

**CHRIST**(DEEMED TO BE UNIVERSITY)
BANGALORE | DELHI NCR | PUNE

Notice for the PhD Viva Voce Examination

Mr Yashwanth Balan, Registration Number: 2170228, PhD Scholar at the Department of Computer Science, School of Sciences, CHRIST (Deemed to be University) will defend his PhD thesis at the public viva-voce examination on Friday, 12 June 2026 at 03.00 pm in Room No. 044, Ground Floor, R&D Block, CHRIST (Deemed to be University), Bengaluru - 560029, Karnataka, India.

- Title of the Thesis** : **Intelligent Load Balancing Technique Using Reinforcement Learning for Serverless Architecture**
- Discipline** : **Computer Science**
- External Examiner - I** : **Dr Anand Kumar M**
Associate Professor
Department of Information Technology
National Institute of Technology Karnataka
Surathkal, Mangaluru - 575025
Karnataka
- External Examiner - II** : **Dr Soumi Dutta**
Professor
Department of Computer Science
Sister Nivedita University
Kolkata - 700156
West Bengal
- Supervisor** : **Dr Arokia Paul Rajan R**
Associate Professor
Department of Computer Science
School of Sciences
CHRIST (Deemed to be University)
Bengaluru - 560029
Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva-voce examination.

Registrar (Academics)

Place: Bengaluru
Date: 29 May 2026

ABSTRACT

Serverless architecture is the technology that is helpful for the application with real time technologies, it follows the service as Function as a Service (Faas) and manages the services. The user request is managed by the load balancer to assign the tasks in the serverless architecture and the results gets in the particular time limit. This research focuses on developing a novel Reinforcement learning Q-learning based intelligent load balancing technique for serverless Computing to address the mentioned challenge. The achievement is to make sure the number of requests arrives at the load balancer assign the work to the serverless computing intelligently. This research utilized standard techniques to calculate the average response time, average waiting time, average turnaround time and throughput from the application and generate a graph to understand the Q-learning method applied on the serverless computing to identify the comparison among different types of scheduling algorithms. This research leads to the feasible understanding of the approach given as in Q-learning method to maintain a reduced average response time according to the number of request approach to the servers. Research work is done the necessary experiments to ensure that results are better as compared to the other load balancing algorithms. The research work brings out a method to assign the number of requests into suitable servers according to the availability of the server at a particular time based on the idea Q-learning table. The intelligent load balancing techniques with reinforcement learning is to identify the servers with an average response time and required experiments are tried and executed to achieve the experimental results to get the best performance from the intelligent load balancer differently from the traditional load balancer available. The future directions of the research are explained in detail.

Keywords: Cloud Computing, Serverless Computing, Load balancing, Reinforcement Learning, QLearning

Publications:

1. **Y. Balan** and R. A. P. Rajan, "Research perspectives on load balancing strategies in serverless architecture," in Proc. IEEE Int. Conf. on Advances in Computing and Communication (ICACC), Marwadi University, Rajkot, India, Nov. 2024, pp. 1–6, DOI: 10.1109/ICACC.2024.1234567
2. **Y. Balan** and R. A. P. Rajan, "Resource aware weighted least connection load balancing technique in cloud computing," in Proc. Int. Conf. on Soft Computing and Intelligent Systems (ICSISCET), 2023, pp. 1–5, DOI: 10.1109/ICSISCET.2023.1234567
3. **Y. Balan** and R. A. P. Rajan, "QoS-aware function scheduling in serverless platforms using reinforcement learning," presented at the 1st Int. Conf. on Advanced Nexus Data and Information Technology (ICANDIT), 2025, to be published in the Journal of Barekeng (SJR Q4, Scopus indexed).
4. **Y. Balan** and R. A. P. Rajan, "Q-learning based active monitoring with weighted least connection round robin load balancing technique for serverless architecture," International Journal of Electrical and Computer Engineering (IJECE), vol. 15, no. 3, pp. 3171–3179, 2025, DOI: 10.11591/ijece.v15i3.pp3171-3179.
5. **Y. Balan** and R. A. P. Rajan, "Introspection on the research avenues of robotic process automation as a service (RPAaaS)," Mapana – Journal of Sciences, vol. 22, Special Issue 2, pp. 171–201, 2023, DOI: 10.12723/mjs.sp2.9.