

Amiangshu S. Bosu

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Research Interests

Empirical Software Engineering, Software Security, Program Analysis, Malware detection, Android Security, Mining Software Repositories, Social Network Analysis, Natural Language Processing, Sentiment Analysis, Peer Code Review, Machine Learning, Human Factors in Software Engineering, Open Source Software.

Education

Ph.D., Computer Science, June 2015
University of Alabama
Tuscaloosa, AL
Thesis: *Contemporary Peer Code Review Practices and Associated Benefits*
Advisor: Dr. Jeffrey C. Carver
GPA: 3.93/4.0

M.S., Computer Science, May 2012
University of Alabama
Tuscaloosa, AL
GPA: 3.90/4.0

B.S., Computer Science and Engineering, August 2006
Bangladesh University of Engineering and Technology (BUET)
Dhaka, Bangladesh

Employment

08/2018–Current Assistant Professor (Tenure-track)
Department of Computer Science
Wayne State University
Detroit, MI.

01/2016–08/2018 Assistant Professor (Tenure-track)
Department of Computer Science
Southern Illinois University Carbondale
Carbondale, IL.

8/2015–12/2015 Postdoctoral Associate
Advisor: Danfeng (Daphne) Yao, and Barbara Ryder
Department of Computer Science
Virginia Tech.
Blacksburg, VA

8/2010–7/2015 Research Assistant
Advisor: Jeffrey Carver
Software Engineering Research Group

Department of Computer Science
University of Alabama
Tuscaloosa, AL

- 6/2014–8/2014 Research Intern
Mentors: Christian Bird, and Michaela Greiler
Empirical Software Engineering Group (ESE)
Microsoft Research
Redmond, WA
- 2/2009–7/2010 Senior Software Developer
Vantage Communications
New Hope, PA
www.vantageip.com
- 8/2006–2/2009 Senior Software Engineer
ReliSource Technologies
Dhaka, Bangladesh
www.relisource.com

Awards and Honors

- 2015 Outstanding Graduate Researcher, Department of Computer Science, University of Alabama.
- 2014 Outstanding Graduate Researcher, Department of Computer Science, University of Alabama.
- ACM SIGSOFT CAPS Travel Grant for ICSE 2014.
- ACM Student Research Competition Finalist, ICSE 2014.
- NSF Student Travel Grant for ESEM 2013.
- 1st Place Doctoral division, ACM Mid-Southeast Conference, November 2011.
- National Merit Scholarship, Dhaka Education Board, Bangladesh, 1998-2006.
- Junior Merit Scholarship, Dhaka Education Board, Bangladesh, 1995-1998.

Publications

Journal Papers

- [J1]Amiangshu Bosu, Anindya Iqbal, Rifat Shahriyar, and Partha Chakroborty. Understanding the motivations, challenges and needs of blockchain software developers: A survey. *Empirical Software Engineering*, 24(4):2636–2673, 2019.
- [J2]Amiangshu Bosu, J. C. Carver, C. Bird, J. Orbeck, and C. Chockley. Process aspects and social dynamics of contemporary code review: Insights from open source development and industrial practice at microsoft. *IEEE Transactions on Software Engineering*, 43(1):56–75, Jan 2017.
- [J3]Amiangshu Bosu, Jeffrey C. Carver, Rosanna Guadagno, Blake Bassett, Debra McCallum, and Lorin Hochstein. Peer impressions in open source organizations: A survey. *Journal of Systems and Software*, *JSS '14*, 94:4 – 15, 2014.

Conference Papers

- [C1]Rajshakhar Paul, Asif K. Turzo, and Amiangshu Bosu. Why security defects go unnoticed during code reviews? a case-control study of the chromium os project. In *Proceedings of the 43th International Conference on Software Engineering*, ICSE '21, page TBD, 2021. **Acceptance rate = 138/302 (22%)**.
- [C2]Jaydeb Sarker, Asif K. Turzo, and Amiangshu Bosu. A benchmark study of the contemporary toxicity detectors on software engineering interactions. In *Proceedings of the 27th Asia-Pacific*

Software Engineering Conference, APSEC'20, page TBD, December 2020. **Acceptance rate = 45/122 (37%)**.

