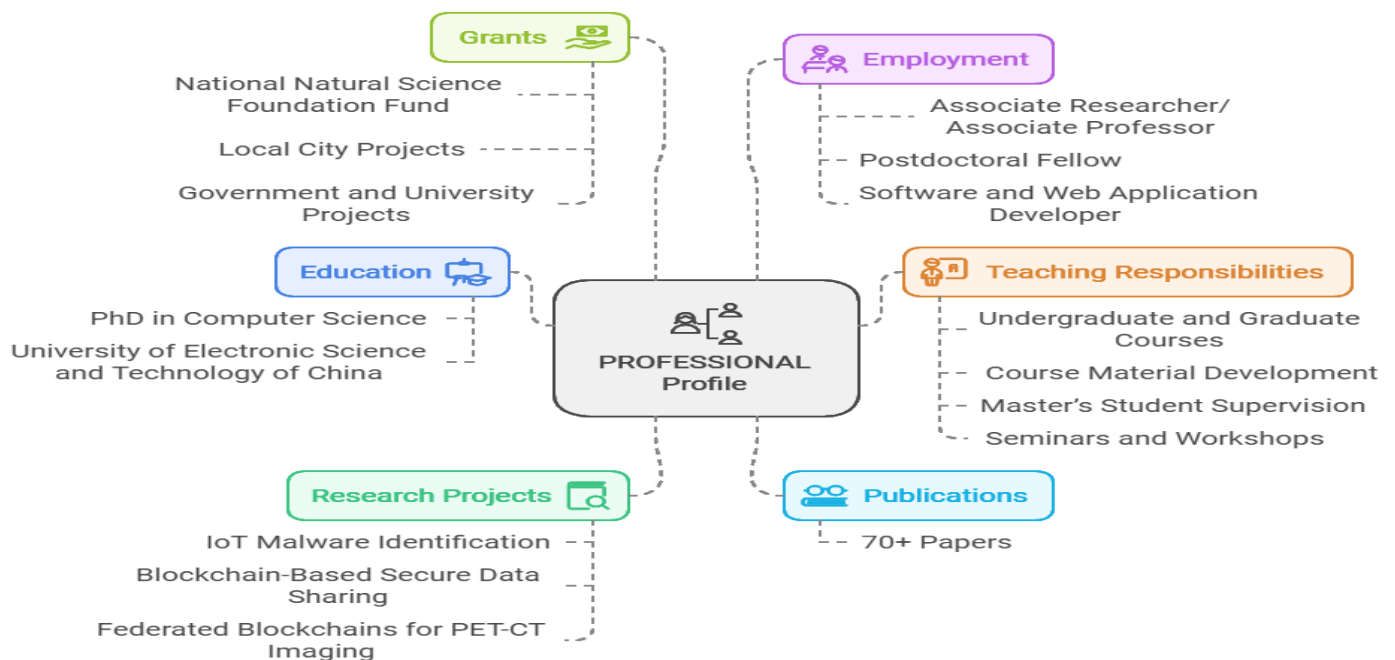


Rajesh Kumar



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Google Scholar: [Click Here](#)
Linked in: [Click Here](#)
Github: [Click Here](#)

PROFESSIONAL PROFILE



Accomplished researcher with a PhD in Computer Science, specializing in Deep Learning, Machine Learning, and Information Security. Graduated with distinction from the University of Electronic Science and Technology of China, earning the Academic Performance Award and Outstanding Graduate title. Led national research projects, including IoT Malware Identification (2019) and federated blockchains for PET-CT imaging (2023). Published 70+ papers in top-tier journals and conferences, with notable recognition for COVID-19 detection using CT imaging. Secured multiple research grants (2019, 2024).



RESEARCH INTERESTS

Specialized in **Network Security**, **Deep Learning**, **Large Language Models**, **Computer Vision**, and **Blockchain Technology**. My research is focused on developing innovative solutions to address critical challenges in cybersecurity and data privacy. With a deep commitment to advancing AI-powered systems, I work on scalable, secure technologies that have real-world applications, including IoT malware detection, federated learning for healthcare, and blockchain-based secure data sharing.




