ALI OUNI — Curriculum Vitae

244 SBSE Lab, CIS Dept, University of Michigan

4901 Evergreen Road, Dearborn, MI 48128

`http://ouniali.github.io`

Phone: +1 (313)-338-4829

Email: ali@ist.osaka-u.ac.jp

Alt: ouniaali@gmail.com

SUMMARY OF QUALIFICATIONS AND ACHIEVEMENTS

- International experience in funding and research in many countries including, Canada, USA, and Japan.

- Ranked among TOP-3 researchers in the field of search-based software refactoring based on recent surveys[1].

- Awarded the Research Excellence Award from the University of Montreal, 2014.

- Hold the most prestigious national scolarship award to pursue PhD studies in Canada, Government of Tunisia.

- Strong publication record during the last five years at the top-tier venues for Software Engineering research: over 13 journal papers including TSE, TOSEM, TSC, ASE, EMSE, and over 17 conference papers including FSE, ASE, ICSME, GECCO, ICWS and ICSOC.

- Best paper awards (Journal-First) from the Top Software Engineering journals: *ACM Transactions on Software Engineering and Methodology* (2015), and *IEEE Transactions on Services Computing* (2016).

- Founder of the first International Workshop on Software Refactoring (IWoR) 2016.

- Broad network of academic collaborators from different institutions including the University of Michigan, University College Dublin, University of Victoria, Michigan-State University, Vienna University of Technology, Singapore Management University, Rochester Institute of Technology, Osaka University, and University of Montreal.

- Regularly invited as PC member and reviewer for the leading conferences and journals in Software Engineering.

- Actively mentoring graduate students including 2 PhD and 5 MSc students.

RESEARCH INTERESTS

My research interests span the areas of software engineering. I have a specific interest in software maintenance and evolution, refactoring, program analysis, software quality, service-oriented computing, software reuse, and search-based software engineering.

SELECTED AWARDS & RECOGNITIONS

- Best Paper Award Runner-up, *23rd IEEE International Conference on Web Services* (ICWS), 2016, San Francisco, USA.

- Best Paper Award "Journal First" from the ACM Transactions on Software Engineering and Methodology (TOSEM) − selected for presentation at SIGSOFT FSE'15, Bergamo, Italy, August 2015.

- TSC Best Paper Award, "Search-based Web Service Antipatterns Detection" from the IEEE Transactions on Services Computing (TSC) − selected for presentation at the Special Track for TSC at the 12th IEEE World Congress on Services (SERVICES'16), San Francisco, USA, June 27 - July 2, 2016.

- Dean's Honor List, University of Montreal, November 2014.

- Ph.D. Research Excellence Award, FESP, University of Montreal, November 2014. ($10,000 + $12,000). *Only one candidate is selected among 130+ graduate students.*

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

- Student Excellence Award, J. Armand Bombardier Foundation, Canada, 2014.

- Graduate Student Excellence Award, Department of Computer Science and Operations Research (DIRO), University of Montreal, February 2013. ($5,200)

- Scholarship exemption of tuition fees for excellent international graduate students. Faculty of Graduate and Postdoctoral studies (FESP). University of Montreal, 2011−2014.

- Doctoral scholarship award, MESR, Government of Tunisia, 2011−2014, (*Only two candidates are selected among all universities in Tunisia*).

RESEARCH GRANT PARTICIPATION

- **SARF**: Collecting, Analyzing, and Evaluating Software Assets for Effective Reuse. (2013-2017)
  Grant-in-Aid for Scientific Research, Japan Society for the Promotion of Science (JSPS): $ 932,000 USD
  PI: Katsuro Inoue.

- **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.

MENTORSHIP

I am supervising or co-supervising the following students:

- *Hanzhang Wang*, Ph.D. candidate, (co-supervised with Dr. Marouane Kessentini).
  Thesis title: *Refactoring of Service-based Software Systems.* (Sept 2015 - current)
  Publications: 1*ICWS 2016, 2*ICSOC 2016.

