

Adnan Rasheed

SENIOR RESEARCHER SPECIALIZATION IN GREENHOUSE TECHNOLOGY

Smart Farm Space Agriculture Research Institute, Jinju, South Korea

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Education

Kyungpook National University

PHD AGRICULTURAL CIVIL ENGINEERING

Daegu, South Korea

March 2015 - August 2019

Technical University of Madrid

MS AGRO-ENGINEERING

Madrid, Spain

August 2012 - November 2013

University of Agriculture Faisalabad

BS AGRICULTURE ENGINEERING

Faisalabad Pakistan

August 2006 - July 2010

Professional Experience

Mar 2026 - Present

Senior Researcher, Smart Farm Space Agriculture Research Institute,
Gyeongsang National University, Jinju, South Korea

Nov 2023 - Oct 2025

Postdoctoral Fellow Employee, Department of Civil and Environmental Engineering,
University of Alberta, Edmonton, Canada

Sep, 2021 - Aug, 2022

Research Professor, Smart Agriculture Innovation Center, Daegu, South Korea

Sep, 2019 - Aug, 2021

Postdoctoral Researcher, Smart Agriculture Innovation Center, Daegu, South Korea

Mar 2015 - Aug 2019

Graduate Research Assistant, Kyungpook National University, Daegu, South Korea

Sep, 2012- Jul, 2013

Research Assistant, Technical University of Madrid, Spain

Publications

PEER REVIEWED SCIENTIFIC PUBLICATIONS (PUBLISHED)

- [26] Yeo, UH., Yu, J., Jang, YK., **Rasheed, A.** and Ha, TH., (2026). TRNSYS-Based Sensitivity Analysis of Greenhouse Energy Loads under Different Temperature Set-Point and Deadband Conditions during the Summer Season, agriculture, Under Review.
- [25] **Rasheed, A.** Chen, Y. (2025). Standardization of Methodology for Optimizing External Reflectors to Improve Daylight and Energy Efficiency in Greenhouses, Energy reports, Under Review.
- [24] **Rasheed, A.** Chen, Y. (2025). Design and optimizing of Solar Reflector for Improved Daylighting and Energy Efficiency in Cold-Climate Greenhouses, Acta Horticulturae, Under Review.
- [23] **Rasheed, A.**, Yang, B., Chen, Y. (2025). A Review of Machine Learning Approaches for Microclimate Prediction and System Control, Sustainable Energy Technologies and Assessments, Under Review.
- [22] **Rasheed, A.**, Kim, H. T., Lee, J. W., Lee, H. W. (2022). Study on Heating and Cooling Performance of Air-to-Water Heat Pump System for Protected Horticulture. Energies, 15(15), 5467.
- [21] Adesanya, Misbaudeen Aderemi, Na, Wook-Ho, Rabiun, Anis, Ogunlowo, Qazeem Opeyemi, Akpenpuun, Timothy Denen, **Rasheed, A.**, Yoon, Yong-Cheol, Lee, Hyun-Woo (2022). TRNSYS Simulation and Experimental Validation of Internal Temperature and Heating Demand in a Glass Greenhouse. Sustainability, 14(14), 8283.
- [20] **Rasheed, A.**, Kim, H. T., Lee, H. W. (2022). Modelling-based energy performance assessment and validation of air-to-water heat pump system integrated with multi-span greenhouse on cooling mode. Agronomy, 12(6), 1374.

