Dr. Rajat Chaudhary

Post Doctorate Researcher (PDF),
Department of Mathematics and Computer Science,
Karlstad University, Karlstad, Värmland, Sweden (Europe)
Orcid ID: https://orcid.org/0000-0002-6554-918X
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RESEARCH INTERESTS

• Software Defined Networking (SDN) • Time-Sensitive Networks (TSN) • Internet of Things (IoT)

TEACHING INTERESTS

• Computer Networks • Cryptography and Network Security • Data Structure and Algorithms

EDUCATION

Ph.D. [Computer Science & Engineering], July 2016 - February 2021
Thapar Institute of Engineering & Technology, Patiala (Punjab), India.
Thesis Topic: *Software-Defined Networking based Control Flow Optimization for Multi-Cloud Environment*
Supervisor: Prof. (Dr.) Neeraj Kumar

M.Tech. in Information Security & Management, July 2010 - July 2012 Percentage: 74%
Dehradun Institute of Technology, Uttrakhand Technical University, Dehradun (India).

B.Tech. in Computer Science & Engineering, July 2006 - June 2010 Percentage: 63%
Vidya College of Engineering, Meerut Affiliated with UPTU, Lucknow (India).

POSITIONS

Post Doctorate Researcher (PDF), March 2021 - Currently Working
Labs: Distributed Systems and Communications (DISCO) research group at the Department of Mathematics and Computer Science, Karlstad University, Karlstad, Värmland (Sweden).
Project: SDN Control Plane and Robust Configuration for Time Sensitive Networks
Funding Agency: Knowledge Foundation of Sweden, Reference Number: REK2020/172
Project Principal Investigator (PI): Prof. (Dr.) Andreas J. Kassler
Industrial Partners: Ericsson, Uddeholms AB, Time Critical Networks AB.

Assistant Professor, December 2020 - March, 2021
Department of Computer Science & Engineering, Bharat Institute of Engineering & Technology (BIET), Mangalpally (V), Ibrahimpatanam, Hyderabad (Telangana), India.
Courses: Computer Networks, Data Mining.

Teaching Associateship, July 2019 - June 2020
Department of Computer Science and Engineering, Thapar Institute of Engineering & Technology (TIET), Patiala (Punjab), India
Courses: Computer Networks, Data Structure

Junior Research Fellow (INDO-POLAND Bilateral Research Project), Sep. 2017 - Sep. 2019
Department of Computer Science and Engineering, Thapar Institute of Engineering & Technology (TIET), Patiala (Punjab), India
Indian Advisor: Prof. Neeraj Kumar (TIET, Patiala)
Poland Advisor: Prof. Krzysztof Szczypiorski (University of Warsaw, Poland)

Assistant Professor, July 2013 - July 2016
Department of Information Technology, Bharat Institute of Technology (BIT), Meerut, India
Courses: DAA, Data Structure, Computer Networks, Cryptography & Network Security

Network Engineer, June 2012 - June 2013
eSSL India Pvt. Ltd., Bangalore, India

RESEARCH PUBLICATIONS

Journal Articles

1. **R. Chaudhary**, N. Kumar, *"SecGreen: Secrecy Ensured Power Optimization Scheme for Software-Defined Connected IoV"*, IEEE Transactions on Mobile Computing, Oct 2021, DOI: 10.1109/TMC.2021.3116954 (IF 5.577-Q1, SJR 1.276)

2. A. Gulati, G.S. Aujla, **R. Chaudhary**, N. Kumar, M.S. Obaidat, A. Benslimane, *"DiLSe: Lattice-based Secure and Dependable Data Dissemination Scheme for Social Internet of Vehicles"*, IEEE Transactions on Dependable and Secure Computing, vol. 18, no. 6, pp. 2520-2534, Dec 2021 (IF 7.329-Q1, SJR 1.274)

3. **R. Chaudhary**, N. Kumar, *"EnFlow: An Energy-Efficient Fast Flow Forwarding Scheme for Software Defined Networks"*, IEEE Transactions on Intelligent Transportation Systems, vol. 22, no. 8, pp. 5293-5309, Aug 2021 (IF 6.492-Q1, SJR 1.591)

