

# MANASVI SAXENA

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## EDUCATION

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### M.S. Computer Science, University of Illinois – Urbana Champaign

May 2018

- Relevant Coursework - Formal Methods of Software Development, Runtime Verification, Logic in Computer Science, Cryptocurrency Security

### B.S. Computer Science, University of Illinois – Urbana Champaign

May 2015

- Relevant Coursework - Programming Languages and Compilers, Fundamental Algorithms, Theory of Computation, Computer Networking, Artificial Intelligence

## EXPERIENCE

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### Formal Systems Laboratory, University of Illinois

August 2016 - Current

*Researcher Assistant*

*Urbana, IL*

- Developing a dynamic Matching Logic Proof Assistant for the K Semantics Framework.
- K ([github.com/kframework](https://github.com/kframework)) is a rewrite based semantics framework in which programming languages can be defined using configurations, computations and rules.
- Proof Assistant will be used to prove program correctness, using the implementation of Matching Logic in K.

### Runtime Verification Inc., Urbana, Illinois

July 2015 - May 2016

*Software Engineer*

*Urbana, IL*

- Core member of team developing a dynamic analysis tool for finding undefined behavior in C programs, using formal semantics of C.
- Worked on improving tool's performance, and evaluated it's applications on large codebases.

### Formal Systems Laboratory, University of Illinois

August 2014 - May 2015

*Undergraduate Researcher*

*Urbana, IL*

- Developed a semantics debugger for the K Semantics Framework.
- Debugger helps users find bugs in formal semantics defined in K. Allows users to step through the execution of their program, examine the state space, configurations, and rules among other features.

### Coordinated Science Lab, University of Illinois

Summer 2014

*Summer Intern*

*Urbana, IL*

- Worked on visualization of a large dataset containing records of faulty medical devices by the Food and Drug Administration (FDA).
- Created an interactive web application that displays the visualizations using PHP/Javascript.

### CS 125, University of Illinois

Fall, 2012

*Course Assistant for CS 125 (Intro to Computer Science) under Prof. Lawrence Angrave*

*Urbana, IL*

- Conducted weekly office hours during which helped students with general doubts regarding Java programming and programming concepts such as recursion, sorting.

## PROJECTS

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### Formal Verification of Ethereum Smart Contracts

[github.com/kframework/evm-modeling](https://github.com/kframework/evm-modeling)

- Part of a team working on implementing the semantics of the Ethereum Virtual Machine in K.
- Lead the effort of using the semantics for formally verifying smart contracts on the EVM blockchain.

### K Semantics Framework

[github.com/kframework/k](https://github.com/kframework/k)

- Core developer. In charge of developing debugging capabilities, and maintaining the rewrite engine.

## TECHNICAL SKILLS

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### Programming Languages

Java, Python, C, C++, OCaml, PHP

### Web Development

SQL, Django, HTML

### Miscellaneous

Git, IntelliJ IDEA, Eclipse, PyCharm, L<sup>A</sup>T<sub>E</sub>X