

# HAOBIN CHEN

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## EDUCATION

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**Nankai University, Tianjin, China**

2019-2023(Expected)

B.Sc in Information Security

Overall GPA: 3.68/4.0(87.78%, Top 10%)

### Core Courses

Data Structures (4.0/4.0), Java Programming Language (4.0/4.0), High-Level Programming Language (C++, 4.0/4.0), Operating System (4.0/4.0), Computer Organisation and Design (4.0/4.0), Database System (4.0/4.0), Cryptography (4.0/4.0), Security Protocols and Their Design (4.0/4.0), IoT Security (4.0/4.0)

## RESEARCH INTERESTS

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Computer Security; Data Privacy; Applied Cryptography; Security Protocols

## RESEARCH EXPERIENCES

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### Hybrid Protection for Data Privacy

September 2020 -

*Advised by: Prof. Zheli Liu*

*Nankai University & Huawei Inc., Tianjin, China*

- Designing more advanced cryptographic primitives including oblivious RAM, oblivious data structures as the storage engine for relational databases.
- Collaborating with Huawei Inc. in making theoretical models practical and viable in real-world applications.
- Proposed novel encryption schemes for encrypted databases and implemented them in CryptDB.
- **Designing novel ORAM constructions with the support of Intel SGX technology: SO<sub>2</sub> and working on the paper SO<sub>2</sub>: An SGX-Based Doubly Oblivious Partition-Based ORAM with Small Client Storage.**

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### Intelligent Service Platform for Residential Communities

March 2021 - Dec 2021

*Advised by: Prof. Peng Mie*

*Donghui Dongrui Community, Tianjin, China*

- Aiming at solving the real-world problems faced by communities consisting of senior residents.
- Developing an online platform that provides residents with one-stop services to make their lives more convenient.
- Focusing on deploying the encrypted database as the data storage and secure encryption schemes to ensure data privacy for sensitive information.

## TECHNICAL STRENGTHS

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<b>Website</b>	HTML5, CSS, JavaScript, and Bootstrap
<b>Typesetting Document</b>	Latex, Markdown
<b>Programming</b>	C/C++ (Proficient), Makefile, CMake, Shell, Java, Python, PHP, Bash
<b>Frameworks</b>	Google Remote Procedure Call (gRPC), Intel Software Guard eXtension (SGX), Yii2, SpringBoot, Yara, Yacc & Bison
<b>Platforms</b>	Linux Programming (proficient) and shell commanding
<b>Softwares</b>	Git, IDA Pro, OllyDbg, WinDbg, LLVM

## HONORS AND AWARDS

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2021 The 3<sup>rd</sup> prize at the **National College Student Information Security Contest**, Shandong University (Highest undergraduate contest for information security, < 8%)

- 2021 **Nankai Excellent Community Immersion Project** (< 10%)
- 2021 **Nankai Academically Excellent Student Scholarship** (Awarded to undergraduate students with excellent academic performance, < 5%)
- 2021 **Nankai Innovation Award of Technology and Research Scholarship** (Awarded to undergraduate students with outstanding research potential, < 3%)
- 2022 **Nankai Outstanding Innovation Project** (Awarded to undergraduate students who participated in outstanding research projects. < 15%)

## TALKS

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- 1 **Introduction to Zerocoin: An Anonymous and ZKP-Based E-Cash from Bitcoin**  
Presented at course CSSE0014 *Security Protocols and Their Design*
- 2 **How Does the Compiler Work: A Brief Introduction to the LLVM Framework**  
Presented at course COSC0017 *Compilers Design*
- 3 **Introduction to the Encrypted Databases**  
Presented at course UPEC0990 *Database and Its Applications*
- 4 **The Linux Kernel Fuzzing**  
Presented at course CSSE0004 *Software Security*

## PROJECTS

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- 1 FH-CryptDB (with ~ 6,000 lines of C++ code).  
Link: [https://github.com/hiroki-chen/FH\\_cryptDB](https://github.com/hiroki-chen/FH_cryptDB)
- 2 SSE-SEAL: An implementation of the paper *Demertzis et al. SEAL: Attack Mitigation for Encrypted Databases via Adjustable Leakage* (with ~ 3,000 lines of C++ code).  
Link: <https://github.com/hiroki-chen/SSE-SEAL>
- 3 SO<sub>2</sub>: A recursive doubly oblivious RAM bootstrapping on SGX. (with ~ 4,000 lines of C++ code).  
Link: <https://github.com/hiroki-chen/SGXOram>
- 4 Inference attacks against encrypted databases.  
Link: <https://github.com/hiroki-chen/FrequencyAttack>
- 5 A compiler for SysY (a C-like language).  
Link: <https://github.com/hiroki-chen/NKUCompiler>

## LANGUAGE SKILLS

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iBT-TOEFL (Reading: 30, Listening: 27, Writing: 27, Speaking: 27)

GRE (Verbal Reasoning: 162, Quantitative Reasoning: 168, Analytical Writing: 4)