

JOYDEEP MITRA

Phone: (785) 770-6217
joydeep@ksu.edu

1858 Claflin Road
Manhattan, KS 66502

EDUCATION

- | | | |
|------------|---|--------------------|
| PhD | Kansas State University,
Computer Science, GPA 3.9
<i>Expected: August 2020</i> | Aug 2014 - current |
| BS | West Bengal University of Technology,
Information Technology | 2006-2010 |

HONORS AND AWARDS

- | | |
|--|-----------|
| Ann and Dave Braun Student Inventor Award, Kansas State University | 2019 |
| Awarded to a student in the university annually for an innovation with commercial potential | |
| Android Security Rewards, Google Inc. | 2018 |
| Awarded for discovering two vulnerabilities affecting Android 7 thru Android 9 (CVE-2018-9548, CVE-2019-9463). | |
| Kansas State Engineering Fellowship, Kansas State University | 2014-2016 |
| Awarded to select incoming PhD students | |

EXPERIENCE

- | | |
|---|--------------|
| Research Assistant | 2016-2018 |
| <ul style="list-style-type: none">Ghera – A repository of Android app vulnerability benchmarks:
https://bitbucket.org/secure-it-i/android-app-vulnerability-benchmarksRekha – An empirical evaluation of freely available security analysis tools in Android.
https://bitbucket.org/secure-it-i/may2018/src | |
| Google Summer of Code Intern, MIT Media Labs | Summer 2017 |
| <ul style="list-style-type: none">Co-designed and implemented CloudDB for developers of MIT App Inventor.
https://github.com/JoyMitra/appinventor-sources/blob/joy_dev/My_GSOC_Contribution.mdSkill/Accomplishment/Project | |
| Cognizant Technology Solutions, India | 2010 to 2014 |
| Programmer Analyst | |
| <ul style="list-style-type: none">Helped develop and maintain the payment management system for insurance companies like MetLife and John Hancock | |

Joydeep Mitra

TEACHING EXPERIENCE

Kansas State University, USA

May 2014 to current

- Course Assisted:
 - Logical Foundations of Programming
 - Software Testing Techniques
 - Introduction to Software Security
 - Programming Languages Design & Implementation
- Responsibilities:
 - Help sessions to assist students with the material
 - Grading and designing assignments and exams

PUBLICATIONS

Journal Publications

Venkatesh-Prasad Ranganath, and **Joydeep Mitra**, “Are Free Android App Security Analysis Tools Effective in Detecting Known Vulnerabilities?” *Empirical Software Engineering (EMSE)*, 2019. (Equal contribution)

Conference & Workshop Papers

(Peer-Reviewed)

Joydeep Mitra and Venkatesh-Prasad Ranganath, “Ghera: A Repository of Android App Vulnerabilities”. *International Conference on Predictive Models and Data Analytics in Software Engineering (PROMISE)* 2017.

Joydeep Mitra and Venkatesh-Prasad Ranganath, “BenchPress: Analyzing Android App Vulnerability Benchmark Suites”. *International Workshop on Advances in Mobile App Analysis (A-Mobile)*, 2019.

Joydeep Mitra and Venkatesh-Prasad Ranganath, “SeMA: A Design Methodology for Building Secure Android Apps”. *International Workshop on Advances in Mobile App Analysis (A-Mobile)*, 2019.

TALKS

Ghera: A Repository of Android App Vulnerabilities. *Midwest Verification Day (MVD)*, Manhattan, Kansas, 2017.

Are Free Android App Security Analysis Tools Effective in Detecting Known Vulnerabilities? *International Conference on Automated Software Engineering, San Diego, California*, 2019.

Analyzing Android App Vulnerability Benchmark Suites. *ASE Workshop on Advances in Mobile App Analysis, San Diego, California, 2019.*

A Design Methodology for Building Secure Android Apps. *ASE Workshop on Advances in Mobile App Analysis, San Diego, California, 2019.*

SOFTWARE BUILT

Ghera Repository of Android app vulnerability benchmarks.

Technologies: Android & Java

Impact: Ghera helped discover two vulnerabilities in the Android platform

Webpage: <https://secure-it-i.bitbucket.io/ghera/index.html>

Rekha Tool-set to automatically evaluate Android security analysis tools.

Technologies: Android, Java, Groovy

Impact: Used to evaluate 15 Android vulnerability detection tools

Webpage: <https://secure-it-i.bitbucket.io/rekha/index.html>

CloudDB Library to help MIT App Inventor developers store data on an Internet connected database server (using Redis software).

Technologies: Android, Java, Redis

Impact: Used by MIT App Inventor developers

Webpage: https://github.com/JoyMitra/appinventor-sources/tree/joy_dev

CoForm Tool to help experimental chemists predict co-crystals.

Technologies: Groovy, Unix

Impact: Ann and Dave Student Inventor Award for commercializing the tool.

Note: Protected by confidentiality agreement. Please email me for more information.

SoFAnalyzer Tool to identify security-related APIs used by Android app developers from discussions on Stack Overflow.

Technologies: Groovy, Unix, Android

Webpage: <https://bitbucket.org/secure-it-i/stackoverflow-march2019/src/master/>

BenchPress Tool-set to measure the representativeness of Android app security benchmark suites.

Technologies: Groovy, Unix, Android

Note: Please contact me for more information about the tool.

BSE app An Android app to aid veterinarians collect real-time data while examining bulls in the field.

Technologies: Android, Java

Webpage: <http://santoslabs.github.io/apps-4-vet-med/bse/>

PATENTS

Sarkar, Mitra, Aakeröy, et al. CoForm: *An Automated Technique for Predicting Co-crystals*. Patent Application filed April 2019. Patent Pending.

STUDENT ADVISING

- 2017-2018 Aditya Narkar, Masters' student at Kansas State University.
Projects:
- *Testing the authenticity of Android app vulnerability benchmarks.*
- *Determining Android security-related APIs from Stack overflow discussions.*
- Summer 2018 Catherine Mansfield, Undergraduate student at Kansas State University.
Project: *Detecting vulnerabilities in real-world Android apps.*
- Spring 2019 Kayla Mesh, Undergraduate students at Kansas State University.
Project: *Verifying Cryptographic protocols using Maude-NPA.*

REFERENCES

Venkatesh-Prasad Ranganath
Independent Researcher
Previously Asst. Professor, Kansas State University, USA.
rvprasad@santosl原因ab.org

Torben Amtoft
Associate Professor, Kansas State University, USA.
tamtft@ksu.edu

Robby
Professor, Kansas State University, USA.
robby@ksu.edu