Dr. Davinder Paul Singh

***Assistant Professor***

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# PROFESSIONAL SUMMARY

* An accomplished research professional in the field of Computer Science and Engineering.
* Highly focused at integrating technology into the curriculum and contributing to the development of engaging competency-based instructional strategies.
* Very enthusiastic and experienced educator with an exceptional track record of driving student success and program growth in computer science and engineering.

• A student-centered educator with track record of identifying and selecting instructional strategies to meet the required needs of students.

* Capable of both collaborative and independent research with excellent communication skills with an ability to write and review scientific reports and manuscripts.
* Highly experienced in using various artificial intelligent techniques like machine‐learning and deep‐learning techniques.
* Expertise in cloud computing, utilization of computational approaches for the prediction of drug response and side effects of drugs taken, drug discovery, and development of specific DNA and RNA sequencing for controlling a disease.

• Impressive capabilities to mentor a research team, ensuring a commitment to meet the necessary standards of ethics and integrity in research.

• Showcased excellence in leading essential teaching functions such as Course Coordination and Teaching Management, Student Advising and Supervision (Counselling), Student knowledge Assessment, etc.

# EDUCATION YEAR OF PASSING

# Ph.D. in Computer Science and Engineering 2023

Shri Mata Vaishno Devi University, J&K, India

# M.tech. in Computer Science and Engineering 2017

Passed with 8.31 CGPA University of Jammu, J&K, India

# B.E. in Information Technology 2014

Passed with 70% (Distinction) University of Jammu, J&K, India

* **12th standard** 2010

Passed with 75% (Distinction)

J&K Board of School Education, J&K, India

* **10th standard** 2008

Passed with 91.2 % (Distinction)

J&K Board of School Education, J&K, India

# RESEARCH AND TEACHING EXPERIENCE

**Research experience:**

Worked as a Ph.D. research scholar in the Department of Computer Science and Engineering, Shri Mata Vaishno Devi University, J&K, India, from Aug 2018-Sep 2023.

**Teaching experience:**

Worked as contractual assistant professor in the Department of Computer Science and Engineering, at Yogananda College of Engineering and Technology, J&K, India, from Jan 2018-July 2018.

Presently working as a permanent faculty (Assistant Professor- Level 10) in the Department of Computer Science and Engineering at Pandit Deendayal Energy University, Gandhinagar, Gujarat from Nov 2023 to present.

# Ph.D. THESIS TITLE

Prediction of anti-cancer drug response using intelligent computational approaches

# AREAS OF RESEARCH INTEREST

* Intelligent AI Approaches
* Machine Learning
* Deep Learning
* Medical Imaging
* Computational methodology and biology in computer sciences
* Drug design: Delivery and potency
* Prediction of drug response
* Anti-cancerous studies

# LIST OF RESEARCH PUBLICATIONS

**Journal Publications:**

**1.** ***Davinder Paul Singh*** and Baijnath Kaushik, "Machine learning concepts and its applications for prediction of diseases based on drug behaviour: An extensive review.” Chemometrics and Intelligent Laboratory Systems 229 (2022): 104637, https://doi.org/10.1016/j.chemolab.2022.104637 **(SCIE IF=3.8).**

**2.** ***Davinder Paul Singh***, Abhishek Gupta and Baijnath Kaushik, “DWUT-MLP: Classification of anticancer drug response using various feature selection and classification techniques." Chemometrics and Intelligent Laboratory Systems 225 (2022): 104562, https://doi.org/10.1016/j.chemolab.2022.104562 **(SCIE IF=3.8).**

**3.** ***Davinder Paul Singh*** and Baijnath Kaushik, "A systematic literature review for the prediction of anticancer drug response using various machine‐learning and deep‐learning techniques." Chemical Biology & Drug Design 101.1 (2022): 175-194, https://doi.org/10.1111/cbdd.14164 **(SCIE IF=3.2).**

**4.** ***Davinder Paul Singh*** and Baijnath Kaushik, "CTDN (convolutional temporal based deep‐neural network): an improvised stacked hybrid computational approach for anticancer drug response prediction." Computational Biology and Chemistry 105 (2023): 107868, <https://doi.org/10.1016/j.compbiolchem.2023.107868> **(SCIE IF=3.1).**

**5.** Shivalika Sharma, Chinmay Chakraborty, ***Davinder Paul Singh***, Shubham Mahajan and Amit Kant Pandit, "Image-based automatic segmentation of leaf using clustering algorithm." International Journal of Nanotechnology 19.6-11 (2022): 539-553, https://doi.org/10.1504/IJNT.2022.128939 **(SCIE IF=0.4).**

**6.** Debabrata Swain, Kahaan Patel, Kunj Shah, Monarch Mistry, Manish Kumar, ***Davinder Paul Singh***, Vassilis C. Gerogiannis, Andreas Kanavos and Biswaranjan Acharya, "Advanced multi-virus genome sequence classification using artificial intelligence techniques." Intelligent Decision Technologies (2025): 18724981241312343, <https://doi.org/10.1177/18724981241312343> **(SCIE IF= 0.6).**

**7.** ***Davinder Paul Singh***, Pawandeep Kour, Tathagat Banerjee and Debabrata Swain, "A Comprehensive Review of Various Machine Learning and Deep Learning Models for Anti-Cancer Drug Response Prediction: Comparative Analysis with Existing State of the Art Methods." Archives of Computational Methods in Engineering (2025): 1-25, https://doi.org/10.1007/s11831-025-10255-2 **(SCIE IF=12.1).**

