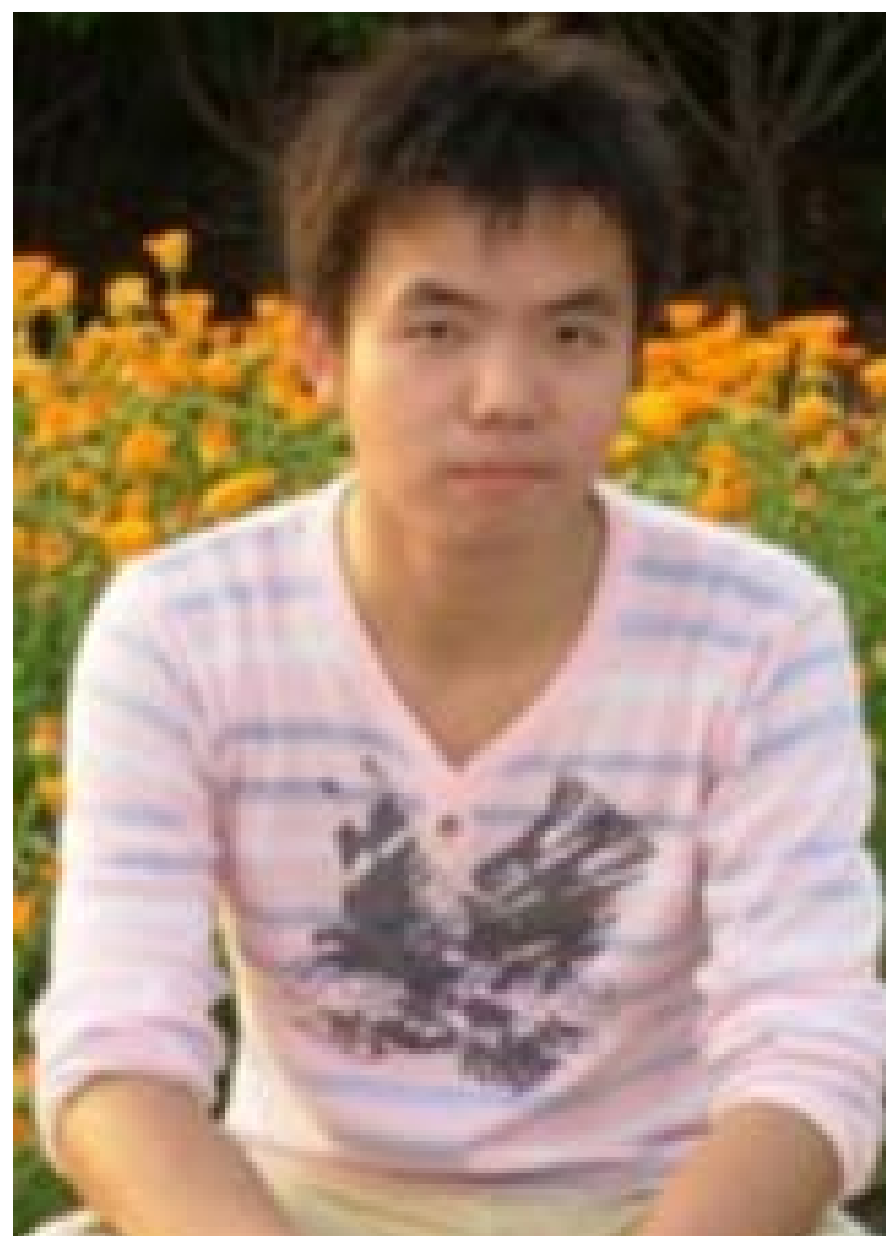




上海交通大学

SHANGHAI JIAO TONG UNIVERSITY

## Contextually-aware mobile security: Attacks and defense of mobile threats.



**Presenter: Wei Yang, UIUC**

**Talk Time: Oct 24th, 10:00 am, Tuesday**

**Location: Room 3401, Software Building**

**Abstract:**

The increasing popularity of smartphones has made them a target for malware. In this talk, I will introduce both defense against mobile malware and attacks that break existing malware detection. In the first half of my

talk, I will introduce a malware detection approach. Namely AppContext, an approach of static program analysis that extracts the contexts of security-sensitive behaviors to assist app analysis in differentiating between malicious and benign behaviors. In the second half of the talk, I will present attacks that break existing malware detection. Specifically, I will introduce Malware Recomposition Variation (MRV), an approach that conducts semantic analysis of existing malware to systematically construct new malware variants for malware detectors to test and strengthen their detection signatures/models. In particular, we use two variation strategies (i.e., malware evolution attack and malware confusion attack) following structures of existing malware to enhance feasibility of the attacks. Upon the given malware, we conduct semantic-feature mutation analysis and phylogenetic analysis to synthesize mutation strategies. Based on these strategies, we perform program transplantation to automatically mutate malware bytecode to generate new malware variants.

### **Bio:**

Wei Yang is a PhD student in University of Illinois at Urbana-Champaign. He is advised by Prof. Carl A. Gunter and Prof. Tao Xie. He is a member of Illinois Security Lab and Illinois Software Engineering Research Group. He received an M.S. in Computer Science from North Carolina State University in 2013, advised by Prof. Tao Xie, and a B.E. in Software Engineering from Shanghai Jiao Tong University in 2011, advised by Prof. Jianjun Zhao. He was a visiting student researcher in University of California, Berkeley in 2017, invited by Prof. Dawn Song.

