Kavi Kumar Jacob, Ph.D.

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Professional Summary

- Dynamic and accomplished Associate Professor with over 20 years of teaching and research experience in Mathematics and Statistics. Proven track record in securing research grants, publishing extensively in high-impact journals, and supervising graduate students. Expertise in fuzzy logic, data science, and mathematical modeling.

Research ID

Scopus	:	57958714600		
Orcid	:	0000-0002-2314-4600		
Web of Science	:	D-2886-2012		
h-index	:	Scopus : 17	Google Scholar : 21	Web of Science : 13
Citation	:	Scopus : 906	Google Scholar : 1359	Web of Science : 525

Impact Factor Publications

Q_1	Q_2	Q_3	Q_4
17	09	05	03

Employment History

- 2013 – · · · · **Associate Professor.** Department of Mathematics and Statistics, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia, Malaysia.
- 2009 – 2013 **Senior Lecturer.** Department of Mathematics and Statistics, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia, Malaysia.
- 2006 – 2009 **Lecturer.** Department of Mathematics and Statistics, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia, Malaysia.
- 2005 – 2006 **Senior Lecturer.** School of Science and Humanities, Vellore Institute of Technology University, Vellore, India.
- 2002 – 2005 **Assistant Professor.** Department of Mathematics, Sona College of Technology, Salem, India.

Professional Appointments

- Jan 2025 – Jan 2028 **Honorary Visiting Expert** in the Department of Mathematics of The Gandhigram Rural Institute (Deemed to be University), Gandhigram, India.
- 18th - 21st March 2024 **Visiting Professor** for Global Learning Series (GLS) program hosted by Institut Teknologi Sepuluh Nopember (ITS), Surabaya, Indonesia.
- 2023 – · · · · **Adjunct Professor.** Department of Biosciences, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai, India.

Professional Appointments (continued)

2023 – 2025 **Adjunct Professor.** Institute of Actuarial Science and Data Analytics, UCSI University, Malaysia.

Education

2001 – 2005 **Ph.D. Mathematics, Annamalai University**, India.
Thesis title: *Contribution to the Study of Fuzzy Topology and Sequence Spaces.*

1999 – 2000 **M.Phil. Mathematics, Annamalai University**, India.
Thesis title: *Study on Fuzzy Ideals and Nilpotent Ideals in Semigroups.*

1997 – 1999 **M.Sc. Mathematics with Computer Applications, Annamalai University**, India.

1994 – 1997 **B.Sc. Mathematics, Manonmaniam Sundaranar University**, India.

Administrative Duties

2024 – 2027 **Head.** Journal, Fuzzy Analysis - Numerical Simulation and Applications (FANSA) - Focus Group, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia from 1 July 2024 - 30 Jun 2027.

2023 – 2025 **Coordinator.** Journal, Proceeding, H-index, and Citation (SCOPUS), Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia.

2019 – 2023 **Chairman.** Faculty Publication Committee, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia.

2021 – 2022 **Head.** Fuzzy Mathematics and Applications (Focus Group), Universiti Tun Hussein Onn Malaysia.

2020 – · · · · **Head.** New Master Program (Data Science) Committee, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia.

2018 – · · · · **Head.** MoU between Indian Universities (Jamal College, Chandigarh University, Vellore Institute of Technology, Hindustan Institute of Science and Technology, and ARUNAI Research Foundation), Universiti Tun Hussein Onn Malaysia.

2009 – 2011 **Coordinator.** Master Program (Applied Mathematics) by Coursework, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia.

2021 – 2025 **Committee Member.** Research and Innovation Committee, Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia.

2022 – 2023 **Committee Member.** Bachelor's degree (Mathematical Technology) with honors Refinement Committee., Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia.

