

# MD RAKIBUL ISLAM, Ph.D.

Assistant Professor  
Phillips Science Hall 141  
Computer Science Department  
University of Wisconsin – Eau Claire, WI, USA

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## RESEARCH INTEREST

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Human-aspects in software engineering, Secured software engineering, Source code analysis, Natural language processing, & Bioinformatics.

## GRANTS

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- *Entity Based Aspect-Oriented Opinion Mining in Software Engineering (Part II).* *Fall*  
Student/Faculty Research Collaboration, ORSP, UWEC, PI: Md Rakibul Islam, *2021*  
\$3000.
- *Entity Based Aspect-Oriented Opinion Mining in Software Engineering.* *Spring*  
Student/Faculty Research Collaboration, ORSP, UWEC, PI: Md Rakibul Islam, *2021*  
\$3000.
- *Characterizing Buggy Source Code to Advance Automated Program Repair.* *Summer*  
Research Experiences for Undergrad., ORSP, UWEC, PI: Md Rakibul Islam *2021*  
\$2000.
- *Identifying Causal Relationship of Complex Diseases: A Multi-view Data Analysis using Machine Learning Approach.* *Fall*  
Biomedical Innovation Grant-Mayo *2021*  
Collaborative Research Program, PI: Md Rakibul Islam (pending).
- REU Site: Advancing high-performance computing opportunities in *Jul 2022*  
undergraduate research at UW-Eau Claire to meet challenges of *- Aug 2024*  
multidisciplinary computational science. \$385,762.00. National Science  
Foundation Research Experience for Undergraduates. PI: Rahul Gomes,  
A Research Mentor: Md Rakibul Islam. (pending)

## EDUCATION

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- Ph.D.**, Computer Science, The University of New Orleans, Louisiana, USA *May 2020*
- B.Sc.**, Computer Science & Engineering., Khulna University, Khulna, Bangladesh *April 2008*

## ACADEMIC WORK EXPERIENCE

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- Assistant Professor** *Aug 2020 – to date*  
Computer Science Department  
University of Wisconsin-Eau Claire, USA
- Graduate Teaching Assistant** *Aug 2019 – May 2020*  
Department of Computer Science  
The University of New Orleans, LA, USA
- Graduate Research Assistant** *Aug 2015 – July 2019*  
Department of Computer Science  
The University of New Orleans, LA, USA
- Lecturer (part-time)** *April 2008 – Sep 2008*  
Computer Science and Engineering Discipline  
Khulna University, Khulna, Bangladesh

## INDUSTRIAL WORK EXPERIENCE

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- Manager** *Nov 2010 - Aug 2015*  
Data Analysis and Software Development  
Revenue Assurance and Fraud Management  
Robi Axiata Limited, Dhaka, Bangladesh
- Senior Programmer** *Jul 2010 - Oct 2010*  
Revenue Assurance and Fraud Management  
Robi Axiata Limited, Dhaka, Bangladesh
- Software Engineer** *Sep 2009 - Jul 2010*  
LeadsCapevo Limited  
Dhaka, Bangladesh
- Software Engineer** *Oct 2008 - Aug 2009*  
Software Service Division  
LeadSoft Limited, Dhaka, Bangladesh

## COURSES TAUGHT

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- **Assistant Professor**, University of Wisconsin - Eau Claire Aug 2020 – to date
  - Software Engineering I, Spring 2021
  - Software Engineering II, Fall 2020, Fall 2021
- Courses Taught:**
  - Database Systems, Spring 2021, Fall 2021
  - Adv. Prog. and Data Structure, Fall 2020
  - Honors Independent Study-Seniors, Spring 2021
- **Graduate Teaching Assistant**, The University of New Orleans Aug 2019 – May 2020
  - Intro. to Programming Language C++,  
**Course Taught:** Fall 2019, Spring 2020

## PUBLICATIONS

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### Refereed Journal Contributions

1. **Md Rakibul Islam** and Minhaz F. Zibran. What Changes in Where? An Empirical Study of Bug-Fixing Change Patterns. *ACM Applied Computing Review*, 20 (4): pp 18–34, 2020.
2. **Md Rakibul Islam** and Minhaz F. Zibran. SentiStrength-SE: Exploiting Domain Specificity for Improved Sentiment Analysis in Software Engineering Text. *Elsevier Journal of Systems and Software (JSS)*, 145: 125-146, 2018.
3. **Md Rakibul Islam**, Minhaz F. Zibran. Exploration and Exploitation of Developers' Sentimental Variations in Software Engineering. *International Journal of Software Innovation*, 4 (4): 35 - 55, 2016.

