Zeeshan Rasheed

Date of birth: 18/04/1994 | **Nationality:** Pakistani | **Gender:** Male

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Right Bank Colony Tarbela Dam, Swabi, KPK, Pakistan

About me:
Seeking a challenging position as a computer programmer, incorporating skills in artificial intelligence, machine learning and data mining. I utilize my experiences and skills for the successful completion of each task.

WORK EXPERIENCE

20/09/2021 – 16/09/2022 – Hyderabad, Pakistan
IT CONSULTANT – CHINESE NATIONAL ELECTRIC ENGINEERING COMPANY LTD.

I was responsible for implementing technology solutions to solve business problems, creating a schedule for analysis, implementation and testing of the technology, and working with in house technical teams to ensure consistency of use, among other duties.

EDUCATION AND TRAINING

01/09/2018 – 10/07/2021 – Inner Mongolia University of Technology (China), Jinchuan Xioqu, Hohhot, China
MASTER IN COMPUTER SCIENCE – Inner Mongolia University of Technology

http://www.imut.edu.cn/

01/09/2014 – 11/07/2016 – Mansehra dhodial, Mansehra, Pakistan
BACHELOR IN COMPUTER SCIENCE – Hazara University Mansehra (Pakistan)

http://www.hu.edu.pk/

13/07/2018 – 15/09/2018 – Inner Mongolia , Saihan district, Hohhot, China
DATA CENTER MANAGEMENT SYSTEM – Inner Mongolia Meteorology Information Centre

LANGUAGE SKILLS

Mother tongue(s): **URDU**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH C2		C2	C2	C2	C1
CHINESE C1		C1	C1	C2	B2
HINDI C2		A1	C2	C2	A1
ARABIC A2		C2	A2	A2	C2

DIGITAL SKILLS

Programming languages known: Python (proficient), R, SQL | Proficient User of MATLAB | Microsoft office (Word Excel PowerPoint Outlook) | GIT (GitHub) | Web Development: HTML 5, CSS, JavaScript | Excellent knowledge of graphic software (Adobe Photoshop, Adobe InDesign, Adobe Illustrator) | Artificial Intelligence and Machine Learning concepts

CONFERENCES AND SEMINARS

19/07/2020 - 21/07/2020 - Beijing China
2020 5th International Conference on Machine Learning Technology (ICMLT)

I got the best presentation Award at the 2020 5th International conference on machine learning technology. The Title of my paper is Performance evaluation and machine learning based thermal modeling of tilted active tile in data center.
https://dl.acm.org/doi/10.1145/3409073.3409085

17/09/2021 - 20/09/2021 - Melbourne Australia
2021 IEEE International Conference on Systems, Man, and Cyber Security (SMC)

I attended the 2021 IEEE SMC conference and present my work. The Title of my paper is comparison of Deep Reinforcement Learning Algorithms in Data Center Cooling Management: A Case Study.
10.1109/SMC52423.2021.9659100

PUBLICATIONS

Performance Evaluation and Machine Learning based Thermal Modeling of Tilted Active Tiles in Data Centers.

https://doi.org/10.1145/3409073.3409085 - 2020
In this paper we proposed the Tilted Active Tiles (TATs) to improve the local cold air supply and prevent the air flow blow over the rack. We further introduced ANN based thermal models to predict the thermal performance of TATs. To train the ANN models, we adopted the data set obtained from a data center of Inner Mongolia Meteorology Information Center. The prediction accuracy of the model was extensively compared and analyzed, and the prediction accuracy and overhead of different neural network structures, i.e., BP and LSTM, were evaluated. LSTM prediction error is less than BP.
https://dl.acm.org/doi/10.1145/3409073.3409085

Reinforcement Learning for Rack-Level Cooling

https://link.springer.com/chapter/10.1007/978-3-030-62205-3_16 - 2020
In this paper, we study how to mitigate rack hot spots without significantly increasing the power of air conditioning system. We propose the Active Ventilation Tiles (AVTs). In particular, we propose an AVT control algorithm adapted from the Reinforcement Learning techniques to tackle the complex data center environment and thermodynamic process. The reinforcement learning algorithm adjusts the temperature distribution of the rack by controlling the fan speed installed on the ventilation tile and guides the fan speed according to the feedback temperature to mitigate hot spots. Experimental results reveal that Tabular-Q-learning based on Dyna has better performance.
https://link.springer.com/chapter/10.1007/978-3-030-62205-3_16