Professional Acheivements

- Recipient of several research projects from the Ministry of Higher Education, Malaysia, under Fundamental Research Grant Schemes (FRGS) and UTHM Tier 1 and GPPS projects during 2006 - 2022.
- One (1) **Patent** was granted in the field of **Bio-Medical Engineering** by the Government of India, and three (3) **Copyright** was granted in the area of *Decision Support System* and *Medical Statistics* by the Government of Malaysia.
- **Panel Assessor** for Ministry of Higher Education (MOHE) Research Grant Application 2024, UCSI University, Kuala Lumpur, Malaysia.
- **Honorary Board Member**, Neutrosophic Science International Association, University of New Mexico, 07 August 2020.

Professional Acheivements (continued)

- **Mathematical Reviewer** of American Mathematical Society since 2019.
- Received **Outstanding Publication Award (Research & Innovation Category)** from Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia in 2023.
- **Excellent Service Award 2022** (***Anugerah Perkhidmatan Cemerlang 2022***) received from Universiti Tun Hussein Onn Malaysia in 2023.
- **Excellent Service Award 2018** (***Anugerah Perkhidmatan Cemerlang 2018***) received from Universiti Tun Hussein Onn Malaysia in 29 April 2019 under the **Research Category** and **Loyalty Service Award** (***Anugerah Jasa Bakti***) for 2019.
- Received **Internationalization Award** (***Anugerah Pengantarabangsaan***) and **Excellent Publication Award** (***Anugerah Penerbitan***) from Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia in 2015.
- Received **Best Researcher Award** (***Anugerah Penyelidikan***) from Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia in 2012.
- **Appreciation** from Universiti Teknologi Malaysia for providing industrial training opportunities at Universiti Tun Hussein Onn Malaysia.
- **Best Researcher Award** received from Faculty of Science, Technology and Human Development, Universiti Tun Hussein Onn Malaysia, Malaysia in 2012.
- Recipient of **Ramanujan Centennial Award**, Annamalai University, India, under the process of Outstanding Student Performance from July 1997 to June 1998 under the **Postgraduate Student Category**.
- 20 years of Teaching and Research experience, including 4 years in India. 90 research papers have been published in Scopus and WoS-indexed journals (source: Scopus) and 47 non-indexing research papers have been published.
- **Academic Editor** of Mathematical Problems in Engineering Journal, Hindawi (*SCI Impact Factor: 1.430*).
- **Academic Editor** of PLoS One Journal, PLOS ONE (*SCI Impact Factor: 3.752*).
- **Editorial Board Member** of the International Journal of Neutrosophic Science, American Scientific Publishing Group, ISSN: 2690-6805 (*Scopus Indexed*).
- **Editorial Board Member** of the Journal of Computational Algorithms and Numerical Dimensions, REA Press, Iran. ISSN: 2980 – 7646.
- **Editorial Board Member** of the International Journal of Management and Fuzzy Systems, Science Publishing Group. ISSN: 2575 – 4939
- **Editor** of Asean Pendidikan Journal, Association for Researcher of Skills and Vocational Training Publisher, Shah Alam, Malaysia. ISSN: 2735 – 2331.
- **Lead Editor** of Special Issue in the SCI journal *Mathematical Problems in Engineering* under the title "Application of Mathematical Methods in Nature-Inspired Computation".
- **Editor-in-Chief** of the Journal of Journal of Science and Mathematics Education in Southeast Asia and **Editor** of 8th International Conference on Science and Mathematics Education under SEAMEO Regional Centre for Education in Science and Mathematics (RECSAM) during Jan 2020 - Dec 2021.
- **Editor** of the Special Issue: Journal of Science and Technology, Universiti Tun Hussein Onn Malaysia, 2017.

Research

Research Grant

2025 – 2027 Fuzzy Multi-Criteria Decision-Making Approaches for Optimizing Additive Manufacturing Processes. (UTHM/Tier 1/Vote No: Q964), RM20,000, Universiti Tun Hussein Onn Malaysia, Malaysia (*Head*).

