

Hamzeh Eyal Salman

Associate Professor, Ph.D.

Personal Information

- **Nationality:** Jordanian
- **Marital Status:** Married
- **Gender:** Male
- **Date of Birth:** July 12, 1984
- **E-mail:** hamzehmu@mutah.edu.jo or hamzehahu@gmail.com
- **Phone:** +962 (0)7 91 40 76 52
- **Address:** SE Dept., IT Faculty, Mutah University, Al-Karak, Jordan
- **Google Scholar Profile:** [Link of Google Scholar](#)
- **Scopus Author ID:** 55596289700
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- **Research Gate Profile:** [Link of Research Gate](#)
- **Linkedin Profile:** [Link of Linkedin](#)



Education

- **University of Montpellier 2** France, On
Ph.D. Computer Science / Specialization Software Engineering 2011 - 2014
 - **Thesis Title:** Recovering Traceability Links between Artifacts of Software Variants in the Context of Software Product Line Engineering.
 - **Supervisors:** [Prof. Christoph Dony](#) and [Prof. Abdelhak-Djamel Seriai](#)
- **University of Jordan** Jordan, On
M.Sc. Computer Science / Specialization Software Engineering 2007 - 2010
 - **Thesis Title:** Using Genetic Algorithms in Test Data Generation for ORACLE Named Block.
 - **Supervisors:** [Prof. Mohammad Alshraideh](#) and [Prof. Basel Mahafzah](#)
 - **Graduated with GPA (3.50 out of 4.0)**
 - **Rating:** Very Good
- **Al-Hussein Bin Talal University** Jordan, On
B.Sc. Computer Information Systems 2002 - 2006
 - **Undergraduate Project:** TOEFL On-line Exam using ORACLE 9i

- **Research Interests**

- Software engineering.
- Software product line engineering.
- Software architectures and components.
- Software reuse, understanding and maintenance.
- Re-engineering, reverse engineering and refactoring.
- Program analysis: static and dynamic.
- Feature location and identification.
- Microservice identification.
- Change impact analysis.
- Software testing.
- APIs and software libraries: reusability and usability.
- Mining software repositories.
- Machine learning applications in software engineering.
- Search-based software engineering.

Academic Experience

- **Associate Professor** **Mutah University-Jordan**
2019-Present
Computer Information Systems, Mutah University, October 2, 2019 till present.
- **Assistant Professor** **Mutah University-Jordan**
2015 - 2019
Computer Information Systems, Mutah University, March 16, 2015 till October 1, 2019.
- **Full Time Lecturer** **Mutah University-Jordan**
2014 - 2015
Computer Information Systems, Mutah University, September 22, 2014 till March 15, 2015.

Teaching Experience

- **Master Level Courses** **Mutah University-Jordan**
2016-Present
 - Advanced Software Engineering Course
 - Advanced Databases Systems Course
 - Research Project Course

- **Bachelor Level Courses**

Mutah University-Jordan
2014-Present

- Software Engineering Course
- Software Architecture and Design Course
- Software Testing Course
- Systems Analysis and Design Course
- Object-Oriented Programming Course
- Data Structures Course
- Database Management Systems Course
- Introduction to Information Technology Course
- Computer Security Course
- Scientific Writing and Communication Skills Course
- Computer Skills Course

- **More Courses Able to Teach (Undergraduate & Graduate)**

- Requirements Engineering.
- Machine Learning.
- Artificial Intelligence.
- Computation Intelligence.
- Image Processing.
- Computer Networking.
- Parallel and Distributed Computing.
- Computer Algorithms.
- Operating Systems.
- E-Commerce.
- Internet Programming.

- **Teaching the Following Computer Labs.**

Tafla Technical University-Jordan
2008 - 2011

- Object-Oriented Programming Lab.
- C++ Programming Lab.
- SQL Programming Lab.
- Visual Basic Programming Lab.
- HTML Programming Lab.
- Computer Skills Lab.

