Asad Razzaq

Japan, Toyama, 930,0887 Gofuku 4113-7
Coop, Room 202 Toyama City, Japan
Date of Birth: May 15, 1996

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Gender: Male

Education

University of Toyama, Japan October 2022 – Present
Ph.D. in Robotics (Expected September 2025) *Toyama, Japan*
- Relevant Coursework: Evolutionary Robotics, Neural Networks, Swarm Intelligence

Government College University Faisalabad August 2017 – March 2020
M.S. in Computer Science *Faisalabad, Pakistan*

Government College University Faisalabad August 2013 – August 2017
B.S. in Computer Science *Faisalabad, Pakistan*

Research Experience

Ph.D. Student/Research Assistant April 2022 – Present
University of Toyama *Toyama, Japan*
- Researched heterogeneous robotic swarms and evolutionary robotics.
- Published articles in peer reviewed journals and presented at international conferences.
- Guided undergraduate students in research and experimental methods.

Other Work Experience

IT Executive April 2020 – September 2022
Approsoft Web Development and Design Company *Faisalabad, Pakistan*
- Managed web development projects and designed tailored client solutions.
- Improved communication workflows and technical implementation for development tasks.

Research & Publications

Journal Papers

- **Razzaq Asad**, Tomohiro Hayakawa, Toshiyuki Yasuda, "Evolutionary Design of Cooperative Transport Behavior for a Heterogeneous Robotic Swarm," *Journal of Robotics and Mechatronics*, Vol. 35, Issue 4, pp. 1007–1015, Japan, 2023.

- **Razzaq Asad**, Muhammad Murad Khan, Ramzan Talib, Arslan Dawood Butt, Noman Hanif, Sultan Afzal, Muhammad Razeen Raouf, "Use of Blockchain in Governance: A systematic review of the literature," *International Journal of Advanced Computer Science and Applications*, Vol. 10, Issue 5, pp. 1–10, USA, 2019.

- BARZA Attique Khari, Arslan Akram, Naheed Akhtar, **Razzaq Asad**, Sobia Yaqoob, "A Novel Deep Learning Model for Breast Cancer Classification Using Histopathology Images," *Jilin Daxue Xuebao (Gongxueban)/Journal of Jilin University (Engineering and Technology Edition)*, Vol. 42, Issue 03, pp. 300–310, China, 2023.

Conference Papers

- **Razzaq Asad**, Toshiyuki Yasuda, "Evolutionary Automatic Design of Heterogeneous Robotic Swarm Composition for Cooperative Transport Behavior," *SWARM 2024*, Kyoto, Japan, September 2024 (peer reviewed).
- **Razzaq Asad**, Toshiyuki Yasuda, "Neural Controller Optimization for Evolutionary Heterogeneous Swarm Exploration," *SICE FES 2024*, Kochi, Japan, August 2024 (peer reviewed).
- **Razzaq Asad**, Hayakawa Tomohiro, Toshiyuki Yasuda, "Investigating The Influence of Individual Robot Perception Capability on Swarm Behavior in an Evolutionary Swarm Robotic System," *Proceedings of AROB-ISBC-SWARM 2024*, Oita Beppu, Japan, January 2024 (peer reviewed).
- **Razzaq Asad**, Takizawa Minato, Hayakawa Tomohiro, Toshiyuki Yasuda, "Evolutionary Acquisition of Collective Exploration Behavior in Heterogeneous SRS: Investigation on Neural Controller Configuration," *Proceedings of AROB-ISBC-SWARM2023*, pp. 1424–1429, Oita Beppu, Japan, January 2023 (peer reviewed).
- Muhammad Azhar Mushtaq, Abid Sultan, **Razzaq Asad**, Muhammad Inaam-ur-Rehman, "New Cryptographic Algorithm Based on CFA," *Proceedings of the 2019 4th International Conference on Big Data and Computing*, Beijing, China, May 2019 (peer reviewed).

Awards & Honors

SPRING Research Fellowship 2022 – 2025
Next Generation Researcher Program, University of Toyama (Grant No. JPMJFS2115)

Outstanding Student Award 2024
Measurement and Automatic Control Society, Hokuriku Branch, Japan

Activities

IRIDIA Lab, Université Libre de Bruxelles, Brussels, Belgium
Visiting Researcher (Planned) January 2025

- Focused on optimizing swarm behavior under the supervision of Prof. Marco Dorigo.

Technical and Research Skills

Programming and Software Proficiency: Having experience in Python, MATLAB, and C++ for developing and simulating robotic systems and neural networks.

Specialized Expertise: Extensive knowledge in blockchain technology, swarm robotics, and neural network optimization for heterogeneous robotic systems.

Research Methodologies: Skilled in experimental design, data analysis, and the implementation of evolutionary algorithms in robotics.

Languages: Proficient in English (Fluent) and Urdu (Native).

Research and Professional Interests

Swarm Robotics and Artificial Intelligence: Exploring evolutionary algorithms, collective swarm behavior, and neural controller design for autonomous robotic systems.

Blockchain Applications in Technology: Research the integration of blockchain to improve governance and data security in distributed networks.

Innovative Problem Solving: Passionate about applying artificial intelligence and robotics to solve real-world challenges in industries such as healthcare, transportation, and automation.

Recommendation References

1. Dr. Toshiyuki Yasuda , Ph.D.
Position: Professor, Control Systems Engineering Laboratory
Department: Department of Mechanical and Intellectual Engineering
Faculty: Faculty of Engineering
Institution: University of Toyama
Address: 3190 Gofuku, Toyama, 930-8555, Japan, Room: G1-1512, G Zone, Gofuku Campus
Tel/Fax: +81-76-445-6806
Email: yasuda@eng.u-toyama.ac.jp
Role: Professor YASUDA Toshiyuki is my current Ph.D. supervisor at the University of Toyama, where I am conducting research in swarm robotics and evolutionary robotics.
Research Expertise: Control Systems, Swarm Robotics, Evolutionary Robotics, and Intelligent Systems.

2. Prof. Dr. Allah Nawaz, Ph.D.
Position: Postdoctoral Fellow
Department: Joslin Diabetes Center
Institution: Harvard Medical School, Harvard University
Email: allah.nawaz@joslin.harvard.edu
Role: Prof. Dr. Allah Nawaz is a Postdoctoral Fellow at Harvard University and an Assistant Professor at the University of Toyama.
Research Expertise: Internal Medicine, Metabolism Nutrition, Research Development.