# Dr. Shadi Bani Taan

Computer Science & Software Engineering
College of Engineering & Science
University of Detroit Mercy

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## Research Interest

Data Mining, Machine Learning, Mining Software Repositories, Natural Language Processing, and Software Engineering.

## Education

**North Dakota State University** Fargo, ND, USA                    May 2013
PhD in Computer Science

**Yarmouk University** Irbid, Jordan                    August 2004
M.Sc. in Computer and Information Sciences

**Yarmouk University** Irbid, Jordan
B.Sc. in Computer Science                    June 2002

## Professional Experience

**University of Detroit Mercy** Detroit, USA
**Director and Associate Professor**                    August 2017 – ON

- I developed and prepared lectures, assignments and projects for the following undergraduate courses:
    - Introduction to Programming I
    - Java programming
    - Introduction to Data Mining
    - Senior Design Project
    - Artificial Intelligence
- I developed and prepared lectures, assignments and projects for the following graduate courses:
    - Artificial Intelligence
    - Data Mining
    - Software Design Techniques
    - Graduate Design Project
    - Artificial Intelligence
- My duties and responsibilities as the director of computer science and software engineering are summarized below.
    - Develop a schedule of classes for the computer science and software engineering courses.
    - Recognize teaching needs in a timely fashion and oversee the identification, interviewing and recommendation of non-tenure track hires including adjunct faculty and instructors.
    - Oversee and guide, in consultation with the departmental faculty, programmatic and curriculum review and assessment.
    - Encourage and guide faculty to stay active and current in research and grantsmanship, and effective teaching pedagogy.
    - Review applications for graduation and provide timely recommendations to the Records office.
    - Review, as necessary, other institutions courses for transfer equivalence.
    - Prepare and submit to the Dean, proposals for the computer science and software engineering budget after consultation with the department.
    - Complete payroll authorizations for adjuncts and faculty overload.
    - Review computer science and software engineering faculty annually and submit review comments on faculty annual reports for the Dean's review.
    - Encourage faculty to engage students in research and other experiential learning activities.
    - Participate in and encourage faculty involvement in recruitment events either on or off campus.

- o Develop and expand ties and relationships with other academic institutions, and appropriate industry leaders.
- o Encourage Departmental alumni engagement through service at Department and College events, participation in advisory groups, and other appropriate activity.
- I am currently serving as the major academic advisor for 39 undergraduate and graduate students.

**University of Detroit Mercy** Detroit, USA
**Assistant Professor**                                                                                             January 2013 – July 2017
- I developed and prepared lectures, assignments and projects for the following undergraduate courses:
  - o Introduction to Programming I
  - o Introduction to Programming II
  - o Java programming
  - o Software Testing
  - o Operating Systems
  - o Software Quality Engineering
  - o Artificial Intelligence
- I developed and prepared lectures, assignments and projects for the following graduate courses:
  - o Software Testing
  - o Software Design Techniques
  - o Software Quality Engineering
  - o Artificial Intelligence

**North Dakota State University** Fargo, ND, USA                                    January 2012 – May 2012
**Teaching Assistant**
- I graded lab and project assignments for the Java programming course

**Nizwa University** Nizwa, Oman                                                            September 2004 - August 2009
**Instructor**
- I utilized presentation skills in teaching the following courses: Computer Skills, Visual Basic, IC3 (Internet and Computing Core Certificate), Operating Systems, Artificial Intelligence, Introduction to Algorithms, C++ programming language, Computer Networks
- I prepared and delivered tutorial and lab sessions
- I prepared assignments and term projects
- I supervised capstone projects

**Model School/Yarmouk University,** JORDAN                                    September 2002 - June 2003
Computer Instructor

- I utilized written skills in preparing lectures notes. I used communication skills as well as interpersonal skills in teaching computer science courses.

## Research Experience and Scholarship

### *Publications*

### *Refereed Journals*
1- Mamdouh Alenezi, **Shadi Banitaan**, and Mohammad Zarour. "Using Categorical Features in Mining Bug Tracking Systems to Assign Bug Reports." International Journal of Software Engineering & Applications (IJSEA), Vol.9, No.2 ,March 2018.
2- Mohammad Azzeh, Ali Nassif, and **Shadi Banitaan**. "A Comparative Analysis of Soft Computing Techniques for Predicting Software Effort Based Use Case Points." IET Software (2017).

