

# JOYDEEP MITRA

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## EDUCATION

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

## HONORS AND AWARDS

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- 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

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- Research Assistant** 2016-2018
- Ghera – A repository of Android app vulnerability benchmarks:  
<https://bitbucket.org/secure-it-i/android-app-vulnerability-benchmarks>
  - Rekha – An empirical evaluation of freely available security analysis tools in Android.  
<https://bitbucket.org/secure-it-i/may2018/src>
- Google Summer of Code** Summer 2017  
**Intern, MIT App Inventor**
- 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](https://github.com/JoyMitra/appinventor-sources/blob/joy_dev/My_GSOC_Contribution.mdSkill/Accomplishment/Project)
- Cognizant Technology Solutions, India** 2010 to 2014  
**Programmer Analyst**
- Helped develop and maintain the payment management system for insurance companies like MetLife and John Hancock

Joydeep Mitra

## TEACHING EXPERIENCE

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**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
  - Help designing course material
  - Grading and designing assignments and exams

## PUBLICATIONS

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### *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

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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

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**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](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

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

## STUDENT ADVISING

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- 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

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Dr. Venkatesh-Prasad Ranganath  
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Previously Asst. Professor, Kansas State University, USA.  
[venkateshprasad.ranganath@gmail.com](mailto:venkateshprasad.ranganath@gmail.com)

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