BLOCKCHAIN



SECURITY

EDUCATION


 UNIVERSITY OF ELECTRONICS SCIENCE AND TECHNOLOGY OF CHINA (2016-2019)
PHD (Doctor of Engineering in Computer Science and Technology) (English Instruction Program)

Thesis Topic: **Android Malware Detection based on Machine Learning.**

- ✓ Developed a novel machine learning framework to detect and classify Android malware with improved accuracy, leading to the publication of multiple papers in IEEE and ACM journals : (Papers: [Link1](#), [Link2](#), [Link3](#), [Link4](#), [Link5](#)).
- ✓ Collaborated with **industry partners** on creating secure data-sharing protocols for IoT devices, contributing to the **National Natural Science Foundation of China (NSFC)** funded project.
- ✓ Contributed to national research projects focused on **network security** and **AI-based malware detection**, which earned recognition for their impact on **cybersecurity**.

 UNIVERSITY OF SINDH, JAMSHORO (2014-2016)
MS (Computer Science)

- ✓ Conducted research on **network security** and **database management systems**, producing a thesis on secure fees payment system in distributed environments.
- ✓ Participated in **university-industry collaboration** projects related to **web application security** and **data encryption**.

 UNIVERSITY OF SINDH, JAMSHORO (2010-2013)
BS (Computer Science)

- ✓ Specialized in **software engineering** and **database systems**, developing a final project on **automated attendance systems** using Android technology.
- ✓ Awarded for academic excellence in **programming languages** and **system design** courses.

EMPLOYMENT

 Associate Researcher/Teaching Fallow (July 2021- Current)

YANGZI DELTA RIVER RESEACH INSTITUTE OF HUZHOU, UNIVERSITY OF ELECTRONICS SCIENCE AND TECHNOLOGY OF CHINA

Research Responsibilities:

- ✓ Lead research projects in **Blockchain**, **Deep Learning**, and **Computer Vision**.
- ✓ Published multiple papers in international journals and conferences.
- ✓ Secured funding for blockchain-based collaborative learning systems in healthcare.
- ✓ Supervised a research team for **PET-CT imaging analysis** using federated blockchain technology.
- ✓ Developed new **datasets and tools for network security** and AI.

Teaching Responsibilities:

- ✓ Taught undergraduate and graduate courses including **Java**, **Data Structures**, **C++**, **Machine Learning**, **Blockchain**, and **Research Methodology**.
- ✓ Created and updated course materials aligned with **industry trends**.
- ✓ Supervised **Master's students** in their research projects and theses.
- ✓ Organized **seminars and workshops** on emerging technologies like **federated learning** and **secure data sharing**.
- ✓ Contributed to **curriculum development** for AI-related courses.

 Postdoctoral Fellow (June 2019- June 2021)

UNIVERSITY OF ELECTRONICS SCIENCE AND TECHNOLOGY OF CHINA

Advisor: Dr. Wang Wenyong

- ✓ Worked on national projects, including **IoT Malware Detection** and **Blockchain-based Secure Data Sharing**
- ✓ Collected and processed large datasets for research, resulting in the publication of two papers in reputed journals
- ✓ Assisted in the development and design of research methodologies for AI-driven security systems.

Software and Web Application Developer (Internship)

(June 2014- June 2015)

University of Sindh, Jamshoro, Pakistan

- ✓ Developed **web applications** and internal software solutions for **university management**.
- ✓ Implemented features in the **examination results** and **admission management systems**, improving functionality and user experience.