2022 – 2024 New Method for the Determinization of an L-Fuzzy Multiset Recognizer via L-Fuzzy Subsets and Accessible L-Fuzzy Subset Construction. (UTHM/Tier 1/Vote No: Q124), RM20,000, Universiti Tun Hussein Onn Malaysia, Malaysia (*Head*).

2022' – 2024 Application of Fuzzy Multinomial Logistics Regression to Predict the High-criteria and Potential Adaptive Reuse of Pre-war Shophouse in Malaysia. (UTHM/Tier 1/Vote No: Q134), RM20,000, Universiti Tun Hussein Onn Malaysia, Malaysia (*Member*).

2022 – 2025 On the Extension of n-th order Limit Language in Paun Splicing System. (FRGS/1/2022/STG06/UMP/02/4), RM108,500, Ministry of Higher Education, Malaysia (*Member*).

2020 – 2023 Integrating a New Feature-Fusion Deep Residual Generative Adversarial Network Model in YOLOv3 for Higher Accuracy Real-time Vehicle Detection under Malaysian Adverse Weather Conditions. (FRGS — Vote No: K271), RM106,800, Ministry of Higher Education, Malaysia (*Member*).

2020' – 2023 Utilization of Copula Approach To Enhance Risk Model. (FRGS – Vote No: K298), RM 74,200, Ministry of Higher Education, Malaysia (*Member*).

2019 – 2022 A New Formulation of General Fuzzy Automata with Outputs Associated with the Transitions. (FRGS — Vote No: K179), RM43,600, Ministry of Higher Education, Malaysia (*Head*).

2018 – 2021 Numerical Modelling Of Bioscience Problems In Different Imprecise Environments With Delay Arguments. (GPPS – Vote No: H346), RM30,000, Universiti Tun Hussein Onn Malaysia, Malaysia (*Head*).

2018 – 2020 Numerical Solution And Dynamical Behaviour For Fractional Dynamical System And Its Application In Big Data (FRGS – Vote No: K072), RM 37,000, Ministry of Higher Education, Malaysia (*Member*).

2018' – 2020 Numerical Solution And Bifurcation Analysis For New Fractional Hamiltonian Systems. (GPPS – Vote No: H049), RM30,000, Universiti Tun Hussein Onn Malaysia, Malaysia (*Member*).

2016 – 2018 On Travelling Wave Solutions of the Diffuse Leslie-Gower Model (IGSP – Vote No: U677), RM 20,000, Universiti Tun Hussein Onn Malaysia, Malaysia (*Member*).

2015 – 2018 On Algebraic and Topological Study of Finite Switchboard State Machines (FRGS – Vote No: 1562), RM 63,000, Ministry of Higher Education, Malaysia (*Member*).

2014 – 2017 New Control Chart for Normal and Nonnormal Distribution using α-cut (FRGS – Vote No: 1498), RM 87,200, Ministry of Higher Education, Malaysia (*Member*).

2013 – 2017 Wavelet operational methods for solving system of fractional differential equations and its application in epidemiology (FRGS – Vote No: 1433), RM 81,000, Ministry of Higher Education, Malaysia (*Member*).

2013 – 2016 The Fuzzy Linear Regression LQD Models Toward Scale of Health in the Intensive Care Unit (ERGS: Vote No: E020), RM 51,200, Ministry of Higher Education, Malaysia (*Member*).

2011 – 2013 Bipolar-valued Fuzzy Finite State Machine. (FRGS: Vote No: 0821), RM 102,000, Ministry of Higher Education, Malaysia (*Head*).

Research (continued)

2011 – 2014
- Differential Transformation Method (DTM) in Solving Stiff Systems of Ordinary Differential Equations (ODE) Problems (FRGS: Vote No: 0764), RM 36,000, Ministry of Higher Education, Malaysia (*Head*).

2008 – 2011
- An impulsive Approach for Numerical Investigation of Hybrid Fuzzy differential equations and Intuitionistic treatment for fuzzy ordinary and partial differential equations (FRGS: Vote No: 0552), RM 17,300, Ministry of Higher Education, Malaysia (*Head*).