- [C3]Amiangshu Bosu and Kazi Zakia Sultana. Diversity and inclusion in open source software (oss) projects: Where do we stand? In *Proceedings of the 2019 ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM)*, 2019. **Acceptance rate = 23/116 (19.8%)**.
- [C4]Rajshakhar Paul, Amiangshu Bosu, and Kazi Zakia Sultana. Expressions of sentiments during code reviews: Male vs. female. In *Proceedings of the 26th IEEE International Conference on Software Analysis, Evolution and Reengineering*, SANER '19. IEEE, 2019. **Acceptance rate = 45/148 (30.4%)**.
- [C5]Irfan Alahi, Mubassher Islam, Anindya Iqbal, and Amiangshu Bosu. Identifying the challenges of the blockchain community from stackexchange topics and trends. In *Proceedings of the 2019 International Computer Software and Applications Conference*, COMPSAC '19, pages 123–128. IEEE, 2019.
- [C6]Partha Chakraborty, Rifat Shahriyar, Anindya Iqbal, and Amiangshu Bosu. Understanding the software development practices of blockchain projects: A survey. In *Proceedings of the 12th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement*, ESEM '18, pages 28:1–28:10, New York, NY, USA, 2018. ACM. **Acceptance rate = 30/140 (21%)**.
- [C7]Sk. A. Hasan, Dipto Das, Anindya Iqbal, Amiangshu Bosu, Rifat Shahriyar, and Toufique Ahmed. Soqde: A supervised learning based question difficulty estimation model for stack overflow. In *Proceedings of the 25th Asia-Pacific Software Engineering Conference*, APSEC'18, pages 445–454, December 2018. **Acceptance rate = 50/191 (26%)**.
- [C8]Kazi Z. Sultana, Byron Williams, and Amiangshu Bosu. A comparison of nano-patterns vs. software metrics in vulnerability prediction. In *Proceedings of the 25th Asia-Pacific Software Engineering Conference*, APSEC'18, pages 355–364, December 2018. **Acceptance rate = 50/191 (26%)**.
- [C9]Amanda Lee, Jeffrey C. Carver, and Amiangshu Bosu. Understanding the impressions, motivations, and barriers of one time code contributors to floss projects: A survey. In *Proceedings of the 39th International Conference on Software Engineering*, ICSE '17, pages 187–197, Piscataway, NJ, USA, 2017. IEEE Press. **Acceptance rate = 68/398 (17%)**.
- [C10]Toufique Ahmed, Amiangshu Bosu, Anindya Iqbal, and Shahram Rahimi. Senticr: A customized sentiment analysis tool for code review interactions. In *Proceedings of the 32Nd IEEE/ACM International Conference on Automated Software Engineering*, ASE 2017, pages 106–111, Piscataway, NJ, USA, 2017. IEEE Press. **Acceptance rate = 22%**.
- [C11]Amiangshu Bosu, Fang Liu, Danfeng (Daphne) Yao, and Gang Wang. Collusive data leak and more: Large-scale threat analysis of inter-app communications. In *Proceedings of the 2017 ACM on Asia Conference on Computer and Communications Security*, ASIA CCS '17, pages 71–85, New York, NY, USA, 2017. ACM. **Acceptance rate = 73/359 (20%)**.
- [C12]Amiangshu Bosu, Michaela Greiler, and Christian Bird. Characteristics of useful code reviews: An empirical study at microsoft. In *Proceedings of the 12th Working Conference on Mining Software Repositories*, MSR '15, pages 146–156, 2015. **Acceptance rate = 32/106 (30%)**.
- [C13]Amiangshu Bosu and Jeffrey C. Carver. How do social interaction networks influence peer impressions formation? a case study. In Luis Corral, Alberto Sillitti, Giancarlo Succi, Jelena Vlasenko, and AnthonyI. Wasserman, editors, *Open Source Software: Mobile Open Source Technologies*, OSS '14, volume 427 of *IFIP Advances in Information and Communication Technology*, pages 31–40. Springer Berlin Heidelberg, 2014.

- [C14]Amiangshu Bosu and Jeffrey C. Carver. Impact of developer reputation on code review outcomes in oss projects: An empirical investigation. In *2014 ACM / IEEE International Symposium on Empirical Software Engineering and Measurement*, ESEM '14, pages 33:1–33:10, Torino, Italy, 2014. **Acceptance rate = 23/123 (19)%**.
- [C15]Amiangshu Bosu, Jeffrey C. Carver, Munawar Hafiz, Patrick Hilley, and Derek Janni. Identifying the characteristics of vulnerable code changes: An empirical study. In *22nd ACM SIGSOFT International Symposium on the Foundations of Software Engineering*, FSE '14, pages 257–268, Hong Kong, China, 2014. **Acceptance rate = 61/273 (22%)**.
- [C16]Amiangshu Bosu and Jeffrey C. Carver. Impact of peer code review on peer impression formation: A survey. In *Proceedings of the 7th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement*, ESEM '13, pages 133–142, Baltimore, MD, USA, 2013. **Acceptance rate = 24/86 (28%)**.
- [C17]Amiangshu Bosu, Christopher S. Corley, Dustin Heaton, Debarshi Chatterji, Jeffrey C. Carver, and Nicholas A. Kraft. Building reputation in StackOverflow: An empirical investigation. In *Proceedings of the 10th Working Conference on Mining Software Repositories*, MSR '13, pages 89–92, San Francisco, CA, USA, 2013. **Acceptance rate = 12/30 (40%)**.