- **Teacher at High School**

Jordanian Education Ministry
2006 - 2008

Positions Held

- Assistant Dean of Information Technology Faculty. Mutah University-Jordan
2016-2017
- Chair of Information Technology Department. Mutah University-Jordan
2017-2018
- Chair of Computer Science Department. Mutah University-Jordan
2018-2020
- Permanent Member in Computer Information Systems. Mutah University-Jordan
2014-Present

Honours

- A full degree Erasmus Mundus Ph.D. scholarship, University of Montpellier, France, September 2011 to July 2014.
- Ranked 1st in Bachelor degree in Computer Information System, University of Al-Hussein Bin Talal, Jordan, 2006.
- Outstanding student scholarship, Ministry of Higher Education and Scientific Research, Jordan, September 2003 to June 2006.

Academic Committee Membership

- **The Mutah University**, University Committees
 - Member of Computerized Examination Committee.
 - Member of the Higher Studies Board.
- **Mutah University**, Faculty Committees
 - Chair of the Quality Assurance Committee.
 - Chair of the Scientific Research Committee.
 - Member of the E-Learning Committee.
 - Member of the Faculty Board.
 - Member of the Field Training Committee.
 - Member of the Higher Studies Committee.
 - Member of the Faculty Scientific Day Committee.
- **Mutah University**, Department Committees
 - Chair of the Department Board.
 - Chair of the Higher Studies Committee.
 - Chair of the Quality Assurance Committee.
 - Chair of the Courses Schedule Committee.

- Member of the Department Board.
- Member of the Comprehensive Examination Committee for M.Sc. Students.
- Member of the Scientific Research Committee.
- Member of the Appointment and Promotion Committee.
- Member of the Graduation Projects Committee.
- Member of the M.Sc. Thesis Examination Committees.
- Member of the Courses Equalization Committee for Transferred Students.
- Member of the Curriculum Plan Committee.
- Member of the Students Union Election Supervision Committee.

Graduate Students Supervision

- **M.Sc Thesis - Main Supervision - Ongoing**

- 1- Nagam Ma'ateh, "*A Parametrized Approach for Commonality and Variability Analysis in Github's Forks toward Software Product Line Engineering*", Computer Science Department, Mutah University, Al-Karak-Jordan, 2020.
- 2- Yageen Ma'ateh, "*Feature Interaction Prediction in Software Product Line Engineering*", Computer Science Department, Mutah University, Al-Karak-Jordan, 2020.

- **M.Sc Thesis - Co-Supervision - Ongoing**

- 1- Roaa Ma'ae'h, "*Highly Secure Wireless Network by Detecting of Rogue Access Points and Preventing Cloning of Legitimate Access Point*", Computer Science Department, Mutah University, Al-Karak-Jordan, 2021.
- 2- Abo-Baker Al-Taie, "*Predict Quality Medical Drug Data Toward Meaningful Data Using AI Algorithms*", Computer Science Department, Mutah University, Al-Karak-Jordan, 2021.

M.Sc. Thesis-Examination Committee Membership

- **Internal Examiner**

- 1- Suzan Alasasfeh, "*Machine Learning Based Emotion Recognition System Using EEG Signals*", Computer Science Department, Mutah University, Al-Karak-Jordan, 2020.
- 2- Sohyb Al-qbailat, "*Jordan Birds Recognition System Using Deep learning*", Computer Science Department, Mutah University Al-Karak-Jordan, 2020.
- 3- Rami Al-Naimat, "*Step Detection, Distance Estimation and Noise Segmentation using Smartphone Sensor Data*", Computer Science Department, Mutah University Al-Karak-Jordan, 2019.
- 4- Shorouq Al-Tarawneh, "*Intelligent Academic Content Recommender System*", Computer Science Department, Mutah University Al-Karak-Jordan, 2019.