3- **Shadi Banitaan**, Kendall Nygard, and Kenneth Magel, "Test Focus Selection for Integration Testing", International Journal of Software Engineering and Knowledge Engineering 27.08 (2017): 1145-1166.

4- Heba AL-Quraan, Emad Abu-Shanab, **Shadi Banitaan**, Heyam Al-Tarawneh, "Motivations for using social media: comparative study based on cultural differences between American and Jordanian students International Journal of Social Media and Interactive Learning Environments 5.1 (2017): 48-61.

5- Ali Bou Nassif, Mohammad Azzeh, **Shadi Banitaan**, Daniel Neagu, "Guest editorial: special issue on predictive analytics using machine learning", Neural Computing and Applications, Volume 27, Issue 8, 2016, pp. 2153-2155.

6- **Shadi Banitaan**, Mohammad Akour, and Mamdouh Alenezi, "A Test Suite Reduction Approach for Software Unit Testing", Advanced Science Letters, Volume 22, Number 10, October 2016, pp. 2977-2981(5).

7- **Shadi Banitaan**, Kevin Daimi, Mohammed Akour, and Yujun Wang, "Test Suite Selection in JUnit Testing Environment based on Software Metrics", in the International Journal of Computers and Their Applications, Volume 23, No. 1, March 2016.

8- Iyad Alazzam, Mohammed Akour, **Shadi Banitaan**, Feras Hanandeh, "Feature-Based Test Focus Selection Technique Using Classes Connections Weight", in the International Journal of Operations Research and Information Systems (IJORIS), 7, 2016.

9- Mohammad Azzeh, Ali Bou Nassif, **Shadi Banitaan**, Fadi Almasalha, "Pareto Efficient Multi Objective Optimization for Local Tuning of Analogy Based Estimation", in the journal of Neural Computing and Applications, 8, 2015.

10- **Shadi Banitaan** and Mamdouh Alenezi, "Software Evolution via Topic Modeling: An Analytic Study", in the International Journal of Software Engineering and Its Applications, Vol. 9, No. 5 (2015), pp. 43-52.

11- Kevin Daimi and **Shadi Banitaan**, "Using Data Mining to Predict Possible Future Depression Cases", in the International Journal of Public Health Science (IJPHS), Vol.3, No.4, December 2014, pp. 231- 240.

12- Mamdouh Alenezi, **Shadi Banitaan**, and Kenneth Magel, "Efficient Bug Triaging Using Text Mining", in the Journal of Software 8.9, 2013, pp. 2185-2190.

13- Saeed Salem, Rami Alroobi, **Shadi Banitaan**, Loqmane Seridi, Ibrahim Aljarah, James Brewer, "Improving Functional Modules Discovery by Enriching Interaction Networks with Gene Profiles", In Current Bioinformatics, 2013, 8, pp. 328-338.


### *Refereed Conference Proceedings*

1- Akour, Mohammed, **Shadi Banitaan**, Hiba Alsghaier, and Khalid Al Radaideh. "Predicting Daily Activities Effectiveness Using Base-level and Meta level Classifiers." In 2019 7th International Symposium on Digital Forensics and Security (ISDFS), pp. 1-7. IEEE, 2019.

2- López-Martín, Cuauhtémoc, Mohammad Azzeh, Ali Bou-Nassif, and **Shadi Banitaan**. "Upsilon-SVR Polynomial Kernel for Predicting the Defect Density in New Software Projects." In 2018 17th IEEE International Conference on Machine Learning and Applications (ICMLA), pp. 1377-1382. IEEE, 2018.

3- Wang, Chien-Yen, and **Shadi Banitaan**. "A Partitioning-Based Approach for Robot Path Planning Problems." In 2018 18th International Conference on Control, Automation and Systems (ICCAS), pp. 178-182. IEEE, 2018.

4- Azzeh, Mohammad, Ali Bou Nassif, **Shadi Banitaan**, and Cuauhtémoc López-Martín. "Ensemble of Learning Project Productivity in Software Effort Based on Use Case Points." In 2018 17th IEEE International Conference on Machine Learning and Applications (ICMLA), pp. 1427-1431. IEEE, 2018.

5- Lopez-Martin, C., **Banitaan, S.,** Garcia-Floriano, A., & Yanez-Marquez, C. (2017, December). Support Vector Regression for Predicting the Enhancement Duration of Software Projects. In Machine Learning and Applications (ICMLA), 2017 16th IEEE International Conference on (pp. 562-567). IEEE.

