

CURRICULUM VITAE

Limin Wang

Contact Information

Address: Institute of Information Engineering, Chinese Academy of Sciences
C8 YiYuan, 80 XingShiKou Road
Haidian District
Beijing 100195
P.R. China

Homepage: <http://csuncle.com>

Tel: (+86) 156-0081-8233

E-mail: wanglimin@iie.ac.cn
wlmnzf@hotmail.com

Research Interests

Hardware Vulnerabilities, Computer Architecture, Side-channel Attacks, Model Checking

Education Background

09/2013-06/2017
B.E. in Computer Science and Technology,
School of Computer Science and Technology,
Hangzhou Dianzi University, Hangzhou, China

09/2017-Present
M.S. in Computer Technology,
School of Cyber Security,
University of Chinese Academy of Sciences, Beijing, China
Advisor: Professor Dan Meng

Publication

1. **Limin Wang**, Ziyuan Zhu*, Zhanpeng Wang, and Dan Meng. Analyzing The Security of The Cache Side Channel Defences With Attack Graphs. In Proceedings of the 25th Asia and South Pacific Design Automation Conference (ASP-DAC 2020), 2020. (**Best Paper Candidate**) [\[Download\]](#)
2. **Limin Wang**, Ziyuan Zhu*, Zhanpeng Wang, and Dan Meng. Colored Petri Net Based Cache Side Channel Vulnerability Evaluation. in IEEE Access, vol. 7, pp. 169825-169843, 2019. [\[Download\]](#)

Awards

- 2019, Merit/Triple A Student, University of Chinese Academy of Sciences, China
- 2017, Outstanding Graduates, Hangzhou Dianzi University, China
- 2015, Merit/Triple A Student, Hangzhou Dianzi University, China
- 2015, The Second-class Scholarship for Outstanding Students, Hangzhou Dianzi University, China
- 2015, The First-class Scholarship for Outstanding Students, Hangzhou Dianzi University, China
- 2014, Outstanding Student Leader Award, Hangzhou Dianzi University, China
- 2014, Merit/Triple A Student, Hangzhou Dianzi University, China
- 2014, The First-class Scholarship for Outstanding Students, Hangzhou Dianzi University, China

NOTE: The scanned copies of certificates are attached in the **Attachments**.

Research Experience

- **Memory security**

- Propose a new algorithm for ORAM, the algorithm can make ORAM hide the data access pattern at a lower cost. The ORAM module with the new algorithm has been implemented on the Gem5 simulator, and the research results were submitted to ICCD 2018. I collaborated this work with Zhanpeng Wang in the Institute of Information Engineering.

- **Security analysis of defenses for hardware vulnerabilities and cache attacks**

- Modify the open source model checker NuSMV so that it can generate multiple counterexamples.
 - Propose a new method to analyze the security of the side channel defenses. Formal methods (model checking) are introduced in our method to make it more rigorous and the attack graph technology can also help simplify the counterexamples generated by model checker and make counterexamples easier to analyze. The research has been published at ASP-DAC 2020.

- **Quantitative analysis of cache side channel risk**

- Propose a new model based quantitative method to evaluate the threat of different cache side channel attacks and hardware vulnerabilities in the computer environment with different security mechanisms. To make our evaluation approach more reasonable, in addition to the attack method, we also consider both the conditions on which the attack steps depend and the differences of attack capability among different attacks. In this research, *Common Vulnerability Scoring System (CVSS)* is adopted to score the attack power of each attack step as the weight, we also analyze the attack methods and their requirements to obtain the probability of success of every attack step. The attack steps and both the probability and weight will finally be modeled as a three-step colored Petri net model. The research results have been published by IEEE Access.

Other Experience

- 08/2018 – Present. Worked in the Computer Architecture Security Lab, Institute of Information Engineering, Chinese Academy of Sciences.
Advisor: Prof. Dan Meng
- 11/2015 – 06/2017. Worked as an intern on a face recognition project in the Institute of Image & Graphs, Hangzhou Dianzi University.
Advisor: Prof. Jianjun Li
- 06/2014 – 09/2015. Worked as a full stack developer in Geese Technology Ltd, Hangzhou.
Noted: Geese Technology Ltd is a startup company which was founded by my classmates, and I was one of the technical leaders who were invited early.