- 5- Ameen Al-Misedeen, “*Reduction of Power Consumption in Wireless by Improving IEEE802.1 Protocol*”, Computer Science Department, Mutah University Al-Karak-Jordan, 2018.
- 6- Omamah Al-Thnebat, “*Smart Classroom Approach for Automatic Evaluation of Students Grade*”, Computer Science Department, Mutah University Al-Karak-Jordan, 2018.
- 7- Batool Al-Horani, “*A Smart Classroom Based Approach for Detecting the Appropriate Document for a Spoken Word*” , Computer Science Department, Mutah University Al-Karak-Jordan, 2018.
- 8- Boshrah Al-Saraerah, “*Enhanced Event Detection Scheme in Wireless Actor Network using Dragonfly Algorithm*”, Computer Science Department, Mutah University Al-Karak-Jordan, 2018.

- **External Examiner**

- 1- Obadah Shatnawi, “*A Parameterized Approach for Analyzing Source Code Variability in Cloned Java Software Variants*”, Computer Science Department, Jordan University of Science and Technology, Irbid – Jordan, 2020.

Reviewing Activities

- **Reviewer for the Following Journal:**

- International Journal of Software Engineering and Knowledge Engineering, Singapore.
- Information and Software Technology Journal - Elsevier, Netherlands
- Mutah Lil-Buhuth Wad-Dirasat, Natural and Applied Sciences Series, Jordan.

- **Reviewer for the Following Conferences:**

- International Conference on Information and Communication Systems [ICICS 2019], June 11-13, 2019 - Irbid -Jordan, <http://www.just.edu.jo/icics/icics2019/>

- **Research Projects Reviewer:**

- Facilitating IPsec tunnel endpoint management for the hybrid cloud environments using large scale IPsec deployments, Ajman University, Emirates, August 2018.
- Network virtualization for supporting task offloading across hybrid cloud infrastructures, Ajman University, Emirates, August 2018.

Projects

- **Title: Recovering Traceability Links between Artifacts of Software Variants in the Context of Software Product Line Engineering**

- **Position Held:** Ph.D Researcher.
- **Funded by:** Erasmus Mundus Action 2 – JOSYLEEM.

- **Amount:** 52,200 Euro.
- **Organization:** LIRMM Laboratory, University of Montpellier, Montpellier, France.
- **Co-Workers:** Prof. Abdelhak Seriai and Prof. Christophe Dony.
- **Duration:** November 20, 2011 - June 17, 2014.

Attended Conferences

- MODELS 2012 conference/ September. 30th - October. 5th, 2012 - Innsbruck, AUSTRIA
- CAL conference/ May 30-31, 2012 - Montpellier, France
- CSMR 2013 conference/ March 5-8, 2013 - Genova, Italy
- IRI 2013 conference/ August 14-16, 2013 - San Francisco, USA
- Co-located conferences ECOOP, ECSA, ECMFA/ July 1-5, 2013 - Montpellier, France
- AICCSA 2018 conference/ October 28th to November 1st, 2018 - Aqaba, Jordan.

Program and Organization Committee

- Program committee member of the international symposium on software engineering for cloud, edge and internet of things systems, [SECEI 2020](#)
- Program committee member advances in Software Engineering Track, 15th ACS/IEEE international conference on computer systems and applications, [AICCSA 2018](#)
- Organization committee member of CAL Conference 2012, [CAL2012](#)
- Organization committee member of Co-located conferences, [ECOOP/ECSA/ECMFA2013](#)

Personal Skills & Training

- Technical Skills
 - Excellent in program analysis; static and dynamic analysis.
 - Deploying Formal Concept Analysis (FCA)/research technique.
 - Deploying Information Retrieval (IR) for software understanding.
 - Deploying multiple machine learning techniques to solve different research problems.
 - Familiar with Eclipse.
- Programming Languages
 - **Intermediate:** Python, C++, JAVA, ORACLE 9i, ORACLE 10g, HTML, ASP.Net, MATLAB and SQL PLUS.