### Refereed Conference Contributions

4. **Md Rakibul Islam** and Minhaz F. Zibran. How Bugs Are Fixed: Exposing Bug-fix Patterns with Edits and Nesting Levels. In proceedings of the 35th ACM/SIGAPP Symposium on Applied Computing (SAC), pp. 1523–1531, Brno, Czech Republic, 2020 (**invited at the ACM Applied Computing Review**).
5. **Md Rakibul Islam**, Md Kauser Ahmmmed and Minhaz F. Zibran. MarValous: machine learning based detection of emotions in the valence-arousal space in software engineering text. In

- Proceedings of the 34th ACM/SIGAPP Symposium on Applied Computing (SAC), pp. 1786-1793, Limassol, Cyprus, 2019.
6. **Md Rakibul Islam** and Minhaz F. Zibran. DEVA: Sensing Emotions in the Valence Arousal Space in Software Engineering Text. In Proceedings of the 33rd ACM/SIGAPP Symposium On Applied Computing (SAC), pp. 1536 - 1543, France, 2018.
  7. **Md Rakibul Islam** and Minhaz F. Zibran. A Comparison of Software Engineering Domain Specific Sentiment Analysis Tools. In Proceedings of the 25th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER), pp. 487 - 491, Italy, 2018.
  8. **Md Rakibul Islam** and Minhaz F. Zibran. Sentiment Analysis of Software Bug Related Commit Messages. In Proceedings of the 27th International Conference on Software Engineering and Data Engineering (SEDE), USA, 2018 (**winner of the Best Paper Award**).
  9. Duaa Alwad, Manisha Panta, Minhaz F. Zibran, and **Md Rakibul Islam**. An Empirical Study of the Relationships between Code Readability and Software Complexity, In Proceedings of the 27th International Conference on Software Engineering and Data Engineering (SEDE), USA, 2018.
  10. Naw Safrin Sattar, Md A. M. Faysal, Minhaz Zibran, Shaikh Arifuzzaman, and **Md Rakibul Islam**. Data Mining in-IDE Activities: Why Software Developers Fail, In Proceedings of the 27th International Conference on Software Engineering and Data Engineering (SEDE), USA, 2018.
  11. **Md Rakibul Islam**, Minhaz F. Zibran, and Aayush Nagpal. Security Vulnerabilities in Categories of Clones and Non-Cloned Code: An Empirical Study. In Proceedings of the 11th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM), pp. 20-29, Canada, 2017.
  12. **Md Rakibul Islam** and Minhaz F. Zibran. A Comparison of Dictionary Building Methods for Sentiment Analysis in Software Engineering Text. In Proceedings of the 11th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM), pp. 478 - 479, Canada, 2017.
  13. **Md Rakibul Islam** and Minhaz F. Zibran. Leveraging Automated Sentiment Analysis in Software Engineering. In Proceedings of the 14th International Conference on Mining Software Repositories (MSR), pp.203 - 214, Buenos Aires, Argentina, May 2017.
  14. **Md Rakibul Islam** and Minhaz F. Zibran. Insights into Continuous Integration Build Failures. In Proceedings of the 14th International Conference on Mining Software Repositories (MSR), pp. 467-470, Buenos Aires, Argentina, May 2017.
  15. **Md Rakibul Islam** and Minhaz F. Zibran. Towards Understanding and Exploiting Developers' Emotional Variations in Software Engineering. In Proceedings of the 14th IEEE International Conference on Software Engineering Research, Management and Applications (SERA), pp. 185-192, Baltimore, Maryland, USA, 2016 (**invited at the International Journal of Software Innovation**).
  16. **Md Rakibul Islam**, Md Rafiqul Islam, Md. Maidul Islam and Tasneem Halim. A Study of Code Cloning in Server Pages of Web Applications Developed using Classic ASP.NET and ASP.NET MVC Framework. In Proceedings of the International Conference on Computer and Information Technology (ICCIT 2011), pp. 467-470, Dhaka, Bangladesh, 2011.
  17. Md Rafiqul Islam, Budhha Dev, **Md Rakibul Islam**. An Effective Term Weighting Method using Random Walk Model for Information Retrieval. In Proceedings of International Conference on Computer and Communication Engineering, pp. 1357-1362, Kuala Lumpur, Malaysia, 2008.

