Rajesh Kumar

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PROFESSIONAL PROFILE

I am an outstanding graduate of the University of Electronic Science and Technology of China, where I won the Academic Performance Award and was recognized as an Outstanding Graduate Student from 2016 to 2019. During 2017-2019, I worked on two national projects with Prof. Xiaosong Zhang, including the 2019 National Natural Science Foundation Fund project entitled 'Research on Intelligent Identification Method of IoT Malware Based on Android'. Additionally, in 2019, I was awarded the 'Blockchain Based Secure Data Sharing' project by the University of Electronic Science and Technology Talent Special Fund. I also contributed to a collaborative project using federated blockchains to improve PET-CT imaging analysis at Huzhou City Hospital in 2023. I have published more than 70 international journal and conference papers in the fields of Deep Learning, Machine Learning, and Information Security. I have been the recipient of both government and university-level projects in 2019 and 2024.

RESEARCH INTERESTS

• Network Security • Deep Learning • Large language Model • Computer Vision • Blockchain technology

EDUCATION

UNIVERSITY OF ELECTRONICS SCIENCE AND TECHNOLOGY OF CHINA **PHD** (Computer Science) Thesis Topic: Android Malware Detection based on Machine Learning. Published Papers: (Link1, Link2, Link3, Link4, Link5) and Project Funding (NSFC)	**2016-2019**
UNIVERSITY OF SINDH, JAMSHORO **MS (Computer Science)**	**2014-2016**
UNIVERSITY OF SINDH, JAMSHORO **BS (Computer Science)**	**2010-2013**

EMPLOYMENT

YANGZI DELTA RIVER RESEACH INSTITUTE OF HUZHOU, UNIVERSITY OF ELECTRONICS SCIENCE AND TECHNOLOGY OF CHINA **Associate Professor**	**July 2021- Current**

UNIVERSITY OF ELECTRONICS SCIENCE AND TECHNOLOGY OF CHINA
Advisor: Dr. Wang Wenyong

Postdoctoral Fellow   **June 2019- June 2021**
- ✓ I worked on two projects (Projects #1 and #4)
- ✓ Collected datasets and publish two papers (Paper List #2 and #3).

SOFTWARE AND WEB APPLICATION DEVELOPER
UNIVERSITY OF SINDH, Jamshoro,   **2014-2015**
Pakistan (**Internship)**

🧪 Teaching Experience

Associate Professor Huzhou UESTC (2021 to Current):

- ✓ Teaching various subjects to students with lectures, tutorials, labs and coursework.
- ✓ Supervise Master Students.
- ✓ Teach Java, Database, Data structure, C++, Deep Learning, Research Methodology, and Blockchain.
- ✓ Undertake research activities and make significant contributions to the field of Computer Vison Projects.

AIMS IT Pakistan (2014-2016):

- ✓ Teach Java Programing Language.
- ✓ Teach PhP Web Programing.
- ✓ Teach Android Language.
- ✓ Teach Database and Data Structure.

🧪 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

Leadership & Management Skills:

- ✓ Supervision of a Master's student for design projects for National Science Foundation of China.
- ✓ Led a team of data sharing security towards the Kaggle competition
- ✓ Organized weekly training with team-based challenges.
- ✓ Presented challenge solutions.

Programming Language Skills: • JAVA • C/C++, • Python, • Android • DotNet • PHP

Database Design Skills: Databases and Database Management of Enterprise Organization University of Sindh.

Computer Skills: Microsoft Office, Visual Studio, MYSQL, Adobe Photoshop

Advising and collaboration of Master's students:

- ✓ Binary Analysis Tool For Identification Variable Types In Binary Programs.
- ✓ Detecting Privacy Leaks Through Existing Android Frameworks.

Real Time Project Development

Python Development:

- ✓ Blockchain based federated learning model for secure data sharing (Code).
- ✓ Federated learning for medical images (Code).
- ✓ Design a federated learning model for secure data sharing (Code).
- ✓ Android malware detection (Code).
- ✓ Cancer detection (Code).

Web Development:

- ✓ University of Sindh examination results.(Code) (http://exam.usindh.edu.pk/).
- ✓ University of Sindh admission results. (Code) (http://admission.usindh.edu.pk/).
- ✓ Book board website (http://www.stbb.edu.pk).
- ✓ Time table management system (http://timetable.usindh.edu.pk).
- ✓ School management system.

Android Development:

- ✓ SMS and call tracking system (Code).
- ✓ Online banking system (Code).
- ✓ Result information system using sms technology.
- ✓ Excel sms sender (Bulk SMS Sender).
- ✓ Puzzle game (Code).
- ✓ Annoying alarm system.
- ✓ Event notification system University of Sindh.
- ✓ Fees Payment System.

Java Development

- ✓ RFID based attendance management system.
- ✓ School management system (Code) (The Guardian School Hyderabad).
- ✓ Laboratory management system (Code)(Advance Lab Hyderabad).

.Net Development

- ✓ Hospital management system.
- ✓ Shop management system.

Arduino Development

- ✓ Factory control using ethernet (Internet Technology).

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.

PROJECTS

S#	Project Name	Date	Project Number	Project Source
1	Research on Blockchain Sharding Consensus	2019/07 2021/07	Y030190236010 16201	China Postdoctoral Science Foundation
2	AI pattern recognition and COVID-19 blockchain security data sharing	2020/07 2021/07	Y125190285540 16524	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	2017/01 2019/07	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 SCI JOURNALS

S#	Tittle	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 IoTdevices 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	6	Heliyon	2/13/2024	1	Open

	structure classification in microscopic medical images					
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#	Tittle	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#	Tittle	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

LIST OF CONFERENCES

S#	Tittle	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	12/2/2018	25	Open

			Technology and Information Processing (2017)			
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

S#	Tittle	Author Order			Country
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

LIST OF PATENTS

S#	Tittle	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

PERSONAL INFORMATION

Languages	Chinese, English, Sindhi & Urdu.
Hobbies	Watching Movies, Badminton, Table Tennis, Swimming, Books Reading & Jogging.

References

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