References

Professor Dan Meng (Advisor)

University of Chinese Academy of Sciences, Beijing, China

E-mail: mengdan@iie.ac.cn

Professor Ziyuan Zhu

University of Chinese Academy of Sciences, Beijing, China

E-mail: zhuziyuan@iie.ac.cn

Professor Fan (Terry) Zhang

Zhejiang University, Hangzhou, China

Tel:(+86)137-7735-6409

E-mail: fanzhang@zju.edu.cn

Attachments

The scanned copies of my award certificates and transcripts are shown below.

中国科学院大学研究生课程成绩单

姓 名：王立敏 学生类别：工程硕士 培养单位：信息工程研究所
 学 号：2017E8018661153 所学专业：计算机技术

学年学期	课程名称	学时	学分	成绩	学位课
2017—2018学年秋季学期	计算机体系结构	60	3.0	79	是
	数理逻辑与程序理论	60	3.0	79	是
	超大规模集成电路基础	40	2.0	92	是
	科技信息检索与利用实用技巧（电子领域）	27	1.0	88	否
	知识产权	20	1.0	86	否
	人文系列讲座	20	1.0	通过	是
	硕士学位英语（免修）	72	3.0	71	是
	基础学术论文写作	32	1.0	93	否
	科技论文写作	32	1.0	85	否
	恶意软件发现与分析	40	2.0	69	是
2017—2018学年春季学期	中国特色社会主义理论与实践研究	36	1.0	85	是
	形式化方法	40	2.0	62	否
	集成电路设计与验证	20	1.0	92	否
	英语C	36	2.0	81	否
	高级学术论文写作	32	1.0	75	否
	密码工程	60	3.0	75	是
	操作系统安全	40	2.0	95	否
	计算机体系结构安全	40	2.0	99	是
2017—2018学年夏季学期	自然辩证法概论	36	1.0	84	是
	博弈论	20	1.0	优秀	否
	大数据时代的系统芯片设计	20	1.0	95	否
	强化学习及其应用	20	1.0	95	否
	以下空白				
总学分	36.0		学位课学分	21.0	
平均学分绩点（GPA）	3.18				

附 注：

1.百分制：90-100分=4.0,85-89分=3.7,82-84分=3.3,78-81分=3.0,75-77分=2.7,71-74分=2.3,66-70分=2.0,62-65分=1.7,60-61分=1.3,59分及以下=0。

2.四分制：优=4.0, 良=3.3, 及格=2.0, 不及格=0。

3.二分制不计算绩点。

中国科学院大学教务部

2019年05月15日

研究生成绩专用章

(2) 1101520331078

Figure 1: Master's Transcript.



杭州电子科技大学学生成绩单
Hangzhou Dianzi University Student Transcript

姓名: 王立敏 学号: 13055632 学制: 4 年
出生日期: 1994年11月02日 入学日期: 2013年09月 性别: 男
系: 计算机学院 专业: 计算机科学与技术 毕业年月: 2017年06月

Figure 2: Undergraduate Transcript.

教务处(盖章)
Academic Affairs Office(Stamp)

教务处(盖章)
Academic Affairs Office(Stamp)

2019年5月13日

打印日期
Date Issued

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Figure 3: 2019, Merit/Triple A Student.