Refereed Workshop / Short Papers / Posters

- [S1]Bosu, Amiangshu, Fang Liu, Danfeng Daphne Yao, and Gang Wang. Poster: Android collusive data leaks with flow-sensitive dialdroid dataset. In *Proceedings of the 2017 the 2017 IEEE Symposium on Security and Privacy*. IEEE, 2017.
- [S2]Amiangshu Bosu. Characteristics of the vulnerable code changes identified through peer code review. In *Companion Proceedings of the 36th International Conference on Software Engineering - Student Research Competition*, ICSE Companion 2014, pages 736–738, Hyderabad, India, 2014.
- [S3]Amiangshu Bosu, Jeffrey C. Carver, Munawar Hafiz, Patrick Hilley, and Derek Janni. When are oss developers more likely to introduce vulnerable code changes? a case study. In Luis Corral, Alberto Sillitti, Giancarlo Succi, Jelena Vlasenko, and AnthonyI. Wasserman, editors, *Open Source Software: Mobile Open Source Technologies*, volume 427 of *OSS '14*, pages 234–236. Springer Berlin Heidelberg, 2014.
- [S4]Amiangshu Bosu. Mining repositories to reveal the community structures of open source software projects. In *Proceedings of the 50th Annual Southeast Regional Conference*, ACM-SE '12, pages 397–398, Tuscaloosa, Alabama, 2012.
- [S5]Amiangshu Bosu. Modeling Modern Code Review Practices in Open Source Software Development Organizations . In *11th International Doctoral Symposium on Empirical Software Engineering*, IDoESE '13, Baltimore, MD, USA, 2013.
- [S6]Amiangshu Bosu and Jeffrey C. Carver. Peer code review in open source communities using review-board. In *Proceedings of the ACM 4th annual workshop on Evaluation and usability of programming languages and tools*, PLATEAU '12, pages 17–24, Tucson, Arizona, USA, 2012.

Dissertation

- [U1]Amiangshu Bosu. *Contemporary Peer Code Review Practices and Associated Benefits*. PhD thesis, The University of Alabama, June 2015.

Technical Reports

Research Grant / Contracts

1. *CRII: SHF: Improving the Retention of Newcomers in FLOSS Projects With Useful and Timely Code Reviews*, NSF Award # 1850475, \$174,967, PI. Amiangshu Bosu.

2. *DARPA: Detection of Malware Collusion*, Virginia Tech., \$25,000.00. PI. Amiangshu Bosu. Subcontract for the DARPA funded project to identify malware at Virginia Tech.

Teaching

WSU courses

- CSC 4110- Software Engineering: Fall /Winter : 2018, 2019, 2020, 2021
- CSC 6110- Advanced Software Engineering: Winter 2020

SIUC courses

- CS 435- Software Engineering: Spring 2016, Spring 2017, Spring 2018.
- CS 305- Software Development Practices: Fall 2016, Fall 2017.
- CS 304- Advanced Object Oriented Programming: Fall 2017.

Students

Current Graduate Students

- Rajshakhar Paul (PhD, Fall 2017 -)
- Asif Kamal Turzo (PhD, Fall 2019 -)
- Jaydeb Sarker (PhD, Fall 2019 -)
- Sayma Sultana (PhD, Fall 2020 -)

Graduated Students

- Tanzeer Hossain (MS, Graduated in 2019. Now at Amazon)
- Toufique Ahmed (MS, co-advised, Now PhD student at UC Davis)

Undergraduate Students Mentored

- Kevin Zhang
- Hemangi Murdande
- London Ariel Cavaletto
- Farah Tahnin
- Ayush Kohli (SIUC)
- Jacob Reed (SIUC)
- Alec Waichunas(SIUC)

Awards by Mentored Students

- Ayush Kohli, Third place, ACM Student Research Competition world final. Ayush and I are invited to the 2018 ACM awards ceremony (i.e., Turing award ceremony).
- Ayush Kohli, First place, ACM Student Research Competition in the 2017 Foundation of Software Engineering (FSE) conference.
- Ayush Kohli, 2017 -Best Undergraduate Researcher (Computer Science).
- Jacob Reed, First place, Undergraduate research category, 2016 ACM Midsoutheast conference.
- Ayush Kohli, Second place, Undergraduate research category, 2016 ACM Midsoutheast conference.
- Alec Waichunas, Creative and Scholarly Saluki Rookies (CSSR) research grant.
- Ayush Kohli, Research Enriched Academic Challenge (REACH) grant.