2008' – 2011
- A Study on t-best approximation problems in fuzzy n-normed linear spaces (FRGS: Vote No: 0555), RM 14,000, Ministry of Higher Education, Malaysia (*Head*).

Research Supervision – Ph.D. (9 Graduated, 3 Ongoing)

Graduated
- **Dr. Muhammad Akram**, Characterization of Algebraic Structures and its Fuzzification, Universiti Tun Hussein Onn Malaysia, Malaysia (GW130015) (2013 – 2016).
- **Dr. Khamirrudin Bin Md Derus**, Switchboard Automata and Optimisation Problems by Bipolar Fuzzy Sets, Universiti Tun Hussein Onn Malaysia, Malaysia (HW130055) (2014 – 2019).
- **Dr. Nur Ain Binti Ebas**, Algebraic and Topological Study of Finite Switchboard State Machines, Universiti Tun Hussein Onn Malaysia, Malaysia (GW160066) (2016 – 2019).
- **Mr. Ahmad Haji Zadeh**, Developing a Mathematical Model of the Free Convective Flows in Annular Domains, Universiti Tun Hussein Onn Malaysia, Malaysia (GW190046) (2019 – 2025).
- **Mr. Muhammad Asif Memon**, Darcy-Forchheimer MHD hybrid nanofluid flow over stretching/ shrinking surfaces, Universiti Tun Hussein Onn Malaysia, Malaysia (GW200006) (2000 – 2025).
- **Dr. Ang Tau Keong**, Analysis of Mathematical Models of Fish Population in Variable Environments, Universiti Tun Hussein Onn Malaysia, Malaysia (HW160076) (2016 – 2019) – Co-supervision.
- **Dr. Nor Shamsidah Binti Amir Hamzah**, Numerical Investigation of Impulsive Hybrid Fuzzy Differential Equations, Universiti Malaysia Terengganu, Malaysia, (2008 – 2011) – Co-supervision.
- **Dr. Hjh. Noor'ani Binti Ahmad**, Numerical Study on Fuzzy Polynomials and Fuzzy Differential Equations, Universiti Malaysia Terengganu, Malaysia, (2008 – 2012) – Co-supervision.
- **Dr. Mohd Saifullah bin Rusiman**, The Fuzzy C-Regression Truncated Models Toward Health Indicator in the Intensive Care Unit, Universiti Teknologi Malaysia (PS073013) (2008 – 2011) – Co-supervision.

On Going
- **Ms. Najihah Binti Chaini**, Numerical Modelling of Bioscience Problems in Different Imprecise Environments with Delay Arguments, Universiti Tun Hussein Onn Malaysia, Malaysia (GW180010) (2018).
- **Ms. Rinashini Arunaslam Sukormaru**, The impact of high-frequency data on investment strategies, Universiti Tun Hussein Onn Malaysia, Malaysia (HW240008) (2025).
- **Mr. Shahid Mahmood**, General coordinates of the triangle centers in the determinant forms and its applied features to the modern geometrical world, Universiti Tun Hussein Onn Malaysia, Malaysia (HW240004) (2025).

Research (continued)

Research Supervision – Master (4 Graduated)

Graduated

- **Shubanath Thejani Binti Mohammed Sayeed**, Automobile insurance fraud detection based on a hybrid deep learning model incorporated by the Golden Eagle Optimization, Universiti Tun Hussein Onn Malaysia, Malaysia (GW220028) – 2025
- **Mr. Abubakar Bawa Zarogi**, Developing a Markov Model for Crude Oil Price Forecasting, Universiti Tun Hussein Onn Malaysia, Malaysia (GW180015) – 2019.
- **Ms. Asma M. A. Agsaisib**, Solving Fuzzy Differential Equation by using Ant Colony Programming, Universiti Tun Hussein Onn Malaysia, Malaysia (HW130041) – 2014.
- **Mr. Kota Sridhar**, A Hybrid Metaheuristic Algorithm for Pressure Vessel Optimization, Universiti Tun Hussein Onn Malaysia, Malaysia (HD120013) – 2013.