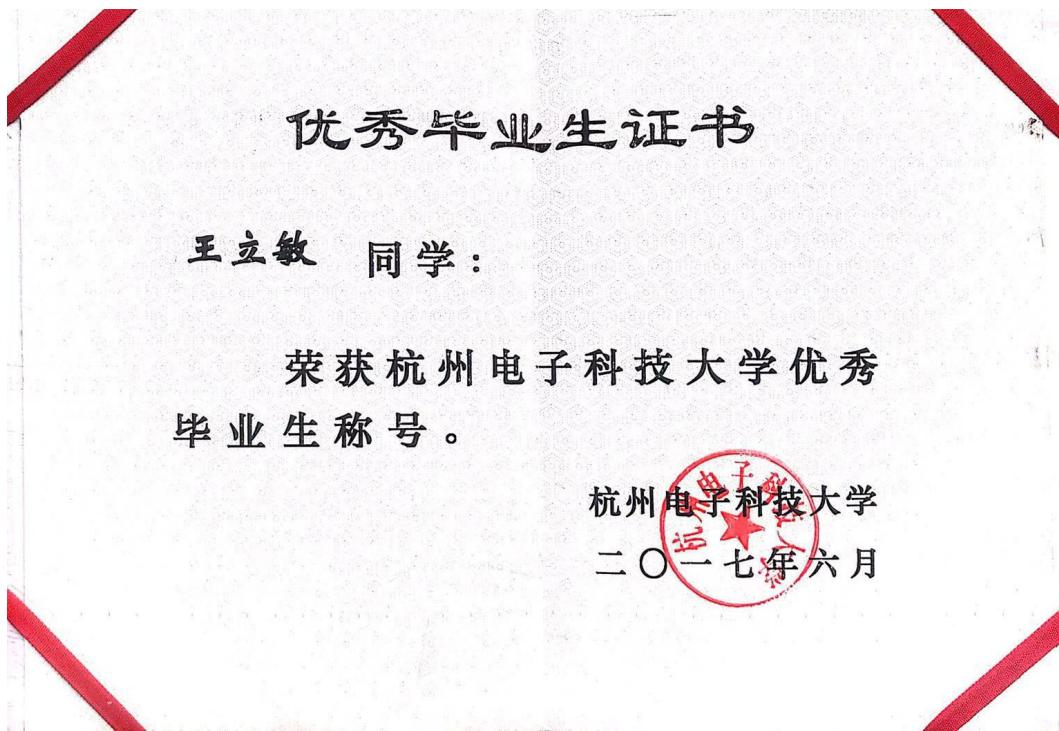


Figure 4: 2017, Outstanding Graduates.

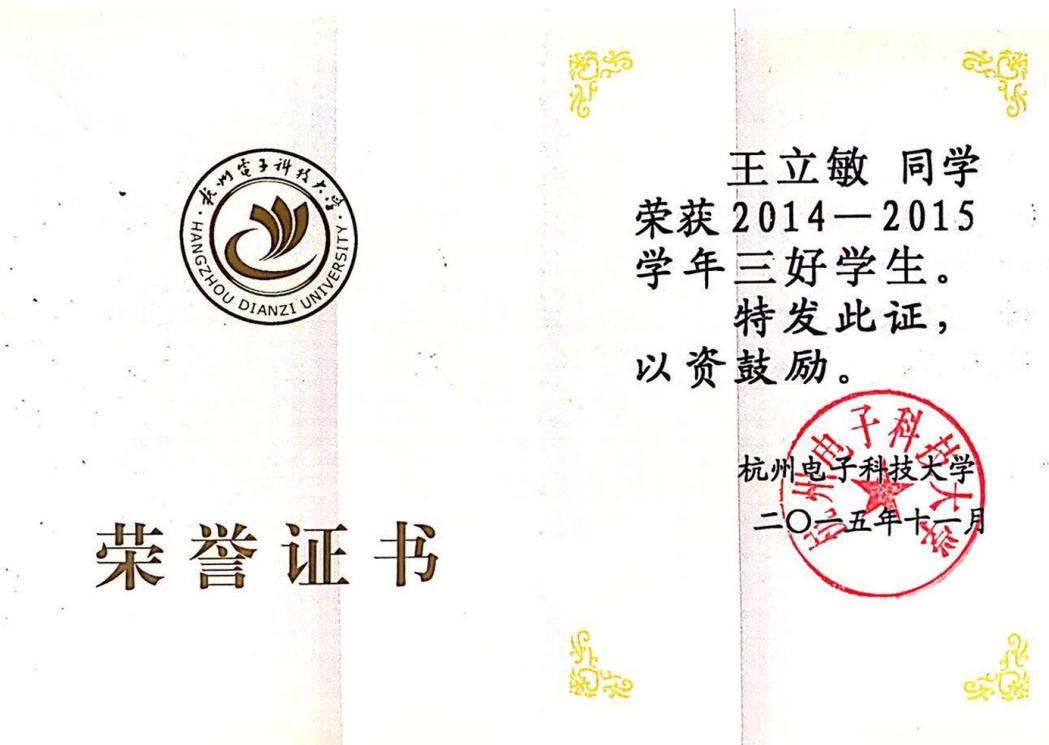


Figure 5: 2015, Merit/Triple A Student.