4. **R. Chaudhary**, N. Kumar, *"PARC: Placement Availability Resilient Controller Scheme for Software-Defined Datacenters"*, IEEE Transactions on Vehicular Technology, vol. 69, no. 8, pp. 8985-9001, Aug 2020 (IF 5.978-Q1, SJR 1.365)

5. **R. Chaudhary**, N. Kumar, *"LOADS: Load Optimization and Anomaly Detection Scheme for Software Defined Networks"*, IEEE Transactions on Vehicular Technology, vol. 68, no. 12, pp. 12329-12344, Dec 2019 (IF 5.978-Q1, SJR 1.365)

6. S. Aggarwal, **R. Chaudhary**, G.S. Aujla, N. Kumar, A. Y. Zomaya, *"Blockchain for Smart Communities: A Comprehensive Review of Applications and Process Models"*, Journal of Network and Computer Applications, vol. 144, pp. 13-48, Oct 2019 (Elsevier, IF 6.281-Q1, SJR 1.145)

7. **R. Chaudhary**, A. Jindal, G.S. Aujla, A. Vinel, N. Kumar, *"BEST: Blockchain-based Secure Energy Trading in SDN-enabled Intelligent Transportation System"*, Computers & Security, vol. 85, pp. 288-299, Aug 2019. (Elsevier, IF 4.438-Q2, SJR 0.861)

8. **R. Chaudhary**, G.S. Aujla, N. Kumar, and S. Zeadally, *"Lattice based Public Key Cryptosystem for Internet of Things Environment: Challenges and Solutions"*, IEEE Internet of Things Journal, vol. 6, no. 3, pp. 4897-4909, Jun 2019. (IF 9.471-Q1, SJR 2.075)

9. G. S. Aujla, **R. Chaudhary**, K. Kaur, S. Garg, N. Kumar, J. J. P. C. Rodrigues, *"SAFE: SDN Assisted Framework for Edge-Cloud Interplay in Secure Healthcare Ecosystem"*, IEEE Transactions on Industrial Informatics. vol. 15, no. 1, pp. 469-480, Aug 2018. (IF 10.215-Q1, SJR 2.496)

10. **R. Chaudhary**, G. S. Aujla, S. Garg, N. Kumar, J. J. P. C. Rodrigues, *"SDN-enabled multi-attribute secure communication scheme for smart grid systems in IIOT environments"*, IEEE Transactions on Industrial Informatics, vol. 14, no. 6, pp. 2629-2640, Jun 2018. (IF 10.215-Q1, SJR 2.496)

11. **R. Chaudhary**, G. S. Aujla, N. Kumar, P. K. Chouhan, *"A Comprehensive Survey on Software Defined Networking for Smart Communities"*, International Journal of Communication Systems, Wiley, Jun 2022. (Accepted-in-press, IF 2.047, SJR 0.517)

Magazines Articles

1. A. Jindal, G.S. Aujla, N. Kumar, **R. Chaudhary**, M. S. Obaidat, and I. You, *"SeDaTiVe: SDN-enabled Deep Learning Architecture for Network Traffic Control in Vehicular Cyber-Physical Systems"*, IEEE Network Magazine, vol. 32, no. 6, pp. 66-73, Dec. 2018 (IF 10.693-Q1, SJR 2.546).

2. **R. Chaudhary**, A. Jindal, G. S. Aujla, N. Kumar, A.K. Das, and N. Saxena, *"LSCSH: Lattice-based Secure Cryptosystem for Smart Healthcare in Smart Cities Environment"*, IEEE Communications Magazine, vol. 56, no. 4, pp. 24-32, Apr 2018 (IF 9.619-Q1, Ranking 3, SJR 2.823).

3. **R. Chaudhary**, G. S. Aujla, N. Kumar, J. J. P. C. Rodrigues, *"Optimized Big Data Management across Multi-Cloud Data Centers: Software Defined Networks based Analysis"*, IEEE Communications Magazine, vol. 56, no. 2, pp. 118-126, Feb 2018 (IF 9.619-Q1, SJR 2.823).

4. G. S. Aujla, **R. Chaudhary**, N. Kumar, A.K. Das, and J. J. P. C. Rodrigues, *"SecSVA: Secure Storage, Verification, and Auditing of Big Data in Cloud Environment"*, IEEE Communications Magazine, vol. 56, no. 1, pp. 78-85, Jan 2018 (IF 9.619-Q1, SJR 2.823).