- *Marwa Daagi*, Ph.D. candidate.
  Thesis title: *Quality assessement for Object and Service oriented software systems.* (Sept. 2016 - current)

- *Naoya Ujihara*, M.Sc. Student, Osaka University, (co-supervised with Dr. Takashi Ishio)
  Thesis title: *Identifying move method refactoring opportunities for large scale software systems.* (April 2015 - current)

- *Tsubasa Saika*, M.Sc. Student, Osaka University, (co-supervised with Dr. Norihiro Yoshida)
  Thesis title: *The effect of code-smells and refactoring: An empirical study.* (Graduated, Winter 2016)
  Publications: ICPC 2016.

- *Zouhour Salem*, M.Sc. Student, University of Gabes, (co-supervised with Dr. Makram Soui).
  Thesis title: *Refactoring of god-object Web services.* (Graduated, Winter 2016)
  Publications: ICWS 2016 (Best paper runner-up).

- *Soumaya Dhiab*, M.Sc. Student, University of Gabes, (co-supervised with Dr. Makram Soui).
  Thesis title: *An Ontology-based Approach for User Interface Adaptation.* (Graduated, Winter 2016)
  Publications: AISC 2016.

- *Patrice Koligheu*, M.Sc. student, University of Michigan, (co-supervised with Dr. Marouane Kessentini)
  Thesis title: *Many-objective Software Re-modularization.* (Graduated, Winter 2014).
  Publications: TOSEM 2015.

CURRENT AND PREVIOUS ACADEMIC EXPERIENCE

University of Michigan, Dearborn, MI, USA	Visiting Scientist	*Dec. 2016 − current*
UAE University, UAE	Assistant Professor	*Aug. 2016 − current*
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 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 *Jan. 2011−Nov. 2014*
University of Montreal Montreal, Canada
Title: "A Mono- and Multi-Objective Approach for Recommending Software Refactoring"
Advisors: Prof. Houari Sahraoui (University of Montreal, Canada),
    Prof. Marouane Kessentini (University of Michigan, USA).

M.Sc. in Computer Science *July 2010*
University of Kairouan Kairouan, Tunisia

B.Sc. in Computer Science *June 2008*
University of Sousse Sousse, Tunisia

TEACHING EXPERIENCE

- **Lecturer.** Osaka University, Graduate School of Information Science and Techenology.

  Courses: − Search-Based Software Engineering: (2015-2016).

- **Lecturer.** UAE University, Department of Computer Science and Software Engineering.

  Courses: − Fundamentals of Software Engineering: (Fall 2016).
        − Data Structures: (Fall 2016).

- **Teaching Assistant.** University of Montreal, Department of Computer Science and Operations Research (2011-2014).

  Courses: − Introduction to Computer Science
        − Software Engineering 1
        − Introduction to Programming C++
        − Programming languages: Java

- **Teaching Assistant.** Missouri University of Science and Technology, Department of Computer Science.

  Courses: − Search-Based Software Engineering (*assisting students with projects and assignments*): Winter 2013.

- **Teaching Assistant.** University of Sousse, Institute of Applied Sciences and Technology.

  Courses: − Artificial Intelligence I: Basic concepts and Applications. (Sep. 2009 − Jan. 2010).
        − Image Processing and Forms Recognition. (Sep. 2009 − Jan. 2010).

- **Lecturer.** University of Sousse, College of Law, Economic and Political Sciences.

  Courses: − Certification in Computer and Internet C2I. (Jan. 2010 − Dec. 2010).

PUBLICATIONS

BOOK CHAPTERS

B1. Ali Ouni, Marouane Kessentini, Houari Sahraoui, "Multi-Objective Optimization for Software Refactoring and Evolution", *Advances in Computers*, Elsevier, volume 94, pp. 103-167, 2014.