LIST OF SCI JOURNALS

S#	Title	Author Order	Journal Name	Date (M/D/Y)	Cited	Link
1	Blockchain and homomorphic encryption-based privacy-preserving model aggregation for medical images	1	Computerized Medical Imaging and Graphics	10/20/2022	23	Open
2	Blockchain-federated-learning and deep learning models for covid-19 detection using ct imaging.	1	IEEE Sensors Journal	7/15/2021	420	Open
3	An integration of blockchain and ai for secure data sharing and detection of CT images for the hospitals	1	Computerized Medical Imaging and Graphics	1/1/2021	140	Open
4	Privacy-preserving blockchain-based federated learning for brain tumor segmentation	1	Computers in Biology and Medicine	5/21/2024	1	Open
5	A multimodal malware detection technique for android IoT devices using various features	1	IEEE Access	5/23/2019	156	Open
6	Research on data mining of permission-induced risk for android IoT devices.	1	Applied Sciences-Basel	1/2/2019	39	Open
7	Secure large-scale E-voting system based on blockchain contract using a hybrid consensus model combined with sharding	2	ETRI Journal	1/4/2021	87	Open
8	A federated learning approach for privacy protection in context-aware recommender systems	2	Computer Journal (Oxford Press)	4/30/2021	38	Open
9	Making assembly line in supply chain robust and secure using UHF RFID	2	Scientific Reports	10/9/2021	25	Open
10	An online semantic-enhanced graphical model for evolving short text stream clustering	4	IEEE Transactions on Cybernetics	9/30/2021	8	Open
11	An efficient and provably secure ECC-based conditional privacy-preserving authentication for vehicle-to-vehicle communication in vanets	4	IEEE Transactions on Vehicular Technology	1/13/2021	101	Open
12	Visual features with spatio-temporal-based fusion model for cross-dataset vehicle re-identification	5	Applied Sciences-Basel	1/8/2020	13	Open
13	Adaptive wavelet based MRI brain image de-noising	3	Frontiers in Neuroscience	8/22/2020	34	Open
14	Efficient hybrid clustering scheme for data delivery using internet of things enabled vehicular ad hoc networks in smart city traffic congestion.	6	Journal of Internet Technology	1/12/2020	11	Open
15	Efficient and deep vehicle re-identification using multi-level feature extraction	6	Applied Sciences-Basel	3/27/2019	29	Open
16	An adaptive multi-layer botnet detection technique using machine learning classifiers	3	Applied Sciences-Basel	11/6/2019	161	Open
17	Context-aware bidirectional neural model for sindhi named entity recognition	4	Applied Sciences-Basel	9/28/2021	1	Open
18	Trends in vehicle re-identification past, present, and future: a comprehensive review	5	Mathematics	11/27/2021	28	Open
19	Multi scale and direction target detecting in remote sensing images via modified YOLO-v4	3	IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing	1/6/2022	39	Open
20	Robust mobile robot navigation in cluttered environments based on hybrid adaptive neuro-fuzzy inference and sensor fusion	6	Journal of King Saud University - Computer and Information Sciences	3/9/2022	9	Open
21	MCNN: a multi-level CNN model for the classification of brain tumors in IoT-healthcare system	3	Journal of Ambient Intelligence and Humanized Computing	7/30/2022	7	Open
22	Probabilistic approach to covid-19 data analysis and forecasting future outbreaks Using a Multi-Layer Perceptron Neural Network	4	Diagnostics	12/10/2022	5	Open