Research Supervision – Master (1 Ongoing)

- **Vimalan A/L Naga Rajan**, Integrating machine learning and metaheuristics optimization techniques for the pharmaceutical industry, Universiti Tun Hussein Onn Malaysia, Malaysia (GW230011) – 2023.

Intellectual Property

Copyright

- Automated Machine for Manufacturing Oil Palm Leaf Straw, Application Number: CRLY2024W06772, Head, Malaysia.
- Algorithm for Neutrosophic Multiplicative Preference Relations (NMPR) as Single-valued Neutrosophic Sets (SVNS), Application Number: CRLY2024J03345, Head, Malaysia.
- Algorithm for Neutrosophic Multiplicative Preference Relations (NMPR) as Interval-valued Neutrosophic Sets (IVNS), Application Number: CRLY2024J03346, Head, Malaysia.
- Two Stages Hybrid Model Of Fuzzy Linear Regression With Support Vector Machine For Colorectal Cancer, Application Number: CRLY2021J00691, Co-researcher, Malaysia.

Patent

- An IOT-Based Method and System for Prior Determination of the Excretion of Human Bio-Waste, Application Number: 202141010813, Publication Date:26/03/2021, India.

Consultancy

2022 – 2023
- Board of Studies in Mathematics, Holy Cross College (Autonomous), India.

2019 – 2022
- Develop Frameworks of Robotics and Data Science Labs at the Faculty of Applied Sciences and Technology, Universiti Tun Hussein Onn Malaysia, together with Serba Dinamik Holding Bhd, Malaysia.

2019 – · · · ·
- Training Consultant for Q Study Sdn. Bhd. Malaysia.

2011 – 2012
- Reviewer for Kuwait University Journals.

Research Publications

Indexed Journal Articles

1. R. Kavitha, **J. Kavikumar***, A.H. Zadeh and D. Nagarajan, "Hybrid numerical–artificial neural network modeling of bioconvection in MHD nanofluids with gyrotactic microorganisms", *Multiscale and Multidisciplinary Modeling, Experiments and Design* (**ESCI - Q3; Impact Factor: 2.0**), vol. 9, no. 1, 2026.

2. Ahmad Shafee, Y. Alkhezi, and **J. Kavikumar**, "Data-driven modeling of Boussinesq-Burgers equations: Comparing physics-informed neural networks (PINNs) with exact solutions", *European Journal of Pure*

and Applied Mathematics (**ESCI - Q2, Impact Factor: 0.4**), Article in Press, 2026.

3. A. Phulpoto, A. A. Memon, M. A. Memon, **J. KaviKumar**, and M. Komiljon, "Finite element analysis of MHD thermal management in a ventilated cavity with dual obstacles using advanced ternary hybrid nanofluids", *Journal of Applied and Computational Mechanics* (**ESCI - Q2, Impact Factor: 3.4**), Article in Press, 2026. 10.22055/jacm.2025.48499.5278

4. **J. Kavikumar*,** T. Shubanath, and D. Nagarajan, "A golden eagle-based hybrid deep learning model for automobile insurance fraud detection," *Decision Analytics Journal*, vol 16, Article ID: 100619, 2025.

5. R. Kavitha, **J. Kavikumar**, A.H. Zadeh and D. Nagarajan, "Radiative heat and mass transfer significance through a permeable vertical plate with rotational effects: An artificial approach using the Levenberg-Marquardt algorithm", *AIP Advances* (**Q4; Impact Factor: 1.4**), vol. 15, no.4, 045315, 2025.

6. M. M. Ibrahim, R. Venkatesan, and **J. Kavikumar**, "Investigating the feasibility of elementary cellular automata based scrambling for image encryption," *International Journal of Computer Network and Information Security*, vol. 17, no. 1, pp. 28–38, 2025.