18. Md Rafiqul Islam, **Md Rakibul Islam**. An Improved Keyword Extraction Method Using Graph Based Random Walk Model. In Proceedings of the International Conference on Computer and Information Technology (ICCIT 2008), pp. 225-229, Khulna, Bangladesh, 2008.
19. Md Rafiqul Islam, **Md Rakibul Islam**. An Effective Term Weighting Method Using Random Walk Model for Improved Text Classification. In International Conference on Computer and Information Technology (ICCIT 2008), pp. 411-414, Khulna, Bangladesh, 2008.

#### **Referred Workshop Contributions**

20. **Md Rakibul Islam** and Minhaz F. Zibran. On the Characteristics of Buggy Code Clones: A Code Quality Perspective. In Proceedings of the 12th IEEE International Workshop on Software Clones (IWSC), pp. 23 - 29, Italy, 2018.
21. **Md Rakibul Islam** and Minhaz F. Zibran. A Comparative Study on Vulnerabilities in Categories of Clones and Non-Cloned Code. In Proceedings of the 10th IEEE International Workshop on Software Clones (IWSC), pp. 8 - 14, Osaka, Japan, 2016 (**Winner of Best Paper Award**).

#### **Poster**

22. Jiang. Zhu, Oliver Mahan, and Md. Rakibul Islam. Mining Opinions from Technical Discussions in Software Engineering. In Celebration of Excellence in Research and Creative Activity(CERCA) at UWEC, Eau Claire, WI, 2021.
23. **Md Rakibul Islam** and Minhaz F. Zibran. Entity Based Aspect-Oriented Opinion Mining in Software Engineering. InnovateUNO, New Orleans, LA, USA, 2019.
24. **Md Rakibul Islam** and Minhaz F. Zibran. An Empirical Study of Security Vulnerabilities in Software Systems. In 10th EAI International Conference on Digital Forensics & Cyber Crime (ICDF2C 2018), New Orleans, USA, 2018.
25. **Md Rakibul Islam** and Minhaz F. Zibran. Understanding Bug Fix Patterns: Towards an Improved Automated Program Repair Method. InnovateUNO, New Orleans, LA, USA, 2018.

#### **Other Contributions**

26. Md Rafiqul Islam, Buddha Dev, and **Md Rakibul Islam**. An Improved Term Weighting and Document Ranking Method Using Random Walk Model. Journal of KUSTudies, Volume 10, Issue 05, pp. 23-35, 2010, Bangladesh.
27. Sharmin Rashid Linta, Md Maidul Islam, and **Md Rakibul Islam**. An Enhanced Model of E-Learning Management System Using Semantic Web Technology and Development of Universal Namespace for University Domain. International Journal of Computer Science Issues (IJCSI) 9 (2).

#### **TALKS AND PRESENTATIONS**

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1. *How to Teach a Machine to Detect Sentiment - A Machine Learning Approach* at the Summer Workshop on High Performance Computing organized by Blugold Beginnings for high School students at UWEC, June 2021.
2. *EcoFighter - A Sustainability Tracking Platform* mentoring a student to present at the 11th Annual Provost's Honors Symposium for Research, Scholarship, and Creative Activity, April, 2021.
3. *Analyzing Human Affect and Bug Patterns for Improved Software Quality and Security* at the Department of Computer Science, University of New Orleans, Louisiana, USA, 2020.