23	Addressee Detection Using Facial and Audio Features in Mixed Human–Human and Human–Robot Settings: A Deep Learning Framework	9	IEEE Systems Man and Cybernetics Magazine	12/1/2022	1	Open
24	Phased array antenna diagnosis from amplitude-only data using parallel deep learning models	5	Journal of Applied Remote Sensing	9/9/2023	3	Open
25	Stock market index prediction using machine learning and deep learning techniques	6	Intelligent automation & soft computing	2/24/2023	1	Open
26	View-aware attribute-guided network for vehicle re-identification	3	Multimedia Systems	12/3/2023	6	Open
27	Bio-inspired circular polarized UHF RFID tag design using characteristic mode analysis	2	IEEE Sensors Journal	3/26/2023	3	Open
28	A Context-enhanced Dirichlet Model for Online Clustering in Short Text Streams	3	Expert Systems With Applications	4/23/2023	1	Open
29	LSS: A locality-based structure system to evaluate the spreader's importance in social complex networks	6	Expert Systems With Applications	4/29/2023	8	Open
30	Online Semi-supervised Classification on Multi-label Evolving High-Dimensional Text Streams	3	IEEE Transactions on Systems, Man, and Cybernetics	5/6/2023	1	Open
31	Responsible Recommendation Services with Blockchain Empowered Asynchronous Federated Learning	2	Transactions on Intelligent Systems and Technology	11/23/2023	2	Open
32	Application of no-light fault prediction of PON based on deep learning method	4	Computer Communications	9/6/2023	2	Open
33	Nature-Inspired spider web shaped uhf rfid reader antenna for IOT and healthcare	2	Scientific Reports	8/28/2023		Open
34	Autonomous ship navigation with an enhanced safety collision avoidance technique	4	ISA Transactions	10/16/2023	1	Open
35	An Assisted Diagnosis of Alzheimer's Disease Incorporating Attention Mechanisms Med-3D Transfer Modeling	6	CMC-Computers, Materials & Continua	1/1/2024	1	Open
36	Effective time-series Data Augmentation with Analytic Wavelets for bearing fault diagnosis	5	Expert Systems with Applications	1/9/2024	4	Open
37	An intelligent neural network model to detect red blood cells for various blood structure classification in microscopic medical images	6	Heliyon	2/13/2024	1	Open
38	Blockchain-Based Trusted Tracking Smart Sensing Network to Prevent the Spread of Infectious Diseases	2	IRBM	2/07/2024	4	Open
39	3DFFL: privacy-preserving Federated Few-Shot Learning for 3D point clouds in autonomous vehicles	5	Scientific Reports	28/08/2024	1	Open

LIST OF BOOK CHAPTERS

S#	Title	Author Order	Book Name	Link
1	A survey of intelligent techniques for android malware detection	1	Malware Analysis Using Artificial Intelligence and Deep Learning (Spinger)	Open

LIST OF EI JOURNALS

S#	Title	Author Order	Journal Name	Date (M/D/Y)	Cited	Link
1	Simple and efficient computational intelligence strategies for effective collaborative decisions	2	Future Internet	1/21/2019	1	Open
2	Analysis of resnet and googlenet models for malware detection	3	Journal of Computer Virology and Hacking Techniques	9/28/2018	220	Open
3	Optimizing a deep learning model in order to have a robust neural network topology	2	International Journal of Modeling and Optimization	1/6/2018	1	Open
4	Modelling choice selection system of a public sector general university in pakistan	1	Sindh University Research Journal-SURJ (2016)	1/8/2016	2	Open

Teaching Experience

Associate Researcher/Teaching Fallow Huzhou UESTC (2021 to Current):

- ✓ **Courses Taught:** [Java](#), [Database](#), Data structure, C++, [Deep Learning](#), [Research Methodology](#), Machine Learning and Blockchain.
- ✓ Supervise **Master's students** in research projects and thesis work.
- ✓ Developed and delivered **lectures, tutorials, labs**, and **coursework** for undergraduate and graduate courses.
- ✓ Contributed **to research in Computer Vision projects**, publishing papers and securing funding.

AIMS IT ACEDEMY (2014-2016):

- ✓ Delivered courses in [Java](#) Programming, [PhP Web Programing.](#), [Android](#) Development, [Database](#) Design, and Data Structures.
- ✓ Designed hands-on **programming exercises**, enhancing student engagement and practical learning.
- ✓ Mentored students on **industry practices** and real-world application, fostering career readiness and skill development.

Dataset Creation Experience

- ✓ Create new dataset for the Grass Cutting Robot (Private Project: [Link1](#), [YouTube Video](#)).
- ✓ Combine 6 opensource dataset and generate new dataset for Auto driving Ship Navigation.
- ✓ Build a dataset for Natural Language Processing (Sindhi named entity recognition) [published paper: [Link1](#)].
- ✓ Collect Dataset form 8 Hospital of COVID-19 lung detection. [published paper [Link 1](#), [Link 2](#), [YouTube Video](#)].