- Application Software
 - **Expert:** MS Access, MS Excel, MS Word and MS Power Point, Microsoft Teams and Zoom.
 - **Intermediate:** Rational Rose, Visual Paradigms for UML, ERCA and Smart Draw.
 - Familiarity with Learning Management Systems.
- System Software
 - **Expert:** Windows XP, Windows Vista, Windows 7, Windows 10
 - **Intermediate:** Windows server 2003
- Languages
 - **Arabic:** Native.
 - **English:** Proficient.
 - **French:** Basic Knowledge.
- Training
 - LaTeX: 20 Credit Hours
 - How to write a scientific paper step by step: 20 Credit Hours
 - Preparing a research project and taking notes on scientific literature: 20 Credit Hours
 - ICDL certificate, Syllabus Version 4.0
 - CCNA course
 - MCP course
 - ERFKE certificate: 48 Credit Hours
 - Quality Assurance Training

Publications

- Book
 - **Hamzeh Eyal-Salman**, Abdelhak-Djamel Seriai . *Supporting Reengineering Software Variants into Software Product Lines: Recovering Traceability Links between Software Artifacts*, LAP LAMBERT Academic Publishing, 2014.
- International Journals
 - **Hamzeh Eyal Salman**, Zakarea Al-Shara. “Automatic Identification of Similar Pull-Requests in GitHub’s Repositories Using Machine Learning”. Submitted to Journal of Software and Systems (Elsevier Journal), 2021.
 - **Hamzeh Eyal Salman**. “Feature-based Insight for Forks in Social Coding Platforms”. Information and Software Technology Journal (Elsevier Journal), Vol. 140, 2021
 - Ahmad B. A. Hassanat, Haneen Arafat Abu Alfeilat, Omar Lasassmeh, Ahmad S Tarawneh, M. Bashir Alhasanat **Hamzeh Eyal Salman**, V. B. Surya Prasath. *Effects of Distance Measure Choice on KNN Classifier Performance - A Review*. Big Data Journal, Vol.7, No. 3, 2019.

- **Hamzeh Eyal Salman**, Mustafa Hammad, Abdelhak-Djamel Seriai, Ahed Al-Sbou. “*Semantic Clustering of Functional Requirements Using Agglomerative Hierarchical Clustering*”. , 2018, 9(9), 222.
 - **Hamzeh Eyal Salman**. “*API Library-Based Identification and Documentation of Frequent Usage Patterns*”. International Journal of Computer Applications in Technology, IJCAT, 2017, vol. 58, no. 1, pp. 63–79, Jan. 2018
 - **Hamzeh Eyal Salman**. “*Identification multi-level frequent usage patterns from APIs*”. Journal of Systems and Software (Elsevier Journal) , JSS, 2017, 130, pp.42-56. Information Journal, MDPI
 - **Hamzeh Eyal Salman**, Abdelhak-Djamel Seriai, Mustafa Hammad. “*Quality-driven feature identification and documentation from source code*”. Journal of Theoretical and Applied Information Technology, JATIT, 2016, 84 (2), pp.183-195.
 - **Hamzeh Eyal Salman**, Abdelhak-Djamel Seriai, Christophe Dony. *Feature-Level Change Impact Analysis Using Formal Concept Analysis*. International Journal of Software Engineering and Knowledge Engineering 25(1): 69-92, 2015.
 - M. Alshraideh, B. Mahafzah, **H. Eyal-Salman** and I. Salah, *Using Genetic Algorithm as Test Data Generator for Stored PL/SQL Program Units*. Journal of Software Engineering and Applications, Vol. 6 No. 2, 2013, pp. 65-73.
- International Conferences
 - **Hamzeh Eyal-Salman**, Abdelhak-Djamal Seriai and Christophe Dony. *Feature-to-Code Traceability in Legacy Software variants*.39th Euromicro Conference on Software Engineering and Advanced Applications, SEAA 2013, Santander, Spai, September 4-6, 2013. IEEE Computer Society 2013.
 - **Hamzeh Eyal-Salman**, Abdelhak-Djamal Seriai and Christophe Dony. *Feature-to-Code Traceability in a Collection of Software Variants: Combining Formal Concept Analysis and Information Retrieval*. IEEE 14th International Conference on Information Reuse & Integration, IRI 2013, Las Vegas, NV, USA, August 14-16, 2013.
 - **Hamzeh Eyal-Salman**, Abdelhak-Djamal Seriai and Christophe Dony. *Feature-Level Change Impact Analysis Using Formal Concept Analysis*. Software Engineering and Knowledge Engineering (SEKE’26), 2014 .
 - **Hamzeh Eyal-Salman**, Abdelhak-Djamal Seriai and Christophe Dony. *Feature Location in a Collection of Product Variants: Combining Information Retrieval and Hierarchical Clustering*. Software Engineering and Knowledge Engineering (SEKE’26), 2014 .
 - AL-MSIE’DEEN R., SERIAI A. D., HUCHARD M., URTADO C., VAUTTIER S., **SALMAN H. E.**, *Mining Features from the Object-Oriented Source Code of a Collection of Software Variants Using Formal Concept Analysis and Latent Semantic Indexing*, Proceedings of the The 25th International Conference on Software Engineering and Knowledge Engineering, USA, 2013.
 - AL-MSIE’DEEN R., SERIAI A. D., HUCHARD M., URTADO C., VAUTTIER S., **SALMAN H. E.**, *Feature location in a collection of software product variants using formal concept analysis*, Proceedings of the 13th International Conference on Software Reuse - Safe and Secure Reuse”, ICSR 2013, Springer, Italy.