7. B. Said, D. Nagarajan, **J. Kavikumar** and V.M. Gobinath, "Fuzzy hidden Markov model using aggregation operators", *Journal of Computational and Cognitive Engineering*, 4(1), pp.1-7, 2025.

8. S. F. Sufahani, W. N. A. W. Ahmad, **J. Kavikumar**, et al., "Solving a non-standard optimal control royalty payment problem using a new modified shooting method," *Mathematical Methods in the Applied Sciences* (**Q1, Impact Factor: 2.1**), vol. 48, no. 2, pp. 2665–2685, 2025.

9. D. Nagarajan, C. Sugapriya , A.F. Azleena and **J. Kavikumar**, "A sustainable fuzzy economic production quantity model (SFEPQM) with sporadic machine failures, inspection and prepayments under carbon tax and cap policy," *International Journal of Systems Science: Operations & Logistics* (**Q2, Impact Factor:4.0**), vol. 11, no. 1, p. 2 419 398, 2024.

10. N. A. Ebas, **J. Kavikumar**, M. S. Rusiman, and M. A. Shafi, "General fuzzy switchboard transformation semigroup," *Journal of Advanced Research in Applied Sciences and Engineering Technology*, vol. 42, no. 2, pp. 1–12, 2024.

11. K. Gaverchand, R. Venkatesan, **J. Kavikumar**, and A. Yasmin, "Enhancing security and randomness of dna cryptosystem generated by using Mealy machine," *Journal of Soft Computing and Data Mining*, vol. 5, no. 2, pp. 245–263, Dec. 2024.

12. A. Kanchana, D. Nagarajan, and **J. Kavikumar***, "Single and interval valued neutrosophic group decision making problem based on dynamic programming cluster model," *Computational and Applied Mathematics* (*Q1, Impact Factor: 1.5*), vol. 43, no. 5, p. 287, 2024.

13. A. Kanchana, D. Nagarajan, and **J. Kavikumar***, "Neutrosophic multiplicative preference relations based on consensus analysis and additive consistency in group decision making: A goal programming approach," *Expert Systems with Applications* (**Q1 ; Impact Factor: 8.5**), vol. 238, no. Part A, p. 121 653, 2024.

14. M. A. Memon, **J. Kavikumar**, H. B. Lanjwani, A. M. Obalalu, and D. Nagarajan, "Radiative MHD boundary layer flow and heat transfer characteristics of Fe-casson base nanofluid over stretching/shrinking surface," *Defect and Diffusion Forum*, vol. 431, pp. 131–145, 2024.

15. M. A. Memon, **J. Kavikumar***, H. B. Lanjwani, and E. E. Mahmoud, "Darcy-forchheimer MHD micropolar water based hybrid nanofluid flow, heat and mass transfer features past on stretching/shrinking surface with slip and radiation effects," *Results in Engineering* (**Q1, Impact Factor: 6.1**), vol. 23, p. 102 534, 2024.

16. S. Moganathan, S. N. A. M. Razali, N. N. H. Almaalei, and **J. Kavikumar**, "Comparison of metaheuristic approaches for parcel delivery problem," *International Journal of Logistics Systems and Managemen*t, vol. 48, no. 1, pp. 67–91, 2024.

17. C. Sugapriya, A. Fariya Azleena, D. Nagarajan, and **J. Kavikumar**, "Fuzzy inventory model for breakable items, including damage costs and inspection errors in a green environment.," *Engineering Research Express*, vol. 6, no. 4, p. 045 403, 2024.

18. A. Tripathi, S. Tiwari, **J. Kavikumar***, and S. Mahato, "F-transforms determined by overlap and grouping maps over a complete lattice," *Soft Computing* (**Q1, Impact Factor: 3.1**), pp. 1–20, 2024.

