Fuliang LIN

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An aspiring student with strong research interests in the Blockchain & Cybersecurity & Internet of Things.

EDUCATION

09/2021-06/2025 ***BSc Information Security*** **GPA: 3.31/5.0**
Lanzhou University **Average Score: 83.14%**

Core Modules: Network Penetration Testing Technology (90), Comprehensive Experiment of Network Security (95), Operating System and Security (86), Modern Cryptography (90)

RESEARCH EXPERIENCE

09/2023-08/2024 ***Research on Vehicle Network Identity Authentication Mechanism Based on Blockchain***
Primary Leader, Instructed by Associate Prof. Xiaoqin FENG

- **Project Overview:** This project focused on a decentralised identity authentication mechanism for Vehicle Ad Hoc Networks (**VANETs**) using **Ethereum**. By integrating pseudonymisation, it enabled secure and anonymous vehicle-to-vehicle communication, enhancing privacy protection in the network.
- **Problem Definition:**
  - Analysed challenges in traditional vehicle identity management systems, including:
    - **Centralisation:** Vulnerability due to reliance on a single Certificate Authority (CA).
    - **Inefficiency:** Slow validation processes in dynamic VANET environments.
    - **High Overhead:** Increased complexity and operational costs due to frequent certificate updates.
  - Emphasised the necessity for a decentralised approach using blockchain technology.
- **Proposed Solution:**
  - Designed the Ethereum-based Fully Distributed Authentication Mechanism (EBDA), integrating a Graph of Trust (GoT) for decentralised identity verification. Eliminated multi-tiered CAs, thereby enhancing reliability and reducing points of failure.
  - Implemented three blockchains to separately manage vehicle identities and pseudonyms.
- **Smart Contract Development:**
  - Implemented three smart contracts:
    - **Identity Management Contract:** Managed vehicle registrations and constructs the GoT.
    - **Pseudonym Registration Contract**: Handled the registration and verification of vehicle pseudonyms.
    - **Pseudonym Revocation Contract:** Managed the revocation of vehicle pseudonyms.
  - Enabled fully automated identity lifecycle management for vehicles without relying on trusted third parties.
- **Security and Performance Analysis:**
  - Conducted a thorough security analysis, addressing potential attack vectors such as replay attack and man-in-the-middle attack.
  - Defined security requirements including single registration, message authentication and privacy preservation.
  - Performed performance testing, achieving:
    - Average registration latency of 0.172 seconds.
    - Average verification latency of 15.6 milliseconds.
  - Demonstrated that the proposed solution significantly improves efficiency compared to existing methods.

PUBLICATION

Lin, F[2]. (2024). An Ethereum-based Fully Distributed Authentication Mechanism in VANETs. *In Preparation*
Note: Available upon request - full paper in PDF.

- **Objective:** This study aims to propose a fully decentralised vehicle authentication mechanism using **Ethereum** for efficient identity verification in **VANETs**.
- **Steps:** The study involves creating a blockchain platform, deploying smart contracts, simulating vehicles, and evaluating performance.
- **Conclusion:** The Ethereum-based authentication mechanism effectively improves vehicle identity verification in VANETs.

PROJECT EXPERIENCES

03/2024-06/2024 ***Network Security Comprehensive Experiment***

- **Literature Review:** Analysed classic works on chaotic maps in cryptography, focusing on **image encryption**, **AES performance enhancement**, and **hash function** design.

01/2024 ***Online Shopping System Front-End Interactive Design***

- **Website Overview:** Independently designed a shopping website with a Homepage (level 1), 10 product detail pages (level 2), and a Shopping cart page (level 3) using **HTML and CSS**.

07/2023 ***Comprehensive Practice in Information Security Major of Lanzhou University***
Training Instructor

- **Responsibilities:** Taught **cryptography theory and web problem-solving techniques** for CTF competitions.
- **Outcomes:** Several teams excelled in the Lanzhou University Information Security Competition in October 2023.

12/2022-01/2023 ***Design of Internet Banking Management System***

- **Overview:** Created a C/S architecture online banking management system in **Java**.

LEADERSHIP EXPERIENCE

08/2023 ***Lanzhou University to Fuzhou: The Summer Practice of Fuzhou Traditional Culture***
Primary Leader

- **Project Overview:** The project focused on researching Fuzhou's traditional culture, including specific art forms like Fuqing Cimingxianxi, Minju (Min opera) and Fuzhou storytelling (Pinghua). The primary target group was young people in Fujian, specifically college students, to gauge their understanding and interest in these cultural traditions.
- **Objectives:**
  - ♦ To assess and enhance the understanding of Fuzhou traditional culture among college students.
  - ♦ To explore the historical development and significance of various traditional cultural forms.
  - ♦ To effectively promote traditional culture using modern media formats, such as short videos and graphic content.
- **Steps:** Designed by assigning tasks and creating questionnaires, then answered online surveys, visited exhibits, and interacted with cultural heirs. Compiled results and published them online.
- **Outcomes:** Analysed data and boosted youth awareness of Fuzhou's traditions.