REFEREED JOURNAL PAPERS

J1. [**IST 2016**] Raula G. Kula, Ali Ouni, Daniel M. German, Katsuro Inoue, "An Exploratory Study on the Impact of Refactoring Activities on Evolving Client-Used APIs", *Journal of Information and Software Technology (IST)*, 2016. [Impact Factor: 1.56]. (under minor revision)

J2. [**EMSE 2016**] Raula Kula, Daniel German, Ali Ouni, Takashi Ishio, Katsuro Inoue, "Do Developers Update Their Library Dependencies? An Empirical Study on Library Migration Practices", *Empirical Software Engineering Journal (EMSE)*, Springer, 2016. [Impact factor 2.16]. (under minor revision)

J3. [**TOSEM 2016**] Ali Ouni, Marouane Kessentini, Houari Sahraoui, Katsuro Inoue, Kalyanmoy Deb, "Multi-criteria Code Refactoring Suggestions: An Industrial Case Study", *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 25(3): 23, pp. 1-53, 2016. [Impact factor 1.8].

J4. [**TSC 2016**] Ali Ouni, Marouane Kessentini, Katsuro Inoue, Mel Ó Cinnéide, "Search-based Web Service Antipatterns Detection", *IEEE Transactions on Services Computing (TSC)*, 2016. [Impact factor 3.04].

J5. [**IST 2016**] Ali Ouni, Raula G. Kula, Marouane Kessentini, Takashi Ishio, Daniel M. German, Katsuro Inoue, "Search-Based Software Library Recommendation Using Multi-Objective Optimization", *Journal of Information and Software Technology (IST)*, Elsevier, 2016. [Impact Factor: 1.56]

J6. [**EMSE 2016**] Marouane Kessentini, Usman Mansoor, Manuel Wimmer, Ali Ouni, Kalyanmoy Deb, "Search-based Detection of Model Level Changes", *Empirical Software Engineering Journal (EMSE)*, pp. 1-46, Springer, 2016. [Impact factor 2.16].

J7. [**JSEP 2016**] Ali Ouni, Marouane Kessentini, Houari Sahraoui, Mel Ó Cinnéide, Kalyanmoy Deb, Katsuro Inoue, "MORE: A Multi-objective Refactoring Recommendation Approach to Introducing Design Patterns and Fixing Code Smells", *Journal of Software: Evolution and Process (JSEP)*, John Wiley & Sons, 2016. [Impact factor: 1.12].

J8. [**JSS 2015**] Ali Ouni, Marouane Kessentini, Houari Sahraoui, Katsuro Inoue, M. S. Hamdi, "Improving Multi-Objective Code-Smells Correction Using Development History". *Journal of Systems and Software (JSS)*, Elsevier, volume 105, pp. 18-39, 2015. [Impact factor 1.44].

J9. [**TOSEM 2015**] Wiem Mkaouer, Marouane Kessentini, Kalyanmoy Deb, Slim Bechikh, Ali Ouni, "Many-Objective Software Remodularization Using NSGA-III", *ACM Transactions on Software Engineering and Methodology (TOSEM)*, volume 24, n. 3, 2015. [Impact factor 1.8].

J10. [**TSE 2014**] Wael Kessentini, Marouane Kessentini, Houari Sahraoui, Slim Bechikh, Ali Ouni, "A Cooperative Parallel Search-Based Software Engineering Approach for Code-Smells Detection", *IEEE Transactions on Software Engineering (TSE)*, volume 40, n. 9, pp. 841-861, 2014. [Impact factor 2.29].

J11. [**SQJ 2014**] Ali Ouni, Marouane Kessentini, Houari Sahraoui, Slim Bechikh, "Prioritizing Software Refactoring Tasks Using Chemical Reaction Optimization", *Journal of Software Quality (SQJ)*, Springer, vol. 23, n. 2, pp. 323-361, 2014. [Impact factor 1.14].

J12. [**JSS 2014**] Marouane Kessentini, Ali Ouni, Philip Langer, Manuel Wimmer, Slim Bechikh, "Search-based Metamodel Matching with Structural and Semantic Measures", *Journal of Systems and Software (JSS)*, Elsevier, volume 97, pp. 1-14, 2014. [Impact factor 1.44].