- International Workshops
 - **Hamzeh Eyal-Salman**, Abdelhak-Djamal Seriai, Christophe Dony and Ra’Fat Al-Msie’Deen. *Identifying Traceability Links between Product Variants and Their Features*. 1st International Workshop on Reverse Variability Engineering (REVE 2013), CSMR 2013 , 5th March 2013 , 2013 - Genova, Italy
 - **Hamzeh Eyal-Salman**, Abdelhak-Djamal Seriai, Christophe Dony and Ra’Fat Al-Msie’Deen. *Recovering Traceability links between Feature Models and Source Code of Product Variants*. ACM VARY Workshop (VARY: VARIability for You), MODELS 2012, Sept. 30th - Oct. 5th, 2012 - Innsbruck, Austria.
- National Conferences
 - **Hamzeh Eyal-Salman**, Abdelhak Seriai, Christophe Dony and Ra’Fat Al-Msie’Deen. *Genetic Algorithms as Recovering Traceability Links Method between Feature Models and Source Code of Product Variants*. Lille - France, 6 novembre 2012. Product Line Day, 2012.
 - **Hamzeh Eyal-Salman**, Abdelhak Seriai, Christophe Dony and Ra’Fat Al-Msie’Deen *Identifying Traceability between Feature Model and Source Code in a Collection of Product Variants*. Workday Group RIMEL LPG Nîmes, December 17, 2012.
 - Ra’Fat Al-Msie’Deen, Abdelhak Seriai, Marianne Huchard, Christelle Urtado, Sylvain Vauttier and **Hamzeh Eyal Salman**. *An approach to recover feature models from object-oriented source code*. Lille - France, 6 novembre 2012. Product Line Day, 2012.
- Doctoral Symposium
 - **Hamzeh Eyal-Salman**. *Toward Reengineering Legacy Software Variants into Software Product Line: Feature-to-Code Traceability*, ECOOP conference 2013, France, Montpellier

References

- Prof. Christoph Dony at University of Montpellier II, France (Dony@lirmm.fr)
- Prof. Abdelhak-Djamel Seriai at University of Montpellier II, France (seriai@lirmm.fr)
- Prof. Marianne Huchard at University of Montpellier II, France (huchard@lirmm.fr)
- Prof. Mohammad Alshraideh at University of Jordan, Jordan (mshridah@ju.edu.jo)
- Prof. Basel Mahafzah at University of Jordan, Jordan (b.mahafzah@ju.edu.jo)

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