19. K. Vadivel, S. Chandrasekar, N. Deivanayagampillai, and **J. Kavikumar**, "Fuzzy decision-making for cost-effective production planning in manufacturing systems," *Engineering Research Express*, vol. 6, no. 3, p. 035418, 2024.

20. S. M. Ammar, R. M. Saifullah, **J. Kavikumar**, and M. A. Natasyac, "A new intelligent modelling two-stage of hybrid fuzzy prediction approach by using computation software," *Journal of Intelligent and Fuzzy Systems* (**Q4 ; Impact Factor: 2.0**), vol. 45, no. 6, pp: 11013-11019, 2023.

21. M. Dhingra, M. K. Dubey, and **J. Kavikumar**, "L-fuzzy multiset recognizer: Determinization and minimization," *IEEE Transactions on Emerging Topics in Computational Intelligence* (**Q2; Impact Factor: 4.851**), vol. 7, no. 4, pp. 1163–1176, 2023.

22. V. Kuppulakshmi, C. Sugapriya, **J. Kavikumar***, and D. Nagarajan, "Fuzzy inventory model for imperfect items with price discount and penalty maintenance cost," *Mathematical Problems in Engineering* (**Q2; Impact Factor: 1.430**), vol. 2023, no. 1246257, pp. 1–15, 2023.

23. M. A. Memon, M. S. Khan, S. Saleem, S. Eldin, and **J. Kavikumar**, "Heat transfer through a higher grade forchheimer porous CuO-H_2O-nano-medium confined between non-isothermal moving plates," *Case Studies in Thermal Engineering* (**Q1; Impact Factor: 6.268**), vol. 47, p. 103035, 2023.

24. M. A. Memon, **J. Kavikumar**, H. B. Lanjwani, U. Khan, E.-S. M. Sherif, and I. Pop, "Thermal analysis for hydromagnetic flow of Darcy-Forchheimer hybrid nanofluid with velocity and temperature slip effects: Scrutinization of stability and dual solutions," *Advances in Mechanical Engineering* (**Q3; Impact Factor: 2.1**), vol. 15, no. 11, 2023.

25. F. N. N. A. Mutalip, I. Isaudin, and **J. Kavikumar***, "A comprehensive review on the development of Copulas in financial field," *Journal of Intelligent and Fuzzy Systems* (**Q4; Impact Factor: 2.0**), vol. 45, no. 4, pp. 6047–6062, 2023.

26. D. Nagarajan, A. Kanchana, **J. Kavikumar**, K. Nasreen, E. Seyyed Ahmad, and M. A. Shah, "A novel approach based on neutrosophic bonferroni mean operator of trapezoidal and triangular neutrosophic interval environments in multi-attribute group decision making," *Scientific Reports* (**Q2 ; Impact Factor: 4.6**), vol. 13, no. 10455, pp. 1–11, 2023.

27. D. Nagarajan, **J. Kavikumar**, G. V. Manohar, and S. Broumi, "Investigation of industry 5.0 hurdles and their mitigation tactics in emerging economies by TODIM arithmetic and geometric aggregation operators in single value neutrosophic environment," *Facta Universitatis, Series: Mechanical Engineering* (**Q1; Impact Factor: 7.9**), vol. 21, no. 3, pp. 405–432, 2023.

28. D. Nagarajan, **J. Kavikumar**, T. Mary, M. Mahmud, and S. Broumi, "Modelling the progression of Alzheimer's disease using neutrosophic hidden Markov models," *Neutrosophic Sets and Systems* (**ESCI**), vol. 56, pp. 31–40, 2023.

29. A. Tripathi, S.P. Tiwari, **J. Kavikumar**, and D. Nagarajan, "A fuzzy function granular F-transform and inverse F-transform with application," *Decision Analytics Journal*, vol. 7, p. 100 241, 2023.

30. N. A. Alshehri, A. A. Memon, M. A. Memon, **J. Kavikumar**, et al., "Simulation of thermal decomposition of calcium oxide in a backward step tubular reactor containing a cooling jacket to enhance the heat transfer and the rotation rate," *Journal of Mathematics* (**Q1; Impact Factor: 1.555**), vol. 2022, 2022.