SKILLS

Technical Skills:

- ✓ **Unique & In-Demand Skills:** Blockchain technology, Federated Learning, Deep Learning Models, Network Security, Machine Learning.
- ✓ **Programming Languages:** Java, C/C++, Python, Android, DotNet, PHP
- ✓ **Database Management:** MySQL, Database Design, Enterprise Database Management
- ✓ **Tools & Software:** Visual Studio, Microsoft Office, Adobe Photoshop

Leadership & Management Skills:

- ✓ Supervised **Master's students** in **National Science Foundation of China (NSFC)** funded projects.
- ✓ Led a **data-sharing security** team in the **Kaggle competition**, focusing on secure data protocols.
- ✓ Organized **weekly training sessions** and team-based challenges to enhance team collaboration.
- ✓ Delivered **presentations** and challenge solutions, driving innovation in project development.

Project Advising & Collaboration:

- ✓ Guided students on creating a Binary Analysis Tool for identifying variable types in binary programs.

- ✓ Collaborated on research to detect **privacy leaks** through existing Android frameworks, contributing to academic publications.



PROJECT FUNDING

S#	Project Name	Date	Project Number	Project Source
1	Research on Blockchain Sharding Consensus	2019/07202 1/07	Y03019023601016201	China Postdoctoral Science Foundation
2	AI pattern recognition and COVID-19 blockchain security data sharing	2020/07 2021/07	Y12519028554016524	University of Electronic Science and Technology of China
3	Research on Airline Passenger Luggage Tracing Technology Based on Electronic Tag	2021/01 2024/12	U2033212	National Natural Science Foundation of China
4	Research on Intelligent Identification Method of IoT Malware Based on Android	2017/01201 9/07	61572115	National Natural Science Foundation of China
5	Collaborative learning with federated blockchain to improve PET-CT imaging analysis.	2023/01 2024/12	U0723003	Huzhou Hospital
6	Blockchain-based multi-agent heterogeneous federated learning	2021/06 2024-06	U03210049	Yangzi Delta River Institute Funding



LIST OF CONFERENCES

S#	Title	Author Order	Conference Name	Date (M/D/Y)	Cited	Link
1	A survey of blockchain based on e-voting systems	2	Proceedings of the 2019 2nd International Conference on Blockchain Technology and Applications	9/12/2019	40	Open
2	Malicious code detection based on image processing using deep learning	1	International Conference on Computing and Artificial Intelligence (ICCAI 2018)"	12/3/2018	69	Open
3	Effective and explainable detection of android malware based on machine learning algorithms	1	International Conference on Computing and Artificial Intelligence (ICCAI 2018)	12/3/2018	28	Open
4	Malicious URL detection using multi-layer filtering model	1	The 14th International Computer Conference on Wavelet Active Media Technology and Information Processing (2017)	12/2/2018	25	Open
5	Evaluating the performance of deep neural networks for health decision making	3	8th International Congress of Information and Communication Technology (ICICT-2018)	1/27/2018	12	Open
6	Probabilistic time context framework for big data collaborative recommendation	4	International Conference on Computing and Artificial Intelligence (ICCAI 2018)	12/3/2018	6	Open
7	Evaluating the performance of resnet model based on image recognition	3	International Conference on Computing and Artificial Intelligence (ICCAI 2018)	12/3/2018	69	Open
8	Analysis of resnet model for malicious code detection	3	The 14th International Computer Conference on Wavelet Active Media Technology and Information Processing (2017)	2/7/2017	4	Open
9	Internet of things—smart traffic management system for smart cities using big data analytics	3	The 14th International Computer Conference on Wavelet Active Media Technology and Information Processing (2017)	2/7/2017	71	Open
10	A hybrid technique to detect botnets, based on p2p traffic similarity	2	2019 Cybersecurity and Cyberforensics Conference (CCC)	7/5/2019	29	Open
11	An improved convolutional neural network model for intrusion detection in networks	4	2019 Cybersecurity and Cyberforensics Conference (CCC)	7/5/2019	99	Open
12	Elimination of irrelevant features and heart disease recognition by employing machine learning algorithms using clinical data	5	The 17th International Computer Conference on Wavelet Active Media Technology and Information Processing (2020)	12/18/2020	3	Open

