

YIZHUO (ZOEY) ZHAI

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EDUCATION

Xidian University

Xian, Shaanxi Province, P.R. China (Sept 2012 - June 2016)

BS in Software Engineering

GPA: 3.82/4.0, 91/100 (ranked 1st)

University of Limerick (Study Abroad)

Ireland (Sept 2015 - June 2016)

University of California Riverside

Riverside, CA (Sept 2016 - Present)

PhD candidate

Co-advised by Srikanth V. Krishnamurthy and Zhiyun Qian

Computer Science

Overall GPA: 3.92/4.00 Expected Grad: June 2021

TECHNICAL STRENGTHS

Computer Languages(In order of strength): Software & Tools

C++, C, Java, Python, Shell Script
LLVM, Clang, Linux, Hadoop

SELECTED PROJECTS

UBITECT

Sept 2016 - Aug 2019

Research Project

- Created and a two-phase **program analysis tool** detecting use-before-initialization (UBI) bugs scaling to the whole **Linux kernel** in LLVM IR level.
- This is the first work to do inter-procedural analysis targeting at the use of uninitialized variables. It first use field-, flow-, context-sensitive **type qualifier analysis** to generate potential warnings, then use **symbolic execution** to further reduce false positives.
- Applied UBITECT to Linux v4.14, successfully find 138 new UBI bugs while 52 are confirmed by Linux maintainers. (Patch Set:<https://lore.kernel.org/patchwork/project/lkml/list/?submitter=23988>)

Cat Classifier

June 2019

Deep Learning Project

- Applied **Logistic Regression**, **Two-layer Neural Networks** and **L-layer Neural Networks** to classify the cat vs. non-cat.
- Reach an accuracy of 80% by using L-layer Neural Networks.

Router Malware Clustering

Sept 2017 - Dec 2017

Data Mining Class Project

- Clustering different kinds of router malware based on their execution trace.
- Two distinguished features are: the system call times and the memory usage over time, **dynamic time wrapping** is used to deal with the second feature.
- Eight clusters are calculated via the algorithm.

TowelRoot

Sept 2016 - Dec 2016

OS Class Project

- Analyze how **CVE-2014-3153** triggers the crash for linux kernel.
- Established **proof of concept (PoC)** for CVE-2014-3153 and compromise an Android device.
- Get the **root privilege** of an Android device within 1 minutes.

NOTABLE AWARDS

09/2016 Deans Distinguished Fellowship
06/2016 Presidents Volunteer Award (Bronze)
04/2015 First Prize Scholarship by college
10/2014 National Scholarship
05/2014 Third Prize in the 12th Huawei Cup Programming Competition

10/2014 Special Scholarship by college
10/2013 First Prize Scholarship by college
03/2013 Special Scholarship by college