

	<p>Abhik ROYCHOUDHURY</p> <p>https://www.comp.nus.edu.sg/~abhik</p> <p><i>Prepared December 2018</i></p>	<p>Professor National University of Singapore & Lead PI Singapore Cyber-security Consortium</p>
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Research Interests

- Program Analysis, Trustworthy Software, Software Security, Automated Program Repair

Education

- Ph.D. in Computer Science, State University of New York at Stony Brook, 2000.

Employment National University of Singapore, School of Computing, since 2001.

- Professor, Computer Science Department (2014 - now).
- Lead PI and Director, Singapore Cyber-security Consortium (2016-now).
- Vice Dean of Graduate Studies overseeing ~500 graduate students (2013-16).
- Associate Professor, Computer Science Department (2007-2014).
- Assistant Professor, Computer Science Department (2001-2007).

Current Projects and Initiatives

- National Satellite of Excellence in Trustworthy Software Systems, Director, 2019-2023, SGD 12M.
- [Trustworthy Systems from Un-trusted Component Amalgamations](#), Lead PI, funded by National Research Foundation Singapore, 2015 – 2020, SGD 6.1M.
- Self-Healing Software, Office of Naval Research, USA, PI, 2018-20, USD120K.
- [Singapore Cyber-security Consortium](#), Lead PI and Chairman of Management Committee, 2016-22, SGD 4.8M, ~40 member companies. I helped set up this very first industry Consortium in Computer Science at Singapore.

Selected Publications

- SemFix: Program Repair via Semantic Analysis, HDT Nguyen, D Qi, A Roychoudhury, S Chandra, ICSE 2013.
- Coverage-based Greybox Fuzzing as Markov Chain, M Böhme, VT Pham, A Roychoudhury, CCS 2016.
- Angelix: Scalable Multi-line Program Patch Synthesis via Symbolic Analysis, S Mechtaev, J Yi and A Roychoudhury, ICSE 2016.

Recent Student Placement

- [Sergey Mechtaev](#), PhD NUS 2018 → University College London, UK as Lecturer (2019).
- [Shin Hwei Tan](#), PhD NUS 2018 → SUSTech, China, as Assistant Professor (2018).
- [Marcel Böhme](#), PhD NUS 2014 → Monash University, Australia as Lecturer (2018).
- [Sudipta Chattopadhyay](#), PhD NUS 2014 → Assistant Professor at Singapore University of Technology and Design (SUTD) from 2017.

Teaching Introduced several courses at NUS, and authored a textbook on software validation.

- Sample undergraduate course introduced at NUS
 - *Software Security*: Introduce fuzzing, hardening and related topics.
- Sample Graduate courses introduced or revamped at NUS
 - *Art of Computer Science Research*: Course to introduce PhD students to planning of PhD studies, how to choose a topic, how to evaluate contributions of papers, writing papers and making presentations.
- Authored a textbook “Embedded Systems and Software Validation” under Elsevier in 2009. Translated to Chinese by Tsinghua University Press in 2011-12.

Recent Invited Talks and Keynotes

- Conference Keynote at 25th Australasian Software Engineering Conference 2018, 4th IEEE/ACM Intl. Conference on Mobile Software Engineering and Systems (MobileSoft) 2017, 21st Intl. Symposium on Real-time Computing (ISORC) 2018, ...
- Keynote KLEE Workshop on Symbolic Execution 2018, Imperial College London
- Distinguished Lecture at University of Luxembourg (Jan 2017), and at Peking University China (Dec 2017).

Awards and Honors

- Distinguished paper award FSE09
- Distinguished reviewer award ASE 2018.
- ACM Distinguished Speaker 2013-19.
- IBM Faculty Award 2009.
- National Scholarship for ranking 8th in Higher Secondary Examination (equivalent of A levels) among all students in West Bengal, India.

Translational Impact

- [AFLFast](#) and AFLGo as extended grey-box fuzzing tools, built on top of AFL, for detecting program vulnerabilities. AFLFast has been integrated to the regular AFL distribution after significant discussion within the AFL user group.
- [Angelix](#) tool for automated repair of C programs using symbolic execution, has been used for intelligent tutoring systems to teach programming to large cross-sections of students in India, in collaboration with Indian Institute of Technology (IIT) Kanpur.
- [Corebench](#), a benchmark suite of realistic regression errors has been used by the software engineering community for studying real-life complex regression errors.

Recent Professional Service

- Program Committee (PC) chair ISSTA 2016.
- General chair ACM SIGSOFT FSE 2022.
- Co-organizer Dagstuhl Seminar on Program Repair 2017.
- Editorial Board, IEEE Transactions on Software Engineering, 2014-18.
- PC member of several conferences including ICSE19 (Program Board), ESEC-FSE19.

Citations from Google Scholar as of 2018

- ~5200 citations, h index = 40, Highest cited paper SemFix ~300+ citations.