- [19] Rabiou, A., Na, W. H., **Rasheed, A.**, Kim, H. T., Lee, H. W., (2022). Determination of Overall Heat Transfer Coefficient of Greenhouse Energy-Saving Screen Using TRNSYS And Hotbox Methods. *Biosystems Engineering*, 217, 83-101.
- [18] **Rasheed, A.**, Kwak, C. S., Na, W. H., Lee, J. W., Kim, H. T., Lee, H. W. (2021). Development and Validation of Air-to-Water Heat Pump Model for Greenhouse Heating. *Energies*, 14(15), 4714.
- [17] Rafiq, A., **Rasheed, A.**, Na, . H., Lee, J. W., Lee, H. W., (2021). Measurement of longwave radiative properties of energy-saving greenhouse screens. *Journal of Agricultural engineering*, 52(3).
- [16] **Rasheed, A.**, Kwak, C. S., Na, W. H., Lee, J. W., Kim, H. T., Lee, H. W. (2020). Development of a Building Energy Simulation Model for Control of Multi-Span Greenhouse Microclimate. *Agronomy*, 10(9), 1236.
- [15] **Rasheed, A.**, Kwak, C. S., Kim, H. T., Lee, H. W. (2020). Building Energy Simulation Model for Analyzing Energy Saving Options of Multi-span Greenhouse. *Applied Sciences*, 10(9), 6884.
- [14] Adeel, R., Na, W. H., **Rasheed, A.**, Kim, H. T., Lee, H. W. (2020). Measurement of Convective Heat Transfer Coefficients of Horizontal Thermal Screens Under Natural Conditions. *Protected Horticulture and Plant Factory*, 29(1), 9-19.
- [13] Adeel, R., Na, W. H., **Rasheed, A.**, Kim, H. T., Lee, H. W. (2019). Determination of Thermal Radiation Emissivity and Absorptivity of Thermal Screens for Greenhouse. *Protected Horticulture and Plant Factory*, 28(4), 1-11.
- [12] **Rasheed, A.**, Lee, J. W., Lee, H. W. (2019). Efficiency of different side and roof vents opening on natural ventilation of single span greenhouse. *Protected Horticulture and Plant Factory*, 28(3), 225-233.
- [11] **Rasheed, A.**, Lee, J., Lee, H. (2019). Optimization of Greenhouse Thermal Screens for Maximized Energy Conservation. *Energies*, 12(19), 3592.
- [10] **Rasheed, A.**, Lee, J. W., Lee, H. W. (2018). Evaluation of Overall Heat Transfer Coefficient of Different Greenhouse Thermal Screens Using Building Energy Simulation. *Protected Horticulture and Plant Factory*, 27(4), 294-301.
- [09] **Rasheed, A.**, Lee, J., Lee, H. (2018). Development and optimization of a building energy simulation model to study the effect of greenhouse design parameters. *Energies*, 11(8), 2001.
- [08] Jayasekara, S. N., Na, W. H., Owolabi, A. B., Lee, J. W., **Rasheed, A.**, Kim, H. T., Lee, H. W. (2018). Comparison of Environmental Conditions and Insulation Effect between Air Inflated and Conventional Double Layer Greenhouse. *Protected Horticulture and Plant Factory*, 27(1), 46-53.
- [07] Rafiq, A., **Rasheed, A.**, Arslan, C., Tallat, U., Siddique, M. (2018). Estimation of greenhouse gas emissions from Muhammad wala open dumping site of Faisalabad, Pakistan. *Geology, Ecology, and Landscapes*, 2(1), 45-50.
- [06] Na, W. H., Lee, J. W., **Rasheed, A.**, Kwak, C. S., Lee, S. Y., Yoon, Y. C., Lee, H. W. (2017). Calculation of Crop Loads for Structural Design of Greenhouse. *Protected Horticulture and Plant Factory* 26(4)..
- [05] **Rasheed, A.**, Lee, J. W., Lee, H. W. (2017). Development of a model to calculate the overall heat transfer coefficient of greenhouse covers. *Spanish journal of agricultural research*, 15(4), 4.
- [04] **Rasheed, A.**, Lee, J. W., Lee, H. W. (2016). Feasibility evaluation of the wind energy as an alternative energy source for the irrigation of greenhouse crops. *Int. J. Renew. Energy Res. IJRER*, 6(4), 1545-1555.
- [03] **Rasheed, A.**, Lee, J. W., Lee, H. W. (2015). A review of greenhouse energy management by using building energy simulation. *Protected Horticulture and Plant Factory*, 24(4), 317-325.
- [02] Valiño, V., **Rasheed, A.**, Tarquis, A. M., Perdigones, A. (2014). Effect of increasing temperatures on cooling systems. A case of study: European greenhouse sector. *Climatic change*, 123(2), 175-187.
- [01] Díaz-Méndez, R., **Rasheed, A.**, Peillón, M., Perdigones, A., Sánchez, R., Tarquis, A. M., García-Fernández, J. L. (2014). Wind pumps for irrigating greenhouse crops: Comparison in different socio-economical frameworks. *Biosystems Engineering*, 128, 21-28.

CONFERENCE PRESENTATIONS

- [04] **Rasheed, A.** Comparative Analysis of Greenhouse Energy Loads under Temperate and Middle Eastern Climate Conditions, CIGR-EurAgEng, Torino, Italy, June 24-26, 2026.
- [04] **Rasheed, A.** CFD-Based Airflow Analysis of a Commercial Vertical Farming, CIGR-EurAgEng, Torino, Italy, June 24-26, 2026.
- [03] **Rasheed, A.** Design and optimizing of Solar Reflector for Improved Daylighting and Energy Efficiency in Cold-Climate Greenhouses, Greensys, Almemria, Spain, June 22-27, 2025.