6- Nassif, Ali Bou, Mohammad Azzeh, and **Shadi Banitaan**. "Robust Rank Aggregation method for Case-Base

effort estimation." Electrical and Computer Engineering (CCECE), 2017 IEEE 30th Canadian Conference on. IEEE, 2017.

7- Jalil Dennis, Colton Wirgau and **Shadi Banitaan**, "Sylvester: An Approach to Emotion Classification", to appear in the First International Conference on New Trends in Information Technology – NTIT 2017, Amman, Jordan, April 25-27, 2017.

8- **Shadi Banitaan**, Mohammad Azzeh, Ali Bou Nassif, "User Movement Prediction: The Contribution of Machine Learning Techniques", in the 2016 15th IEEE International Conference on Machine Learning and Applications (ICMLA), Anaheim, CA, 2016, pp. 571-575.

9- **Shadi Banitaan**, Ali Bou Nassif, and Mohammad Azzeh, "Class Decomposition using K-means and Hierarchical Clustering", in the 14th IEEE International Conference on Machine learning and Applications (ICMLA'15), Miami, Florida, USA.

10- Mohammad Azzeh, Ali Bou Nassif, and **Shadi Banitaan**, "An Application of Classification and Class Decomposition to Use Case Point Estimation Method", in the 14th IEEE International Conference on Machine learning and Applications (ICMLA'15), Miami, Florida, USA.

11- **Shadi Banitaan**, Kevin Daimi, Yujun Wang, and Mohammed Akour, "Test Case Selection using Software Complexity and Volume Metrics", in the 24th International Conference on Software Engineering and Data Engineering (SEDE 2015).

12- Mohammad Azzeh, Ali Bou Nassif, and **Shadi Banitaan**, "A Better Case Adaptation Method for Case-Based Effort Estimation Using Multi-Objective Optimization", the 13th International Conference on Machine Learning and Applications (ICMLA'14), Detroit, Michigan, USA.

13- Mamdouh Alenezi, **Shadi Banitaan**, Qasem Obeidat, "Fault-Proneness of Open Source Systems: An Empirical Analysis", in the International Arab Conference on Information Technology (ACIT2014), 2014, Nizwa, Oman.

14- **Shadi Banitaan** and Mamdouh Alenezi, "DECOBA: Utilizing Developers Communities in Bug Assignment", in Machine Learning Applications in Software Engineering, Special Session at the 12th IEEE International Conference on Machine Learning and Applications (ICMLA 2013), Miami, Florida, USA.

15- Mamdouh Alenezi and **Shadi Banitaan**, "Bug Reports Prioritization: Which Features and Classifier to Use?", in Machine Learning for Predictive Models (MLPM 2013), Special Session at the 12th IEEE International Conference on Machine Learning and Applications (ICMLA 2013), Miami, Florida, USA.

16- Kevin Daimi, **Shadi Banitaan**, Kathy Liszka, "Examining the Performance of Java Static Analyzers", in the 2013 International Conference on Software Engineering Research and Practice (SERP'13), Las Vegas, Nevada, USA.

17- **Shadi Banitaan** and Mamdouh Alenezi, "TRAM: An Approach for Assigning Bug Reports using their Metadata", in the third International Conference on Communications and Information Technology (ICCIT 2013), Beirut, Lebanon.

18- **Shadi Banitaan**, Mamdouh Alenezi, Kendall Nygard, and Kenneth Magel, "Towards Test Focus Selection for Integration Testing Using Method Level Software Metrics", In the 10th International Conference on Information Technology: New Generations (ITNG Software Testing 2013), Las Vegas, Nevada, USA.

19- Saeed Salem, **Shadi Banitaan**, Ibrahim Aljarah and Rami Alroobi, "Mining Maximal-Homogeneous Subnetworks using Protein Interaction Networks and Gene Profiles", In the 4th international conference on Bioinformatics and Computational Biology (BICoB) 2012, Las Vegas, Nevada, USA.

20- Saeed Salem, **Shadi Banitaan**, Ibrahim Aljarah, James Brewer and Rami Alroobi, "Discovering Communities in Social Networks using Topology and Attributes", in Proceedings of the International Conference on Machine Learning and Applications (ICMLA'11), December 2011, Honolulu, Hawaii, USA.