13	H3DNN: 3d deep learning based detection of covid-19 virus using lungs computed tomography	3	The 17th International Computer Conference on Wavelet Active Media Technology and Information Processing (2020)	12/18/2020	27	Open
14	A Non-Parametric Multi-Lingual Clustering Model for Temporal Short Text	2	The 17th International Computer Conference on Wavelet Active Media Technology and Information Processing (2020)	12/18/2020	6	Open
15	Neural Joint Model for Part-of-Speech Tagging and Entity Extraction	2	13th International Conference on Machine Learning and Computing (2021)	2/26/2021	3	Open
16	Blockchain Based Monitoring on Trustless Supply Chain Processes	3	6th International Conference on Cloud Computing and Big Data Analytics (2021)	4/24/2021	4	Open
17	Analyzing and battling the emerging variants of covid-19 using artificial neural network and blockchain	6	The 18th International Computer Conference on Wavelet Active Media Technology and Information Processing (2021)	10/12/2021	3	Open
18	Intelligent collaborative control of multi-source heterogeneous data streams for low-power IoT: a flow machine learning approach	2	The 23rd International Conference on Algorithms and Architectures for Parallel Processing (2023)	1/8/2023	1	Open
19	An Ultra-wideband Tapered Slot Antenna for Medical Microwave Imaging Applications	5	Progress In Electromagnetics Research Symposium (2024)	9/1/2024	1	Open
20	Next-Gen Medical Collaboration Integrating Blockchain for Image Sharing	1	Progress In Electromagnetics Research Symposium (2024)	9/1/2024	1	Open

Real Time Project Development



Python Development:

- ✓ **Blockchain based federated learning model for secure data sharing ([Code](#))** : Developed a federated learning model to securely share sensitive data across distributed environments. This model enhanced data privacy and received industry recognition for its innovative blockchain integration.
- ✓ **Federated learning for medical images ([Code](#))**: Implemented federated learning techniques to improve medical image analysis, leading to better diagnostic accuracy for healthcare institutions.
- ✓ Design a federated learning model for secure data sharing ([Code](#)).
- ✓ **Android malware detection ([Code](#))**: Designed a machine learning model to detect and prevent malware attacks on Android systems, significantly reducing security breaches.
- ✓ **Cancer detection ([Code](#))**: Developed a deep learning model to detect cancerous cells in medical imaging, contributing to early diagnosis and improved patient outcomes.



Web Development:

- ✓ **University of Sindh Examination and Admission Systems:([Code](#)) ([Website](#))**, : Built and optimized the university's **examination results** and **admission portals**, improving user experience and handling large volumes of data efficiently. ([Code](#)) ([Website](#)).
- ✓ **Book Board Website**: Developed a content management system for the Sindh Textbook Board, enhancing accessibility for educational resources. ([Website](#)).
- ✓ **Time Table Management System**: Created a dynamic time-table scheduling system for university departments, streamlining academic scheduling and administrative processes. ([Website](#)).
- ✓ **School Management System**: Designed and implemented a comprehensive management system for a private school, automating administration and student data management.



Android Development:

- ✓ **SMS and Call Tracking System**: Developed an Android app for tracking calls and SMS, enhancing user safety and monitoring. ([Code](#)).
- ✓ **Online Banking System**: Created a secure mobile banking application with real-time transaction tracking and multi-factor authentication. ([Code](#)).

- ✓ **Result Information System via SMS:** Built a system allowing users to access university results via SMS, increasing accessibility for students in rural areas.
- ✓ **Excel SMS Sender (Bulk SMS Sender):** Developed a tool to send bulk SMS from Excel, improving communication capabilities for businesses.
- ✓ **Puzzle Game & Annoying Alarm System:** Designed interactive games and alarm systems, demonstrating creativity in mobile app development. ([Code](#)).