Software

- DIALDroid: A highly scalable tool to identify inter-app collusions and privilege escalations among Android apps. Available at: <https://github.com/dialdroid-android/DIALDroid>
- IC3-DIALDroid: An updated intent resolution tool for Android apps.: <https://github.com/dialdroid-android/ic3-dialdroid>
- SentiCR: An automated sentiment analysis tool for code review comments. Available at: <https://github.com/senticr/SentiCR>
- SentiSE: Sentiment Analysis for Software Engineering Interactions. Available at: <https://github.com/amiangshu/SentiSE>

Selected Press

- 04/03/2017 Your smartphone apps are ‘secretly colluding’ to spy on you in terrifying detail, researchers warn, *The Sun*
- 04/03/2017 Android apps are mining smartphone users data by secretly colluding with each other, according to a new study, *Independent*
- 04/07/2017 When Apps Secretly Team Up to Steal Your Data, *MSN, The Atlantic*
- 04/03/2017 Android apps are ‘secretly colluding’ to spy on the private lives of MILLIONS of users, *Daily Mail*
- 04/04/2017 Is Your Data Safe? New Study Finds Android Apps Share Data Without Permission, *International Business Times*
- 04/03/2017 Android apps share data between them without your permission, *New Scientist*
- 04/03/2017 Virginia Tech Researchers: Android Apps Can Conspire to Mine Information From Your Smartphone, *ACM Technews*
- 04/03/2017 Android apps can conspire to mine information from your smartphone, *Phys.org*

Professional service

Editorial Board:

- Journal of Systems and Software
- Array

Program Committee:

- Technical program committee: Automated Software Engineering (ASE): 2021
- Technical program committee: International Conference on Program Comprehension (ICPC): 2021
- Technical program committee: The International Symposium on Empirical Software Engineering and Measurement (ESEM): 2019, 2020
- Tool demo track: International Conference of Software Engineering (ICSE): 2021
- Technical program committee: The Evaluation and Assessment in Software Engineering (EASE): 2019
- Technical program committee: 6th International Conference on Networking, Systems and Security (NSyS): 2019,2020
- Technical program committee: The 23rd International Computer Science and Engineering Conference (ICSEC 2019)

- Tool demo track: Automated Software Engineering (ASE): 2019
- Research paper, The 25th Asia-Pacific Software Engineering Conference (APSEC 2018).
- Short papers and posters track, Empirical Software Engineering and Measurement (ESEM)-2016, 2017
- Short Papers track, Evaluation and Assessment in Software Engineering (EASE)-2016, 2017, 2018
- Thailand Workshop on Software Engineering - (THAISE -2015)
- ACM Southeast Conference - 2012, 2017

Journal Reviewer:

- ACM Transactions in Software Engineering (TOSEM): 2018-2021
- IEEE Transactions in Software Engineering (TSE): 2015-2021
- Empirical Software Engineering (EMSE) 2015-2021
- Journal of System and Software (JSS): 2018-2021
- Automated Software Engineering (AUSE): 2020
- Information and Management (INFOMAN): 2020
- PeerJ Computer Science: 2019
- Artificial Intelligence Review (AIRE): 2020
- IEEE Transactions on Emerging Topics in Computing (TETC): 2020
- IEEE Transportation Systems Magazine (ITSM): 2018-2019
- IEEE Transactions on Dependable and Secure Computing (TDSC): 2016
- Information and Software Technology (IST): 2014, 2017, 2019-2021
- IEEE Access 2018-2020
- IET Software
- Information, Communication and Society (ICS)

Student Volunteer: SPLASH 2012

Conference Reviewer/Sub-reviewer: ASIACCS 2016, CODASPY 2016, JSEET 2015, EASE 2014, ESEM 2014, ESEM 2013, ISSRE 2013, ESEM 2012, ISSRE 2012, ACM Southeast 2012, ESEM 2011

Department / University Service:

- Member, Undergraduate Committee, Wayne State.
- Member, Graduate Committee, SIUC.
- Faculty Advisor, ACM Student Chapter, SIUC.
- Faculty Advisor, Bangladeshi Students' Association.

Memberships

Member, Institute of Electrical and Electronics Engineers, Inc. (IEEE)

Professional Member, Association of Computing Machinery (ACM)

Lifetime Member, Upsilon Pi Epsilon (CS Honor Society)

Treasurer, Upsilon Pi Epsilon, (2014-2015)

Invited talks /Tutorials

- *Seven Deadly Sins of Software Security*, 2019 6th International Conference on Networking, Systems and Security, Dhaka, Bangladesh
- *An Introduction to Empirical Software Engineering*, Oakland University, Rochester, MI, November 16th, 2018.
- *An Introduction to Empirical Software Engineering*, Wayne State University, Detroit, MI, November 6th, 2018.
- *An Introduction to Empirical Software Engineering*, University of Michigan-Dearborn, Dearborn, MI, October 26th, 2018.
- *An Introduction to Empirical Software Engineering*, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, July 2nd, 2018.

References

Available on request

January 11, 2021