A Real-Time Monitoring System for Data Center Thermal Efficiency Analysis

https://ieeexplore.ieee.org/abstract/document/8612525 - 2018
In this work, we propose a real-time monitoring system for data center thermal efficiency analysis. 3D visualization technology is introduced to implement intuitive monitoring of IT equipment's. In particular, the system proposed in this paper collects comprehensive and fine-grained DC environmental state information through a wireless sensor network (WSN), wherein sensors can be flexibly deployed at various locations of racks inside the data center. In order to demonstrate the effectiveness of the system, the basic and advanced real-time thermal metrics are presented and discussed.
10.1109/ICISCE.2018.00027

Performance Evaluation and Artificial Neural Network Based Thermal Modeling of Multi Tilted Active Tiles in Data Centers.

https://doi.org/10.1049/tje2.12052 - 2021
The main purpose of this paper is to improve the resilience of data center cooling system and reduce the energy consumption in data center by using the Tilted Active Tile (TATs). We deploy multiple TATs in cold aisle environment then analyze the thermal performance of racks. TATs also help to improve the reliability in case of cooling failure by increased ride through time. We observed an extended ride-through time for data centers deployed with Tilted Active Tiles (TATs) when the CRAC blower failed. Proposed approach can maintain cooling system temperature for up to 10 minutes. We also introduced ANN based thermal models to predict the thermal performance of TATs, to train the ANN models. The airflow of TATs and passive tile influence on surrounding racks. That's why we analyzed the disturbance of TATs on surrounding rack and observed that the TATs at 30°angle has positive impact on the surrounding racks.
https://ietresearch.onlinelibrary.wiley.com/doi/full/10.1049/tje2.12052

Comparison of Deep Reinforcement Learning Algorithms in Data Center Cooling Management: A Case Study

10.1109/SMC52423.2021.9659100 - 2021
Recently, there are many studies using machine learning to solve the cooling management problems. However, a comprehensive comparative study is still missing. In this work, we compare the performance of various Deep Reinforcement Learning (DRL) algorithms, including Deep-Q Networks (DQN), Deep Deterministic Policy Gradient (DDPG), and Branching Dueling Q-Network (BDQ), using the Active Ventilation Tiles (AVTs) control problem in raised-floor DC as an example. We design two multiagent algorithms based on DQN and three critic architectures for DDPG. Simulations based on real world workload show that DDPG provides the best performance over the considered algorithms.
https://ieeexplore.ieee.org/document/9659100

● PROJECTS

03/06/2015 – 06/08/2016
WAPDA Hospital Management System

Digitize the WAPDA hospital management system

16/07/2016 – 07/07/2017
CNEEC Account Management system

Accounting management software helps businesses to keep track of all incomes, expenses, and every other financial transaction. It also helps business owners to get the data that they need for making business decisions

Data Center Cooling Management system

Built a ML application to measure the thermal performance of cooling systems in data center. The main purpose was to reduce the energy consumption in data center.

Publication List

Name: Zeeshan Rasheed
Sex: Male
Date of birth: 18/04/1994
Major: Artificial Intelligence
University: Inner Mongolia University of Technology

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https://www.researchgate.net/profile/Zeeshan-Rasheed-3

Published Papers

☐ Rasheed, Z., Xiong, W., Cong, G., Niu, H., Wan, J., Wang, Y., & Li, L. (2020, June) Performance Evaluation and Machine Learning based Thermal Modeling of Tilted Active Tiles in Data Centers. In Proceedings of the 2020 5th International Conference on Machine Learning Technologies (pp. 32-38).

☐ Rasheed Z., et al. Performance Evaluation and Artificial Neural Network Based Thermal Modelling of Multi Tilted Active Tiles in Data Centers. J. Eng. 2021; 1–20.

☐ Hua, T., Wan, J., Jaffry, S., Rasheed, Z., Li, L., & Ma, Z. (2021, October). Comparison of Deep Reinforcement Learning Algorithms in Data Center Cooling Management: A Case Study. In 2021 IEEE International Conference on Systems, Man, and Cybernetics (SMC) (pp. 392-397). IEEE

☐ Duan, Y., Wan, J., Zhou, J., Cong, G., Rasheed, Z., & Hua, T. (2020, July). Reinforcement Learning for Rack-Level Cooling. In International Conference on Mobile Wireless Middleware, Operating Systems, and Applications (pp. 167-173). Springer, Cham.

☐ Liu, T., Wan, J., Rasheed, Z., Xiong, W., & Yuwen, X. (2018, July). A Real-Time Monitoring System for Data Center Thermal Efficiency Analysis. In 2018 5th International Conference on Information Science and Control Engineering (ICISCE) (pp. 84-88). IEEE.

☐ Fu, L., Li, P., Rasheed, Z., Li, Z., Tahir, A., & Han, X. (2022, September). Potential Technical Debt and Its Resolution in Code Reviews: An Exploratory Study of the OpenStack and Qt Communities. In Proceedings of the 16th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (pp. 216-226).

Award

The best presentation award from 2020 5th International Conference Machine Learning Technology.