- [03] **Rasheed, A.** Calibration of BES model by evaluating the different methods for calculation of total solar fraction: Current Protected Horticulture and Plant Factory in Asia, South Korea, October 4-5, 2018.
- [02] **Rasheed, A.** Calculation of overall heat transfer coefficient of greenhouse coverings through Building energy simulation: Greensys, Beijing, China, August 20-24, 2017.
- [01] **Rasheed, A.** Development and validation of hot box model by using building energy simulation: Korean Society of Bio-Environmental control, South Korea, October 20-21, 2016.

Co-supervision/Mentoring

2026-Cont	Seong-Ha Kang , Masters Student, Gyeongsang National University.	<i>South Korea</i>
2023-2025	Aynkaran Aymmugan , Masters Student, University of Alberta.	<i>Canada</i>
2019-2020	Adeel Rafiq , Masters Student, Kyungpook National University.	<i>South Korea</i>
2021-2022	Anis Rabiou , PhD Student, Kyungpook National University.	<i>South Korea</i>
2021-2022	Misbaudeen Adesanya , PhD Student, Kyungpook National University.	<i>South Korea</i>

Project Grants & Awards

- [07] **Mitacs, Canada**, Research, Development and Demonstration of Sustainable Greenhouses for Urban Communities in Cold climates. [Role: Postdoctoral fellowship Duration: Nov 2024 - Jan-2027].
- [06] **Alberta Real Estate Foundation (AREF), Canada**, Dissimination and Demonstration of Sustainable Greenhouses for Urban Communities in Cold climates. [Role: Researcher: Nov 2024 - April-2026]. Co-funded by Mitacs.
- [05] **Horizon Europe, Marie Skłodowska-Curie Actions (MSCA), France**, Solutions towards a net-zero energy greenhouse with low environmental impact. [Role: Postdoctoral Researcher: 2025]. Seal of Excellence.
- [04] **Korea Research Foundation Grant**, Development of integrative energy system model for greenhouse energy management. [Role: Research Professor Duration: Sep 2021 - Aug-2022].
- [03] **Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry Grant**, Development of model to use of renewable energy system in greenhouse. [Role: Postdoctoral Fellow Duration: Sep 2019 - Aug 2021].
- [02] **Korea Institute of Planning and Evaluation for Technology in Food, Agriculture and Forestry Grant** Optimal control and energy management of greenhouse structural system. [Role: Researcher: Duration Jan 2018 - Dec 2018]
- [01] **Kyungpook National University collaboration Grant**, Development of smart greenhouse structural system for single and multi-span greenhouse. [Role: Researcher: Duration Mar 2015 - Feb 2017]

Scholarships

- [01] **Research Scholarship**, Centre for the Management of Agricultural and Environmental Risks (CEIGRAM), Madrid, Spain. [Duration: Nov 2012 - Aug 2013].
- [02] **KNU International Graduate Scholarship**, Kyungpook National University, Deagu, South Korea. [Duration Mar 2015 - Dec 2017]

Modeling/Computing skill

- TRNSYS
- ANSYS FLUENT
- MATLAB
- Python
- Grasshopper, Honeybee, Ladybug

Professional Training

- Basic user training Grasshopper and honeybee for daylight analysis, in Edmonton, Canada.
- Basic user training TRNSYS 18 program held by Solugen, in Seoul, South Korea.
- Advance user training TRNSYS 18 program held by Solugen, in Seoul, South Korea.
- Advance user training for TRNSYS 18 program held by University of Liege Arlon Campus Environment, Belgium.
- Academic journal publishing and research training held by Editage, Deagu, South Korea.

Professional Association Memberships

- Alberta Greenhouse Growers Association (AGGA)
- Korean Society of Bio-Environmental Control (KSBEC)
- Korean Society of Agricultural Engineers (KSAE)
- Pakistan Engineering Council (PEC)
- **Scientific Committee member**, eSim Conference-2024, International Building Performance Simulation Association (IBPSA) Alberta chapter, Canada.
- **International Advisory Committee member** for the Faculty of Engineering and Technology Conference (FETiCON), Nigeria since 2022.