5. **R. Chaudhary**, N. Kumar, and S. Zeadally, *"Network Service Chaining in Fog and Cloud Computing for 5G Environment: Data Management and Security Challenges"*, IEEE Communications Magazine, vol. 55, no. 11, pp. 114-122, Nov 2017 (IF 9.619-Q1, SJR 2.823).

6. G. S. Aujla, **R. Chaudhary**, N. Kumar, J. J. P. C. Rodrigues and A. Vinel, *"Data Offloading in 5G-Enabled Software-Defined Vehicular Networks: A Stackelberg-Game-Based Approach"*, IEEE Communications Magazine, vol. 55, no. 8, pp. 100-108, Aug 2017 (IF 9.619-Q1, SJR 2.823).

Conference Articles

1. P. Phogat, **R. Chaudhary**, *"A Systematic Review on the Identification and Diagnosis of Clinical Characteristics of COVID-19 Patients"*, Elsevier, CEUR Workshop Proceedings, vol. 2786, Mar 2021.

2. P. Phogat, **R. Chaudhary**, *"CURE: An Effective COVID-19 Remedies based on Machine Learning Prediction Models"*, Elsevier, CEUR Workshop Proceedings, vol. 2786, Mar 2021.

3. G.S. Aujla, A. Jindal, **R. Chaudhary**, N. Kumar, N. Sharma, S. Vashist, A. Benslimane, *"DLRS: Deep Learning-based Recommender System for SDN-enabled Smart Healthcare Ecosystem"*, IEEE International Conference on Communications (ICC), Shanghai, China, May 2019, DOI: 10.1109/ICC.2019.8761416.

4. A. Dua, **R. Chaudhary**, G.S. Aujla, A. Jindal, N. Kumar, J. J. P. C. Rodrigues, *"LEASE: Lattice and ECC-based Authentication and Integrity Verification Scheme in E-Healthcare"*, IEEE GLOBECOM, Abu Dhabi, UAE, Dec 2018, DOI: 10.1109/GLOBECOM.2018.8648089.

5. L. Kapoor, A. Jindal, A. Benslimane, G.S. Aujla, **R.Chaudhary**, N. Kumar, A.Y. Zomaya, *"SLOPE: A Self Learning Optimization and Prediction Scheduling in Multi-Cloud Environment"*, IEEE WiMob, Limassol Cyrus, Oct 2018, DOI: 10.1109/WiMOB.2018.8589108.

6. S. Aggarwal, **R. Chaudhary**, G.S. Aujla, A.Jindal, A. Dua, N. Kumar, *"EnergyChain: Enabling Energy Trading for Smart Homes using Blockchains in Smart Grid Ecosystem"*, ACM MobiHoc, Workshop, Los Angeles, CA, USA, Jun 2018, DOI: 10.1145/3214701.3214704.

7. **R. Chaudhary**, G.S. Aujla, N. Kumar, A.K. Das, Neetesh Saxena, *"LaCSys: Lattice-based Cryptosystem for Secure Communication in Smart Grid Environment"*, IEEE International Conference on Communications (ICC), Kansas City, MO, USA, May 2018, DOI: 10.1109/ICC.2018.8422406.

8. G. S. Aujla, **R. Chaudhary**, N. Kumar, R. Kumar, and J. J. Rodrigues, *"An Ensembled Scheme for Qos-Aware Traffic Flow Management in Software Defined Networks"*, IEEE International Conference on Communications (ICC), Kansas City, MO, USA, May 2018, DOI: 10.1109/ICC.2018.8422596.

9. A. Gulati, G.S. Aujla, **R. Chaudhary**, N. Kumar, M.S. Obaidat, *"Deep Learning-based Content Centric Data Dissemination Scheme for Internet of Vehicles"*, IEEE International Conference on Communications (ICC), MO, USA, May 2018, DOI: 10.1109/ICC.2018.8422427.

