

# Philip Daian

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## EDUCATION

### UNIVERSITY OF ILLINOIS

BSC IN COMPUTER SCIENCE  
SPECIALIZATION IN SECURITY  
Fall 2012 – Expected Dec 2015  
Urbana-Champaign, IL  
3.88 GPA/3.91 Technical

### CARNEGIE MELLON

Summer Semester II 2011

## COURSEWORK

### UNDERGRADUATE

Cryptography  
Distributed Systems  
Advanced Computer Security  
Computer Security I, II, & Lab  
Fundamental Algorithms  
Theory of Computation  
Probability Theory  
Prgrmg Languages & Compilers  
Programming Language Design  
Artificial Intelligence  
Introduction to Big Data  
Software Engineering I & II  
System Programming  
Numerical Methods I

## INTERESTS

- Antifragile distributed systems
- P2P Byzantine fault tolerance
- Formal security guarantees
- Practical cryptography
- Provably fair protocols
- (meta)Data mining and analysis
- Communication networks
- Amateur lampworking

## LINKS

Github:// [pdaian](#)  
reddit:// [allnaturalx](#)

## EXPERIENCE

### RUNTIME VERIFICATION INC. | SOFTWARE ENGINEER

Part Time | October 2013 – August 2015

Full Time | August 2015 – Present

- Project lead of the RV-Monitor lightweight formal analysis framework, developed to compile formal mathematical specifications into executable monitoring code verifying the specifications at runtime
- Responsible for application of monitoring technology to vehicles and embedded systems in collaboration with Toyota-ITC, DENSO, and an NSF SBIR grant
- Responsible for company's development and supporting infrastructure

### FORMAL SYSTEMS LABORATORY | RESEARCH ASSISTANT

Jan 2013 – Jan 2014

- Investigated applications of the K semantic framework and created kweb

## RESEARCH

### RV'15 CONFERENCE | TUTORIAL PRESENTATION

September 2015 | Vienna, Austria

Daian, P., Falcone, Y., Meredith, P., Serbnuta, T., Shiriashi, S., Iwai, A., Rosu, G.: Rv-android: Efficient parametric android runtime verification, a brief tutorial. In Runtime Verification. Volume 9333 of Lecture Notes in Computer Science. Springer International Publishing (2015) 342–357

### MIDWEST VERIFICATION DAY | CONFERENCE TALK

October 2015 | University of Illinois at Urbana-Champaign

Runtime verification: Techniques, Applications and Examples

## PROJECTS

### FREEJOURNAL | DOCUMENT PUBLICATION PROTOCOL AND NETWORK

- Co-lead team of seven software engineers in senior project
- Helped design and create distributed, peer-to-peer application for secure uncensorable document sharing targeted at journalists
- Built on Freenet, Bitmessage, Tor, and Bitcoin technologies
- Received the 2015 Michael S. Hughes Award for Software Engineering

### THE NIST CASINO | GAME PLATFORM WITH FAIR ENTROPY

- Platform for provably fair games of chance with trusted entropy source
- Use of the NIST beacon to prevent result precomputation, manipulation
- Outcome fully verifiable and computable by client with only public data
- Auditable game plugins for lotteries, blackjack, and more

### SOMAROUTE | EMOTION-BASED PACKET MANIPULATION FIRMWARE

- OpenWRT-based proof of concept router firmware for invisibly manipulating packet routing time based on packets' emotional content
- Actively discourages users from browsing certain content classes