21- Ibrahim Aljarah, **Shadi Banitaan**, Sameer Abufardeh, Wei Jin, Saeed Salem. Selecting discriminating terms for bug assignment: a formal analysis. In Proceedings of the 7th International Conference on Predictive Models in Software Engineering (PROMISE 2011). Banff, Alberta, Canada, September 2011.

22- Saeed Salem, Rami Alroobi, **Shadi Banitaan**, Loqmane Seridi, James Brewer, Ibrahim Aljarah. "CLARM: An Integrative Approach for Functional Modules Discovery", in Proceedings of the International Workshop on Biomolecular Network Analysis (IWBNA'11), August 2011, Chicago, IL, USA.

23- **Shadi Banitaan**, Saeed Salem, Wei Jin, and Ibrahim Aljarah. "A Formal Study of Classification Techniques on Entity Discovery and their application to Opinion Mining". SMUC 2010, the 2nd International Workshop on Search and Mining User-generated Contents in Toronto (Canada), as a workshop of CIKM 2010.

### *Presentations*

- Shadi Banitaan, "User Movement Prediction: The Contribution of Machine Learning Techniques", the 2016 15th IEEE International Conference on Machine Learning and Applications (ICMLA), Anaheim, CA, USA, December 20, 2016.
- Shadi Banitaan, "Class Decomposition using K-means and Hierarchical Clustering", 2015 IEEE 14th International Conference on Machine Learning and Applications, Miami, Florida, USA, December 9, 2015.
- Shadi Banitaan, "DECOBA: Utilizing Developers Communities in Bug Assignment", 2013 12th International Conference on Machine Learning and Applications (ICMLA), Miami, Florida, USA, December 4, 2013.
- Shadi Bani Taan, "TRAM: An Approach for Assigning Bug Reports using their Metadata", the third international conference on communications and information technology (ICCIT 2013), Beirut, Lebanon, June 19, 2013.
- Shadi Bani Taan, "Towards Test Focus Selection for Integration Testing using Method Level Software Metrics", 2013 10th International Conference on Information Technology: New Generations, Las Vegas, Nevada, USA, April 10, 2013.

### *Internally Funded Grants*

- Test Case Selection using Software Metrics, FGIP Seed Grant 2014. Period: 2014-2015. PI: Shadi Banitaan. Amount: **$3,000**.
- Class Decomposition and its Application to Cancer Classification, UDMPU Faculty Research Awards 2015-2016, PI: Shadi Banitaan. Amount: **$8,000**.

### *Externally Funded Grant*

- Ford Mobility App project. I am a CO-PI for this project. The purpose of the app is to connect drivers wanting to volunteer their time and vehicles with Non-Profit Organizations that have stuff to move. The new Bill Ford Better World Challenge grant is an innovative global program in which Ford employees work through the Ford Volunteer Corps on transformational community projects. The idea for the non-profit mobility app came from Ford employees who envisioned a way Ford workers and others could assist non-profits by using the hauling power of their vehicles. University of Detroit Mercy computer science professors, students and alumni are currently working on developing the app. Amount: **$300,000.**

### *Awards*

- Best Paper Award Finalist, 24th International Conference on Software Engineering and Data Engineering (SEDE 2015), San Diego, California, USA.

## Service
### *Recent Professional Service*

- Member of the technical committee for the 2019 International Conference on Security and Management (SAM'19), July 29- Aug 1, Las Vegas, Nevada, USA.
- Sessions/Workshops Co-chair for the 2019 International Conference on Security and Management (SAM'19), July 29- Aug 1, Las Vegas, Nevada, USA.
- Chair of the Machine Learning for Predictive Models for Engineering Applications (MLPMEA 2019) at the 18th IEEE International Conference on Machine Learning and Applications (ICMLA 2019).

## *Computer Skills*

- **Computer Programming:** C/C++, Java, VB.NET, Perl, Python, R, Swift

- **Data base knowledge:** Access, MySQL, Oracle

- **Operating Systems:** Microsoft Windows, UNIX, Linux

- **Web Development:** ASP.NET, HTML, JavaScript, PHP

- **Software:** VisualStudio.NET, Eclipse, NetBeans, MS Office, Adobe Photoshop, Adobe Dreamweaver

- **Tools:** JUnit Testing Framework, IBM Rational Functional Tester, Blackboard, LimeSurvey

## *Professional Affiliations*

- The Association for Computing Machinery (ACM)          2011 - ON
- IEEE          2013 - ON
- IEEE Computer Society          2014 - ON
- The Kern Entrepreneurship Education Network          2014 - ON