RESEARCH IMPACT

Citations

1. *Total Citations*: 1529
   Total Impact Factor: 132.809
   h-index: 18, *i10-index*: 19
   https://scholar.google.co.in/citations?user=052Lw2MAAAAJ&hl=en&oi=sra

M.Tech. Supervision

1. Poonam Phogat, Registration No: 181307002 (Computer Science & Engineering), SGT University, Gurugram, Haryana (India).
   Thesis Title: Comparative Analysis of Prediction Algorithms for Modeling Symptoms and Treatment of COVID-19 Patient.
   Implementation Tool: Python (Status: Completed)

Undergraduate Supervision

1. Dept. of Information Technology, BIT, Meerut (India).
   Project Title: A Scalable and Efficient User Authentication Scheme for Cloud Computing.
   Implementation Tool: JAVA. (Status: Completed)

2. Dept. of Information Technology, BIT, Meerut (India).
   Project Title: Design and Implementation of a Wi-Fi Based Home Automation System.
   Simulation Platform: CISCO Packet Tracer. (Status: Completed)

Editorial Activities

1. Guest editor, MDPI: *Electronics*

2. Review Editor, Frontiers in the Internet of Things- IoT Services and Applications

TECHNICAL STRENGTHS

Operating System	: Unix, Linux (Redhat), Windows, macOS Big Sur.
Programming Languages	: C, Java, Python, Golang.
Database	: MySQL.
Scientific Tools	: Time-Critical Network Simulator, Matlab, Mininet, OMNET++.
Technology	: Micro Open Network Operating System ($\mu ONOS$), Dockers.

WORKSHOP/TRAINING ATTENDED

1. **Winter Five Days GIAN Course on "Software Based Networks: SDN and Integration of Virtualization in Networks"** under the aegis of MHRD—Global Initiative of Academic Networks (GIAN) at NITK, Surathkal, Karnataka on Dec 19-23, 2017.
2. **Summer School on "National Instructional workshop on Cryptography (NIWC-2017)"** held at the LNM Institute of Information Technology, Jaipur during the period July 05-07, 2017.
3. **Five Days Summer School on "Cyber Physical Systems (CPS)"** held at DA-IICT, Gandhinagar during April 8-12, 2017.
4. **Certification in "CISCO CCNA"** by attending two months training from Mohan Networking Institute, Koramangala, Bangaluru in January 2013.
5. **Tutorial on "TSN for Plug-and-Play Networks: How can the tools be used in practice?"** conducted by Networked Systems (NetSys 2021) held at Lübeck, Germany during the period 13-16 September, 2021.

PROFESSIONAL ACTIVITIES

1. Reviewer of IEEE Communications Surveys & Tutorials, Transactions on Emerging Telecommunications Technologies, IEEE Transactions on Network and Service Management, IEEE Transactions of Industrial Informatics, IEEE Communications Magazine, IEEE Internet of Things Journal, IEEE Network Magazine, ELSEVIER Journal of Network and Computer Applications, ELSEVIER Computer Networks, Wiley Security and Privacy, Wiley International Journal of Communication Systems, IEEE GLOBECOM Conference 2018, IEEE ICC 2019 Workshop- SecSDN, DAC Conference 2019, Journal of Software: Practice and Experience, TELKOMNIKA (Telecommunication, Computing, Electronics and Control), ELSEVIER Computers and Electrical Engineering, Electronics.
2. Member IEEE (Member number 94182652), Member ACM, IEEE Communications Society Member, IEEE Young Professionals.

RESEARCH VISITOR

- Warsaw University of Technology (WUT), Poland worked under the supervision of Prof. Krzysztof Szczypiorski in Mar 2018.
- University of Klagenfurt, Klagenfurt Austria worked under the supervision of Prof. Radu Prodan in Apr 2018.

TALENTS & ABILITIES

- Good command over Languages (English, Hindi).
- Hardworking, Intelligent and Soft Spoken.

PERSONAL DETAIL

Father's Name	: Shri. Rajveer Singh	Mother's Name	: Late Smt. Rajesh
Spouse's Name	: Ritu Singh	Martial Status	: Married
Nationality	: Indian	Date of Birth	: April 09, 1988

Correspondence Address: Dept. of Computer Science, Universitetsgatan 2, 65188 Karlstad, Sweden.

DECLARATION

I hereby state that all the information mentioned above is true to the best of my knowledge and I shall be held responsible for any discrepancy found later.

Date: June 28, 2022
Place: Karlstad, (Sweden) **Rajat Chaudhary**