4. *Understanding Sub-queries in SQL* at the Department of Department of Computer Science, Millersville University of Pennsylvania, USA, 2019.
5. *Understanding Recursive Programming* at the Department of Department of Computer Science and Software Engineering, University of Wisconsin - Platteville, USA, 2019.
6. *Entity Based Aspect-Oriented Opinion Mining in Software Engineering* at InnovateUNO, New Orleans, USA, 2019.
7. *Mining and Analyzing Human Factors for Improved Software Quality* at the School of Computer Science and Mathematics department, University of Central Missouri, Missouri, USA, 2019.
8. *Mining and Analyzing Human Factors for Improved Software Quality* at the Mathematical, Computing, Information Sciences department, Jacksonville State University, Alabama, USA, 2019.
9. *Understanding Bug Fix Patterns: Towards an Improved Automated Program Repair Method*. A poster presentation at InnovateUNO 2018.
10. *Data Mining in-IDE Activities: Why Software Developers Fail*. International Conference on Software Engineering and Data Engineering (SEDE), held during October 8-10, 2018 in New Orleans, USA.
11. *An Empirical Study of Security Vulnerabilities in Software Systems*. In 10th EAI International Conference on Digital Forensics & Cyber Crime (ICDF2C, Poster session, 2018), New Orleans, USA, 2018.
12. *Analysis of Security Vulnerabilities in Code Clones*. Poster presentation at InnovateUNO, New Orleans, USA, 2017.
13. *Sentiment Analysis of Software Bug Related Commit Messages*. International Conference on Software Engineering and Data Engineering (SEDE), held during October 8-10, 2018 in New Orleans, USA.
14. *DEVA: Sensing Emotions in the Valence Arousal Space in Software Engineering Text*. In the ACM/SIGAPP International Symposium on Applied Computing (SAC), held during April 9-13, 2018 in Pau, France.
15. *Choosing Your Weapons: Towards Summarizing and Comparing Entities in Software Development*. InnovateUNO, New Orleans, USA, 2018.
16. *Leveraging Automated Sentiment Analysis in Software Engineering*. UNO Engineering Forum, New Orleans, USA, 2017.
17. *Analysis of Security Vulnerabilities in Code Clones*. Poster presentation at InnovateUNO, New Orleans, USA, 2017.
18. *Security Vulnerabilities in Categories of Clones and Non-Cloned Code: An Empirical Study*. GNOCIA weekly research meeting, New Orleans, USA, 2017.
19. *A Study of Code Cloning in Server Pages of Web Applications Developed Using Classic ASP.NET and ASP.NET MVC Framework*. In the International Conference on Computer and Information Technology (ICCIT), held during Dec 22-24, 2011 in Dhaka, Bangladesh.

## AWARDS AND HONORS

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### **(i) Academic & Research Related**

#### **Non-financial:**

1. *Privateer Choice Award* for presenting a poster at InnovateUNO 2019.
2. *Best paper award* at Int. Conference on Software Engineering and Data Engineering, 2018.
3. *One of the top five best posters award* at InnovateUNO, 2017.
4. Three conference papers' got invitations to different journals to publish extended versions (2017, 2018, 2020).
5. *Best paper award* at Int. Workshop in Software Clone, 2016.

#### **Financial:**

6. Research Grant amount of \$3000 from ORSP at UWEC for student/faculty research collaboration.
7. Completer Award amount of \$500, Spring 2020.
8. STAP Travel Grant amount of \$1,000 to attend SAC, 2019.
9. NSF travel grant amount of \$1,050 to attend SWAN-2018.
10. STAP Travel Grant amount of \$1,500 to attend SAC-2018.
11. Student travel award amount of \$1,300 to attend ECOOP/ISSTA, 2018.
12. Tuition award amount of \$2,500 in 2017.

### **(ii) Industry Related**

13. Robi Champion Award in the category of *I can I will*, 2015.
14. *A member of a group that stood 1st in Robi Idea Generation Contest*, 2015.
15. *Selected as a member of Robi Talent Pool (RADP)*, 2015.
16. Robi Champion Award in the category of *I can I will*, 2014.

## REVIEWER AND CO-REVIEWER OF JOURNALS/CONFERENCES

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### **Reviewer**

1. ACM Transactions on Software Engineering and Methodology, 2020.
2. Soft Computing for Recommender Systems and Sentiment Analysis Journal by Elsevier, 2020.
3. Elsevier Journal of King Saud University - Computer and Information Sciences, 2018.

### **Co-Reviewer**

4. ACM Transactions on Software Engineering and Methodology (TOSEM), 2020.
5. International Conference on Mining Software Repositories held during May 25-26, 2020 in Seoul, South Korea.
6. Springer Journal of Empirical Software Engineering (EMSE), 2018.
7. Elsevier Journal of Systems and Software (JSS), 2018.
8. Journal of Information and Software Technology, 2018.

- International Conference on Program Comprehension held during May 27-28, 2018 in Gothenburg, Sweden.
- International Workshop on Emotion Awareness in Software Engineering held on June 2, 2018 in Gothenburg, Sweden.