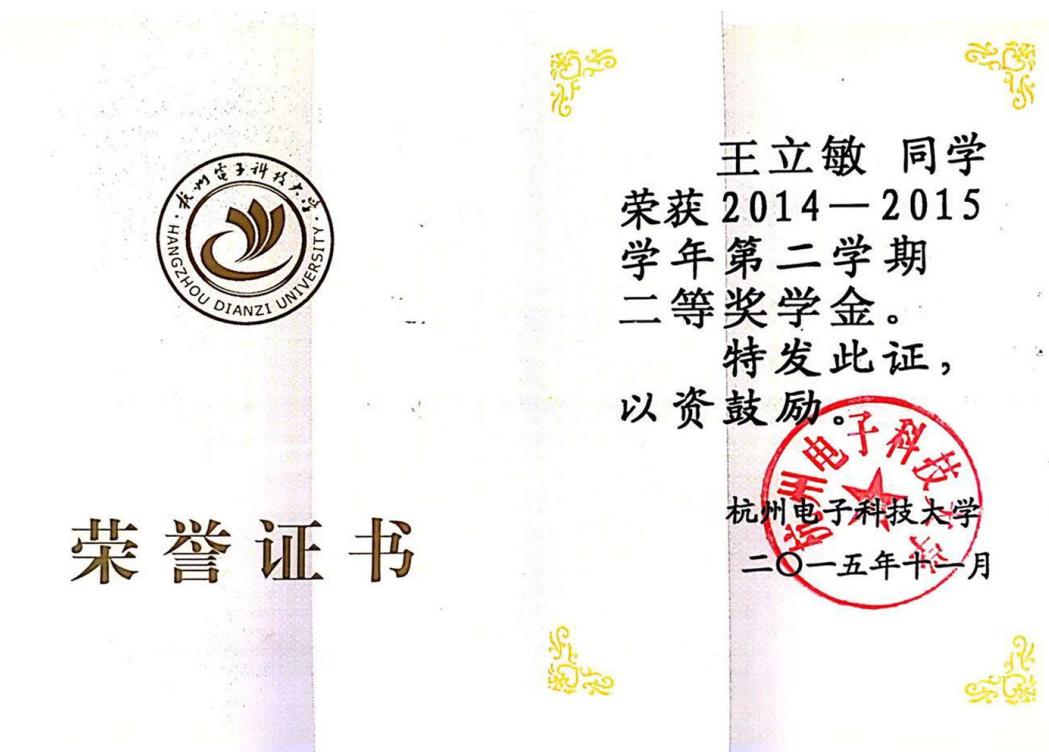


Figure 6: 2015, The Second-class Scholarship for Outstanding Students.

