canada (NSERC), Discovery grant.

University Promotions and Tenure Cases

These include

- University of Sharjah
- Rochester Institute of Technology (RIT)
- Steven's Institute of Technology
- University of Hawai'i at Manoa.

PhD committee

- Farah Haneef, Quaid-i-Azam University, Islamabad, Pakistan, 2023.
- Simin Dourandish, ETS Montreal, 2022.
- Deem Alshuhaibi, Rochester Institute of Technology (RIT), NY, USA, 2022.
- Shamsa Abid, Lahore University of Management Sciences, Pakistan, 2021.
- Chaima Chekhaba, ETS Montreal, 2021.
- Eman Abdullah Alomar, Rochester Institute of Technology (RIT), NY, USA, 2021.
- Korosh Koochekian Sabor, Concordia University, Montreal, QC, Canada, 2019.
- Dayi Lin, Queens' University, Kingston, ON, Canada, 2019.
- Hussein Alrubai, Rochester Institute of Technology (RIT), NY, USA, 2020.
- Farag Mansouri, ETS Montreal, 2019.
- Mahmoud Gadallah, ETS Montreal, 2019.

MEMBERSHIPS AND OTHER QUALIFICATIONS

MEMBERSHIPS

- Professional Engineer (P.Eng.), Software Engineering and AI, Order of Engineers of Quebec (OIQ).
- Institute of Electrical and Electronic Engineers (*IEEE*)
- Association for Computing Machinery (*ACM*)
- Special Interest Group on Software Engineering (*SIGSOFT*)

OTHER QUALIFICATIONS

- Qualification for the functions of Assistant Professor (*maître de conférences*), Section 27−Computer Science, National Council of Universities (CNU), France Ministry of National Education, Higher Education and Research, France, February 2015.

LANGUAGES

Proficient in English, French, and Arabic.