## STUDENT ADVISING/MENTORING

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- Nick Moore** is an undergrad researcher at UWEC
- Oliver Mahan** is an undergrad researcher at UWEC
- Jiang Zhu** was an undergrad researcher at UWEC
- Brandon Michael Jay was an undergrad student in honors program at UWEC
- Reecha Khanal* was an undergrad researcher at UNO
- Saroj Duwal* was an undergrad researcher at UNO
- Md. Kauser Ahmmed* was a graduate (MSc) researcher at UNO

## ADMINISTRATIVE SERVICES at UWEC

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- Member, URSCA in the Curriculum Committee, Department of Computer Science, Summer 2021.
- Organizer & Judge, The Super SQL Writer Competition, Spring 2021.
- Member, New Science Building Committee, 2021-22
- Member, Search Committee, Department of Computer Science, 2020-21
- Member, Scholarship Committee, Department of Computer Science, 2020-21

## STUDENT JUDGING

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- Evaluated students' poster presentations at InnovateUNO-2019

## TECHNICAL SKILLS

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<b>Programming</b>	Java, C#, Python, R, JavaScript, C, C++, Shell Script
<b>Web</b>	ASP.NET, JSP, HTML, DHTML, AJAX, CSS
<b>Database</b>	Oracle 11g, MS SQL, mongoDB, PL/SQL, T-SQL
<b>Continuous Integration</b>	Jenkins
<b>Mobile</b>	J2ME, Windows Mobile
<b>Development Framework</b>	Microsoft.Net 4.0, Spring 5.1
<b>Machine learning &amp; Data mining</b>	PyTorch, scikit-learn, Weka, SPMF data mining library, Oracle Data Mining, Palisade (stat. analysis)
<b>NLP tool</b>	AlchemyAPI, NLTK, StanfordNLP
<b>Security</b>	Volatility, IDA, Metasploit, Wireshark
<b>Version control system</b>	SVN Tortoise, Visual SourceSafe, Git
<b>Architectural pattern</b>	MVC, N-tier
<b>Documentation</b>	LaTeX, UML
<b>Online Education Tool</b>	MindTap, Canvas, Moodle
<b>Other tool</b>	Winmerge

## TRAINING

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### **Teaching & EDI:**

- Professional Development Conference and Employee Wellness Fair, June 7–10, 2021.
- Early Career STEM Educators Workshop on UW System Women and Science Program, May 25–27, 2021.
- Training on the following items arranged by the Center for Excellence in Teaching and Learning (CETL) at UWEC, Aug 13 – 19th, 2020.
  - Transparent assignment design
  - Identifying and responding to *microaggressions* in the classroom
  - Identifying and responding to *mental health* needs
  - Introduction to Canvas and iClickers to use in a classroom
- Teaching Online in Summer Fall 2020, on May 12-28th, 2020, which was organized by the NSF-funded Aspire Alliance.

**Technical:** SQL tuning, Oracle PL/SQL, Oracle Data Mining, Oracle DBA, MCP.

**Soft Skills:** Six Thinking Hats, Business Communication, Art of Negotiation.

## VOLUNTEERING

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1. 32nd ACM User Interface Software and Technology Symposium (UIST 2019) held during Oct 20-23, 2019 in New Orleans, LA, USA
2. 10th EAI International Conference on Digital Forensics & Cyber Crime (ICDF2C 2018) held during September 10-12, 2018 in New Orleans, LA, USA.

## COMMUNITY ACTIVITIES

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1. Elected Vice President of Bangladesh Student Association at University of New Orleans, LA, USA 2017-2018.

## PROFESSIONAL MEMBERSHIP

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SIGAPP member



## REFERENCES

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- Dr. Minhaz F. Zibran**  
Associate Professor  
Department of Computer Science  
Idaho State University, ID, USA.  
Email: MinhazZibran@isu.edu  
Web: <https://www2.cose.isu.edu/~minhazzibran/index.html>
- Dr. Md Tamjidul Hoque**  
Associate Professor  
Department of Computer Science  
University of New Orleans, LA, USA.  
Email: [thoque@uno.edu](mailto:thoque@uno.edu)  
Web: <http://cs.uno.edu/~tamjid/>
- Dr. Vassil Roussev**  
Professor  
Department of Computer Science  
University of New Orleans, LA, USA.  
Email: [vassil@cs.uno.edu](mailto:vassil@cs.uno.edu)  
Web: <http://roussev.net>
- Ph.D. adviser
- Ph.D. committee member
- Director of UNO Cyber Center