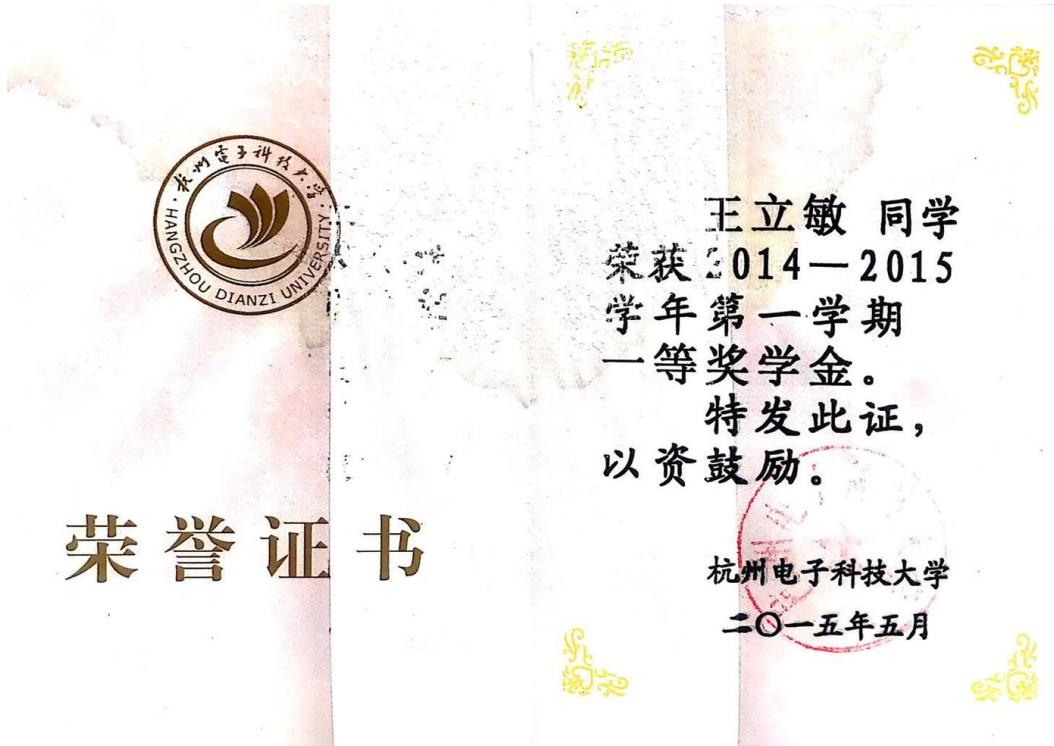


Figure 7: 2015, The First-class Scholarship for Outstanding Students.

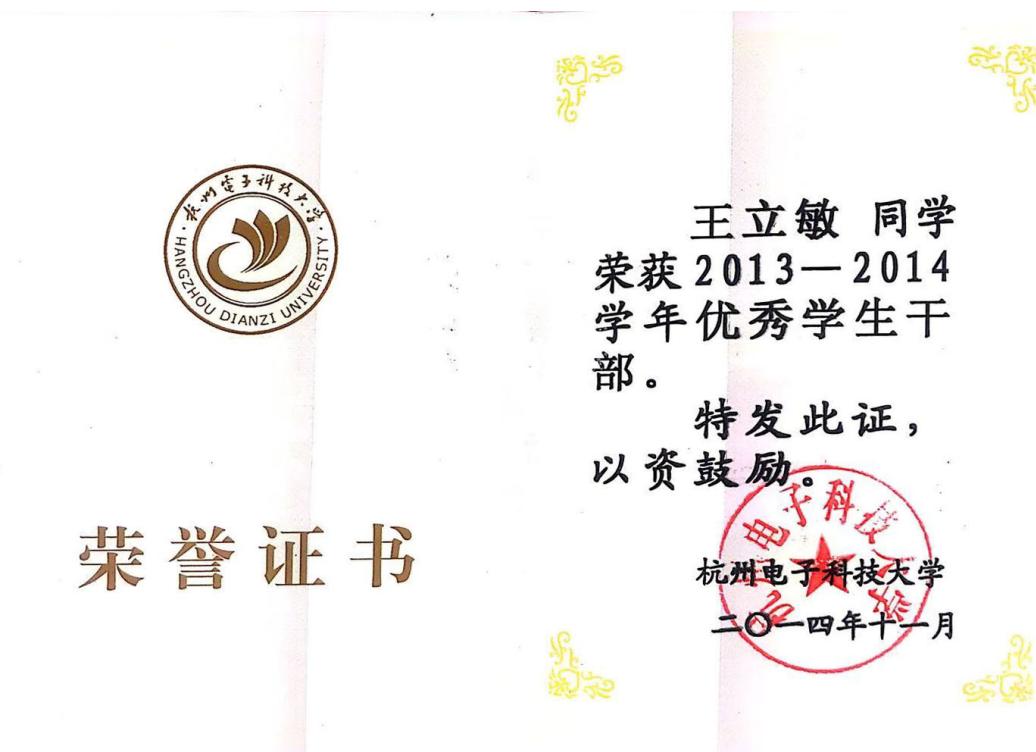


Figure 8: 2014, Outstanding Student Leader Award.



Figure 9: 2014, Merit/Triple A Student.



Figure 10: 2014, The First-class Scholarship for Outstanding Students.