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| Kaiyu Hou | (+1) 847-641-0586  [kyhou@u.northwestern.edu](mailto:kyhou@u.northwestern.edu)  [www.kyhou.com](http://www.kyhou.com)  1111 Church St Apt 605  Evanston, IL, 60201 |

## Objective

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| * **Research Intern**: Networked Systems and Protocols; Microservice Reserach. |

## Education

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| * **Ph.D.** **Student** in **Computer Science** **Northwestern University** | 2017 – Present |

Prof. Yan Chen Area: Networked System, Cellular Network Security

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| * **Master’s** in **Computer Science** **Xi’an Jiaotong University** | 2014 – 2017 |

**Rank**: 1st/89 **GPA**: 3.81/4.0 Area: Software Defined Networking (SDN)

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| * **B.E.** in **Software Engineering Xi’an Jiaotong University** | 2010 – 2014 |

**Rank**: 1st/78 **GPA**: 3.94/4.0 **Average**: 92.4 (in Junior and Senior year)

## Research Experience

* The Vulnerabilities of Emergency Call System in Cellular Network Protocols2018 - Present
* Using **TLA+** to formally specify the emergency call system in **4G/5G** cellular network system
* Discovering serious **security issues** in deployed emergency call system in real-world carriers
* Building a **complete cellular network testbed**
* Designing **inductive generalization algorithms** to generate fixing solutions
* Automatically Specifying and Verifying Network Protocols2018 - Present
* Specifying natural language documented protocols to formal models for security checking is hard
* Working on automated translating implementation to CFA for verifying the correctness of protocols
* Applying CEGAR to efficiently inspects cellular network protocols in large scale
* Generic Security Policy Enforcement System for **SDN-based Cloud**2017 – 2018
* Designed a **policy language** for resource protection and management of SDN-based Cloud
* Implemented in **OpenDaylight** controller, and deployed on **OpenStack**
* Routing Policy for Solving Reactive Model Overhead of **Software Defined Networks**2016 – 2017
* Proposed a **routing policy** to reduce the control channel bandwidth consumption up to 80%
* Implemented in **Floodlight** controller under **OpenFlow** and evaluated in **Open vSwitch** on real trace

## Experience

* **Reviewer** of CCS (2018, 2019), ICDCS (2018), ToN (2018)
* **Teaching Assistant** of CS 214: Data Structures; CS 343: Operating Systems, CS 340: Introduction to Networking

## Awards

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| * **Bronze Medal** ACM-ICPC Asia Regional Contest | 2012, 2013, 2014 | |
| * **Silver Medal** ACM-ICPC China Province Contest, Chengdu | 2013 | |
| * **Meritorious Winner** Mathematical Contest In Model | | 2013 |

## Skills

* TCP/IP Protocols, Cellular Network Protocols; Formal Verification, Software Defined Networking, Python