Java Development

- ✓ **RFID-Based Attendance Management System:** Developed an automated attendance tracking system using RFID, significantly reducing manual attendance errors
- ✓ **School Management System:** Built a school management system for **The Guardian School**, improving operational efficiency. ([Code](#))
- ✓ **Laboratory Management System:** Created a custom lab management system for Advance Lab Hyderabad, automating equipment tracking and report generation. ([Code](#))



.Net Development

- ✓ **Hospital Management System:** Developed an **end-to-end solution** for hospital administration, streamlining patient management and medical record-keeping.
- ✓ **Shop Management System:** Built a system to manage inventory, sales, and billing for retail shops.



Arduino Development

- ✓ **Factory Control Using Ethernet (Internet Technology):** Implemented an **IoT-based control system** for factory automation, reducing manual labor and increasing production efficiency.

Note: All projects source code available this link: <https://github.com/raja21068/>



PROFESSIONAL ACTIVITIES

Journal External Reviewer:

- ✓ IEEE Transactions on Information Forensics and Security.
- ✓ IEEE Internet of Things.
- ✓ Elsevier Computers & Security.
- ✓ IEEE ACCESS.

Conference External Reviewer:

- ✓ The 14th International Computer Conference on Wavelet Active Media Technology and Information Processing.
- ✓ The 15th International Computer Conference on Wavelet Active Media Technology and Information Processing.
- ✓ 2st Workshop on Cloud Security and Privacy.



TALKS

- ✓ **Key Note Speaker:** Challenges and Implications of blockchain with federated learning, “in Gundong 2019”.

- ✓ **Presenter:** Malicious Code Detection: Image Processing Using Deep Learning: International Conference on Computing and Artificial Intelligence (ICAAI), Chengdu, China, March 2018.
- ✓ **Presenter:** Artificial Intelligence challenges and implantation to the current trends, AI Seminar in UESTC, 2019.
- ✓ **Presenter:** Latex and other research tools: Invited talk at Sichuan University.

LIST OF PATENTS

S#	Title	Author Order	Patent Number	Date (MM/DD/YY)	Country
1	Blockchain based multi agent Heterogenous federated learning	1	2023104444528	4/24/2023	China
2	Blockchain-Enhanced Cyclic Distillation-guided Channel Decoupling for Personalized Federated Learning	1	2023107524401	6/26/2023	China
3	Autonomous Navigation and Obstacle Avoidance System Based on Deep Learning	1	2023104317236	4/21/2023	China
4	Online semi-supervised classification algorithm based on multi-label evolving high-dimensional text streams	1	2023107524401	6/26/2023	China
5	Trusted tracking system based on multi-layer blockchain	2	2023104669004	4/27/2023	China
6	Context-enhanced dirichlet model for online clustering in short text streams	1	2022115045851	11/20/2022	China
7	RFID tag design with platform tolerant features using multi-resonant surfaces	1	2022113882264	10/15/2022	China
8	A method for ranking the importance of high-order structures in high-order networks	2	2022114545198	11/21/2022	China
9	A deep learning framework for addressee detection using audio and facial inputs	9	2022110197167	1/11/2022	China
10	A potential-based method for identifying influential nodes in complex social networks	3	2022115441904	4/12/2022	China
11	A potential-based method for identifying influential nodes in complex social networks		2022115441904	04/12/2022	China
12	Blockchain-Based Distributed Demand-Side Scheduling for Community Microgrids in Smart Cities		2023112034968		China
13	Developing a Multi-Agent Sensory Framework for Efficient Decision-Making using Hippocampal Replay and Deep Reinforcement Learning		2023106365380	01/06/2023	China
14	Trusted tracking system based on multi-layer Blockchain		2023104669004	27/04/2023	China
15	A Blockchain-based data management system framework		2023114293789	31/10/2023	China
16	A multi-layer response system for botnets based on complex social networks		2023116348381	01/12/2023	China
17	Blockchain Based Miniature Energy Meter		6321761	26/10/2023	UK
18	AI-Based Device For Detecting Malware		6302131	07/08/2023	UK