Surya Bakshi (sbakshi3@illinois.edu)

2nd Year Graduate student in ECE.

810 W Stoughton St Urbana, IL 61801 - (516) 424 3656

November 9, 2017

Education

- **University of Illinois at Urbana-Champaign** — Urbana, IL
  Advisor: Andrew Miller, Master of Science in ECE, GPA: 4.0 — 2016 - Present
  - Focus on cryptocurrencies, decentralized systems, security

- **University of Illinois at Urbana-Champaign** — Urbana, IL
  Bachelor of Science in ECE — 2012-2016
  - Coursework: distributed systems, OS design, algorithms, computer architecture

Research and Experience

- **Graduate Researcher at Decentralized Systems Lab** — Urbana
  Advisor: Andrew Miller — 2016 - Present
  - Measurement of Bitcoin topology and influential miners
  - Decentralized systems security, smart contracts

- **CS 374 - Algorithms and Theory of Computation**
  Undergraduate TA — 2016
  - Lead discussion section with grad TA and homeworks

- **ExoWear**
  Software Engineer — 2016
  - Start-up in medical technology that provides a Bluetooth device to help monitor physical rehabilitation.
  - Worked on developing the core product and managed other engineers.

- **Undergraduate Researcher at Depend Research Group** — Urbana
  Undergraduate Researcher, Advisor: Zbigniew Kalbarczyk — 2015-2016
  - Attack testbed that simulates different attacks from web applications to DDoS, remote code execution, SSL vulns.

- **Akuna Capital** — Champaign, IL
  Software Developer Intern — 2015
  - C++ gateways that send buys/sells to exchange and handle book keeping

Publications

- **TwistedPair: Towards Practical Anonymity in the Bitcoin P2P Network**
  Currently In Submission at IEEE S&P 2018 — 2017

Projects - Github: https://github.com/sbaks0820

- **hackthiscontract.io**
  Solidity, Smart Contract Security *2017*
  - Interactive challenges for hacking vulnerable smart contracts and ERC20 tokens.
  - Creating games where layered vulnerabilities allows adversaries to fix the outcome.

- **Dandelion++**
  Fork of Bitcoin Core and BIP *2017*
  - Implementation of Dandelion++ protocol that adds privacy at the p2p level of Bitcoin.
  - Article about it on CoinDesk, a BIP-proposal on the Bitcoin Dec mailing list and a paper submission coming soon.

- **Python-Bitcoinlib**
  Contributor, Bitcoin, Privacy *2017*
  - Contribution for segwit support in popular Python Bitcoin library managed by Peter Todd.

- **Fair Lottery Smart Contract**
  Serpent Programming Language, Ethereum *2016*
  - Smart contract that implements a cryptographically fair lottery with a python simulator.

- **Echo Dot Permissions Model**
  Java, Python Flask, AWS, Alexa Skills *2016*
  - Interacts with Alexa Skills and Microsoft Cognitive API to provide access control based on speaker recognition

- **Attack Testbed**
  Python, JavaScript, Docker *2015*
  - Docker testbed that allows easy creation, simulation, monitoring and replaying of attacks ranging from the application layer down to the network layer
  - Abstract paper: "Security Testbed: Scalable Infrastructure for Interactive Attack Replay and Testing of Security Monitoring Tools"

- **GalapagOS** ch into better off chain payment networks on
  C, x86 assembly *2015*
  - Light Linux-based operation system that runs on x86 assembly with a virtual memory support, scheduling, system calls, multiple terminals, drivers

- **5-Stage Pipelined Processor**
  Verilog *2016*
  - Pipeline processor with branch prediction, multi-layered LRU caches, leap-frogging

- **FPGA Brick Breaker**
  System Verilog, C *2015*
  - FPGA brick breaker with verilog vga monitor, keyboard driver support