31. M. Bavia, D. Nagarajan, S. Broumi, **J. Kavikumar**, and A. Rajkumar, "Neutrosophic in multi-criteria decision making for location selection," *Neutrosophic Sets and Systems* (**ESCI**), vol. 48, pp. 142–153, 2022.

32. S. Elhag, A. Memon, B. Bhayo, **J. Kavikumar** et al., "Investigation of heat transfer and pressure distribution in power law fluids flowing through a rectangular channel blocked by a single heated circular cylinder at inlet," *Journal of Mathematics* (**Q1; Impact Factor: 1.555**), vol. 2022, 2022.

33. S. Elhag, A. Memon, M. Memon, **J. Kavikumar** et al., "Analysis of forced convection with hybrid Cu-Al_2O_3 nanofluids injected in a three-dimensional rectangular channel containing three perpendicular rotating blocks with kappa-epsilon turbulent modeling," *Journal of Nanomaterials* (**Q3 ; Impact Factor: 3.791**), vol. 2022, 2022.

34. U. V. Kalyani, T. Eswarlal, **J. Kavikumar**, and A. Iampan, "Bipolar fuzzy sublattices and ideals," *International Journal of Analysis and Applications*, vol. 20, 2022.

35. A. Memon, M. Memon, K. Bhatti, **J. Kavikumar** et al., "Modelling and simulation of fluid flow through a circular cylinder with high Reynolds number: A comsol multiphysics study," *Journal of Mathematics* (**Q1 ; Impact Factor: 1.555**), vol. 2022, 2022.

36. D. Nagarajan and **J. Kavikumar***, "Single-valued and interval-valued neutrosophic hidden Markov model," *Mathematical Problems in Engineering* (**Q2; Impact Factor: 1.430**), vol. 2022, pp. 1–12, 2022.

37. D. Nagarajan, R. Sujatha, G. Kuppuswami, and **J. Kavikumar***, "Real-time forecasting of the Covid 19 using fuzzy grey Markov: A different approach in decision-making," *Computational and Applied Mathematics* (**Q1; Impact Factor: 2.998**), vol. 41, no. 6, 2022.

38. S. Rajeswari, C. Sugapriya, D. Nagarajan, and **J. Kavikumar***, "Optimization in fuzzy economic order quantity model involving pentagonal fuzzy parameter," *International Journal of Fuzzy Systems* (**Q2; Impact Factor: 4.085**), vol. 24, no. 1, pp. 44–56, 2022.

39. S. Sharan, B. Sharma, and **J. Kavikumar**, "Interval type-2 fuzzy automata and interval type-2 fuzzy grammar," *Journal of Applied Mathematics and Computing* (**Q1; Impact Factor: 2.196**), vol. 68, no. 3, pp. 1505–1526, 2022.

40. A. Zadeh, **J. Kavikumar**, N. Shah, and J. Chung, "Fractional-view analysis of Jaulent-Miodek equation via novel analytical techniques," *Journal of Function Spaces* (**Q2; Impact Factor: 1.281**), vol. 2022, 2022.

41. H. Babazadeh, A. Zeeshan, **J. Kavikumar**, A. Hajizadeh, and M. Bhatti, "Numerical modelling for nanoparticle thermal migration with effects of shape of particles and magnetic field inside a porous enclosure," *Iranian Journal of Science and Technology - Transactions of Mechanical Engineering* (**Q4; Impact Factor: 1.530**), vol. 45, no. 3, pp. 801–811, 2021.

42. A. Bakali, S. Broumi, D. Nagarajan, M. Talea, M. Lathamaheswari, and **J. Kavikumar**, "Graphical representation of type-2 neutrosophic sets," *Neutrosophic Sets and Systems* (**ESCI**), vol. 42, pp. 28–38, 2021.

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