OTHERS

Achievement: 12/2023, University-level First Prize, Lanzhou University Information Security Competition
Qualification: CISP-PTE (Registered Penetration Testing Engineer)
IT: MS Office, Python, Java, Linux, Latex, Origin, Solidity

- Familiar with OWASP Top 10 vulnerabilities (e.g., injection, broken authentication, sensitive data exposure).
- Proficient in Python for writing testing scripts.
- Knowledgeable in the five-layer network model and protocols (DNS, TCP, IP).
- Familiar with common Linux commands.
- Proficient in Java for server-side development.

Languages: Chinese (native), English (proficient).
Interest: Badminton

Lanzhou University Transcript of Academic Record

NAME	Lin Fuliang	STUDENT ID NO.	320210942841	GENDER	Male
FACULTY	School of Information Science and Engineering				
MAJOR	Information Security				
ADMISSION DATE	September, 2021	GRADUATION DATE	JUL 01, 2025	DURATION OF STUDY	4

Course	Attribute	Credit	Hours	Grade	Term
College English for Advanced Learners 1	Required	3	54	88	Fall 2021
Ideological and Moral Cultivation and Legal Basis	Required	3	54	87	Fall 2021
Situations and Policies (1)	Required	0.4	4	76	Fall 2021
Advanced Mathematics (1)	Required	6	108	83	Fall 2021
General Physics (For Science & Engineering)	Required	3	54	79	Fall 2021
Discrete Mathematics	Required	4	72	73	Fall 2021
Introduction to Computer Science	Required	2	36	90	Fall 2021
The Foundation of the Programming Design	Required	3	54	74	Fall 2021
Programming basic experiment	Required	1	36	87	Fall 2021
Safety Micro-course	Optional	1	12	82	Fall 2021
Physical Education(1/4)	Required	1	36	79	Fall 2021
Physical Health Standard Test(1/4)	Required	0	4	Qualified	Fall 2021
Military Theory	Required	2	36	70	Fall 2021
Military Skills	Required	2	112	Excellent	Fall 2021
Mental Health of College Students (MOOC)	Required	2	36	97	Spring 2022
College English for Advanced Learners 2	Required	3	54	86	Spring 2022
Outline of Chinese Modern and Contemporary History	Required	3	54	80	Spring 2022
Situations and Policies (2)	Required	0.4	4	80	Spring 2022
Advanced Mathematics (2)	Required	5	90	81	Spring 2022
General Physics (For Science & Engineering)	Required	3	54	84	Spring 2022
Data Structure	Required	4	72	92	Spring 2022
Electronic Circuit Foundation	Required	2	36	84	Spring 2022
Experiments of General Physics	Required	1	36	87	Spring 2022
Data Structure Experiment	Required	1.5	54	84	Spring 2022
Electronic Circuit Foundation Experiment	Required	1	36	89	Spring 2022
Talk about Entrepreneurship (online sharing course)	Optional	2	36	86	Spring 2022
Physical Education(2/4)	Required	1	36	84	Spring 2022
Selected Reading of English MasterpiecesⅡ	Required	3	54	71	Fall 2022
Chinese Classical Dance Culture and Aesthetic Appreciation	Optional	2	36	93	Fall 2022
Introduction to the basic principles of Marxism	Required	3	54	89	Fall 2022
Situations and Policies (3)	Required	0.4	4	76	Fall 2022
Linear Algebra(A)	Required	4	72	61	Fall 2022
Computer Networks	Required	3	54	81	Fall 2022
Mathematics for Information Security	Required	3	54	70	Fall 2022
Introduction to Cyberspace Security	Required	2	36	81	Fall 2022
Digital Logic	Required	2	36	87	Fall 2022
Object-Oriented Programming (Java)	Limited Optional	3	54	72	Fall 2022
Experiments of General Physics	Required	1	36	84	Fall 2022
Digital Logic Experiment	Required	1	36	88	Fall 2022
Lab Course for Computer Network	Required	1	36	94	Fall 2022
Physical Education(3/4)	Required	1	36	Passed	Fall 2022
Sex and HIV/AIDS of College Students	Optional	2	36	84	Fall 2022
Career Planning(2)	Required	1.4	14	98	Spring 2023
General Introduction to English-speaking Countries	Required	3	54	72	Spring 2023

Total Credit	Required credits	Obtain Required credits	Obtain Limiteded credits	Obtain Elective credits	GPA of Required, Limited Optional	Weighted Average Score of Required,Limited Optional	Overall GPA	Weighted Average Score of all
155.5	169	123	12.5	20	3.23	82.32	3.31	88.14

学生事务证明专用章

Date:2024-09-10

Scan to verify

This verifiable electronic certificate has the same effect as the paper certificate, that can be verified by scanning the QR code or logging into the validation platform of Lanzhou University(http://ca.lzu.edu.cn/verify/#). If you need a paper certificate, please print it at the self-service printing terminal on campus. If you have any problem, you can call the work phone to verify. Tel:+86-931-8912032 E-mail:jxk@lzu.edu.cn