J13. [**ASE 2013**] Ali Ouni, Marouane Kessentini, Houari Sahraoui, Mounir Boukadoum, "Maintainability Defects Detection and Correction: A Multi-Objective Approach", *Journal of Automated Software Engineering (ASE)*, Springer, vol. 20, n. 1, pp. 47-79, 2013. [Impact factor 1.73].

REFEREED INTERNATIONAL CONFERENCE PROCEEDINGS

C1. [**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)]

C2. [**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. [Acceptance rate: 25% (74/291)]

C3. [**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)]

C4. [**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. **Best Paper Award Runner-up**. [Acceptance rate: 14% (30/230)]

C5. [**ICWS 2016**] Hanzhang Wang, Ali Ouni, Marouane Kessentini, Bruce Maxim, "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)]

C6. [**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.

C7. [**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)]

C8. [**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)]

C9. [**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.

C10. [**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.

C11. [**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)]

C12. [**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*).

C13. [**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.

C14. [**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)]

C15. [**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)]

C16. [**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)]

C17. [**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. [**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.

REFEREED NATIONAL CONFERENCES AND WORKSHOPS

W1. [**INFORSID 2011**] Valerie Monfort, Ali Ouni, Slimane Hammoudi, and Mohamed Baccouche, "Vers une Plate Forme de Transformation de PIM vers PSM : Cas d'un Intergiciel Basé sur les Services et les Aspects", *INFORSID*, 24-26 May 2011, Lille - France.

W2. [**WIA 2010**] Valerie Monfort, Slimane Hammoudi, Afef Achour, Ali Ouni, and Arij Khelifa, "A Dynamic Meta Models Composition and Transformation according to Context and Mobility", *Workshop en Informatique et Applications* (WIA), February 2010, Tozeur - Tunisia.

DISSERTATIONS/OTHER REPORTS

D1. Ali Ouni, "A Mono- and Multi-objective Approach for Recommending Software Refactoring", Ph.D. thesis, University of Montreal, Defended on November 2014.

D2. Ali Ouni, "Multi-Objective Optimization for Software Refactoring and Evolution", Research proposal submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy (Ph.D.) in computer science, University of Montreal, December 2012.

PROFESSIONAL SERVICES

- Journal Editor
  - Journal of Information and Software Technology, Elsevier, SI on "Software Refactoring", 2016.

- Conference Organization:
  - Founder of the International Workshop on Refactoring (IWoR), 2016.
  - General Chair of the International Workshop on Refactoring (IWoR 2116), 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.

- Program Committee Member:
  - Genetic and Evolutionary Computation Conference (GECCO), 2017.
  - International Conference on Software Analysis, Evolution, and Reengineering (SANER 2017 Tool Track), 2017.
  - 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.
  - Genetic and Evolutionary Computation Conference (GECCO), 2015.
  - North American Search Based Software Engineering Symposium (NasBASE), 2015.
  - 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.
  - 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: 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.

MEMBERSHIPS AND OTHER QUALIFICATIONS

MEMBERSHIPS

- Institute of Electrical and Electronic Engineers (*IEEE*)

- Association for Computing Machinery (*ACM*)

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.

REFERENCES

Prof. Katsuro Inoue
Professor, Dean of Graduate School of Information
Science and Technology
Osaka University, Osaka, Japan
Email: inoue@ist.osaka-u.ac.jp
Telephone: (+81) 6 6879 4105

Prof. Ahmed E. Hassan
Professor, Canada Research Chair in Software Analytics, and
NSERC/BlackBerry Industrial Research Chair in Software
Engineering
School of Computing, Queen's University, Kingston, Canada
Email: ahmed@cs.queensu.ca
Telephone: (+1) 613-533-3337

Prof. Marouane Kessentini
Assistant Professor, Computer and Information
Science Department
University of Michigan, Dearborn, MI, USA
Email: marouane@umich.edu
Telephone: (+1) 313-583-6366

Prof. Houari Sahraoui
Professor, Head of department, Department of Computer
Science and Operations Research
University of Montreal, Quebec, Canada
Email: sahraouh@iro.umontreal.ca
Telephone: (+1) 514-343-5746