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MAJOR	Information Security				
ADMISSION DATE	September, 2021	GRADUATION DATE	JUL 01, 2025	DURATION OF STUDY	4

Course	Attribute	Credit	Hours	Grade	Term
Introduction to the worldwide national hotspot issues	Optional	2	36	89	Spring 2023
Situations and Policies (4)	Required	0.4	4	96	Spring 2023
The history of the Communist Party of China	Optional	2	36	86	Spring 2023
Introduction to Mao Zedong Thoughts & Theoretical System of Chinese Socialism	Required	3	54	84	Spring 2023
World Politics Theory	Optional	2	36	89	Spring 2023
Probability Theory and Mathematical Statistics	Required	3	54	61	Spring 2023
Operating System and Security	Required	3	54	86	Spring 2023
Database Principles and Security	Required	2	36	78	Spring 2023
Principles of Computer Organization	Required	4	72	81	Spring 2023
Introduction to Artificial Intelligence	Limited Optional	2	36	90	Spring 2023
Modern Cryptography	Required	3	54	90	Spring 2023
Information Security Foundation Experiment	Required	1	36	94	Spring 2023
Object-Oriented Program Designing	Limited Optional	1.5	54	88	Spring 2023
Physical Education(4/4)	Required	1	36	Passed	Spring 2023
Physical Health Standard Test(2/4)	Required	0	4	Unqualified	Spring 2023
The Life View in Huangdi Neijing	Optional	2	36	94	Spring 2023
Situations and Policies(5)	Required	0.4	4	78	Fall 2023
Coordination Chemistry (MOOC)	Optional	3	42	89	Fall 2023
Practice of Ideological and Political Theory	Required	2	36	Good	Fall 2023
Introduction to Xi Jinping's Thought on Socialism with Chinese Characteristics in the New Age	Required	3	54	84	Fall 2023
International Information Security and Global Governance	Optional	2	36	92	Fall 2023
Network Penetration Testing Technology	Required	2	36	90	Fall 2023
Front-end Interaction Design	Limited Optional	2	36	88	Fall 2023
Designing of Computer Organization	Required	1.5	54	88	Fall 2023
Curriculum Design of Information System's Security	Required	1.5	54	92	Fall 2023
Physical Health Standard Test(3/4)	Required	0	4	Qualified	Fall 2023
Career Planning(3)	Required	0.6	12	98	Spring 2024
Introduction to Electronic Commerce	Limited Optional	2	36	88	Spring 2024
Cloud Computing and Big Data Processing	Required	2	36	82	Spring 2024
Internet of Things and Security	Limited Optional	2	36	91	Spring 2024
Network Security Evaluation	Required	2	36	86	Spring 2024
Comprehensive Experiment of Network Security	Required	1.5	54	95	Spring 2024

Total Credit	Required credits	Obtain Required credits	Obtain Limiteded credits	Obtain Elective credits	GPA of Required, Limited Optional	Weighted Average Score of Required,Limited Optional	Overall GPA	Weighted Average Score of all
155.5	169	123	12.5	20	3.23	82.32	3.31	88.14

兰州大学
LANZHOU UNIVERSITY

兰州大学成绩单相关说明

Specifications of Academic Transcripts in Lanzhou University

1.平均学分绩点计算公式（GPA Calculation）

平均学分绩点=Σ(所修课程成绩绩点×所修课程学分)/Σ所修课程学分

GPA=Σ(Course Grade Point×Course Credits)/ΣCourse Credits

2.平均学分绩计算公式（Weighted Average Score Calculation）

平均学分绩=Σ(所修课程成绩×所修课程学分)/Σ所修课程学分

Weighted Average Score=Σ(Course Score×Course Credits)/ΣCourse Credits

我校本科生成绩单显示 2 类 GPA:全部课程 GPA 和必修+限选课程 GPA。研究生成绩单显示全部课程 GPA，但成绩显示为“合格”、“不合格”以及“免修”的不计入成绩绩点计算。

There are two types of GPA in our undergraduate transcripts: Overall GPA and required & limited course GPA. The Overall GPA for graduate students is shown in the graduate transcript, with the grades labeled as "Qualified","Failed " and "exempt" being not included in the GPA calculation.

3.学时、学分标准（Class Hours and Credits）

1 学时=45 分钟；理论课程 18 学时=1 学分；实验课程 36 学时=1 学分。

One class hour=45minutes; for theoretical courses, 18 class hours=1 credit; for experimental courses, 36 class hours=1 credits.

4.课程成绩绩点对应关系（Matching of Academic Scores and GPAs）

百分制 （100-points System）	绩点 （GPA）	五级分制 （Five-level grading system）	二级分制 （Two-level grading system）
90-100	4.0-5.0	优秀 Excellent	合格 （Qualified）/3.5
80-89	3.0-3.9	良好 Good	
70-79	2.0-2.9	中等 Medium	
60-69	1.0-1.9	及格 Passed	
0-59	0	不及格 Failed	不合格 （Failed）/0

兰州大学 学生事务证明专用章