**8.** ***Davinder Paul Singh***, Tathagat Banerjee, Pawandeep Kour, Debabrata Swain and Yogendra Narayan, "CICADA (UCX): A Novel Approach for Automated Breast Cancer Classification through Aggressiveness Delineation." Computational Biology and Chemistry, https://doi.org/10.1016/j.compbiolchem.2025.108368 **(SCIE IF=3.1).**

**9.** ***Davinder Paul Singh***, Tathagat Banerjee, Malvika Ashok and Shubham Mahajan, ‘LLN-enhanced UVEX net: a hybrid deep learning approach for precise segmentation of thoracic organs at risk in CT images for radiotherapy planning’, Int. J. Intelligent Engineering Informatics, Just Accepted (2025) **(ESCI IF=1.3).**

**10.** Vaidehi Satushe, Shilpa Vyas, Shilpa Metkar and ***Davinder Paul Singh***, ‘Optimising brain tumour segmentation and classification with an enhanced CNN model on the BraTS-GoAT 2024 dataset’, Int. J. Intelligent Engineering Informatics, Just Accepted (2025) **(ESCI IF=1.3).**

**11.**  Vaidehi Satushe, Shilpa Vyas, Shilpa Metkar and ***Davinder Paul Singh,*** "AI in MRI Brain Tumor Diagnosis: A Systematic Review of Machine Learning and Deep Learning Advances (2010–2025)." Chemometrics and Intelligent Laboratory Systems (2025): 105414, <https://doi.org/10.1016/j.chemolab.2025.105414> (**SCIE IF=3.7)**

**12.** Yogendra Narayan, Ajay Prakash Pasupulla, Divesh Kumar, Kothapalli Ramesh Chandra, Ram Murat Singh, Piyush Charan, ***Davinder Paul Singh***, Comparison based on transfer learning and fusion of deep learning models for brain cancer classification. Multimed Tools Appl (2025). <https://doi.org/10.1007/s11042-025-20884-1> **(SCIE IF=3.0)**

**13. *Davinder Paul Singh***, Amit Khare, Purusothaman N, Ruchi Lal, Smriti Singh Chauhan, Kalaiarasan C, "Predictive Modeling for Bank Loan Approval: From Data to Decisions." Procedia Computer Science 259 (2025): 1426-1431, <https://doi.org/10.1016/j.procs.2025.04.097> **(Scopus Indexed)**

**14. *Davinder Paul Singh****,* Tathagat Banerjee, [Shubham Mahajan](https://link.springer.com/article/10.1007/s11831-025-10315-7#auth-Shubham-Mahajan-Aff3), [K. Ramesh Chandra](https://link.springer.com/article/10.1007/s11831-025-10315-7#auth-K_-Ramesh_Chandra-Aff4), [Raju Kumar](https://link.springer.com/article/10.1007/s11831-025-10315-7#auth-Raju-Kumar-Aff5), [Shanta Phani](https://link.springer.com/article/10.1007/s11831-025-10315-7#auth-Shanta-Phani-Aff6), [Pawandeep Kour](https://link.springer.com/article/10.1007/s11831-025-10315-7#auth-Pawandeep-Kour-Aff7), [Yogendra Narayan](https://link.springer.com/article/10.1007/s11831-025-10315-7#auth-Yogendra-Narayan-Aff8), [Gurpreet Kour](https://link.springer.com/article/10.1007/s11831-025-10315-7#auth-Gurpreet-Kour-Aff9), [Loveleena Mukhija](https://link.springer.com/article/10.1007/s11831-025-10315-7#auth-Loveleena-Mukhija-Aff10), [Debabrata Swain](https://link.springer.com/article/10.1007/s11831-025-10315-7#auth-Debabrata-Swain-Aff1), Malvika Ashok, "A Comprehensive Study on Deep Learning Models for the Detection of Diabetic Retinopathy using Pathological Images." *Archives of Computational Methods in Engineering* (2025): 1-30, <https://doi.org/10.1007/s11831-025-10315-7> **(SCIE IF=12.1)**

**15.** [Tathagat Banerjee](https://www.nature.com/articles/s41598-025-12602-6#auth-Tathagat-Banerjee-Aff1),  [***Davinder Paul Singh***](https://www.nature.com/articles/s41598-025-12602-6#auth-Davinder_Paul-Singh-Aff2)***,***  [Debabrata Swain](https://www.nature.com/articles/s41598-025-12602-6#auth-Debabrata-Swain-Aff2), [Shubham Mahajan](https://www.nature.com/articles/s41598-025-12602-6#auth-Shubham-Mahajan-Aff3), [Seifedine Kadry](https://www.nature.com/articles/s41598-025-12602-6#auth-Seifedine-Kadry-Aff4), [Jungeun Kim](https://www.nature.com/articles/s41598-025-12602-6#auth-Jungeun-Kim-Aff5), "A novel hybrid deep learning approach combining deep feature attention and statistical validation for enhanced thyroid ultrasound segmentation." *Scientific Reports* 15.1 (2025): 27207, <https://doi.org/10.1038/s41598-025-12602-6> **(SCIE IF=3.8)**

**16.** [Tathagat Banerjee](https://www.nature.com/articles/s41598-025-12602-6#auth-Tathagat-Banerjee-Aff1),  [***Davinder Paul Singh***](https://www.nature.com/articles/s41598-025-12602-6#auth-Davinder_Paul-Singh-Aff2)***,*** Pawandeep Kour, [Debabrata Swain](https://www.nature.com/articles/s41598-025-12602-6#auth-Debabrata-Swain-Aff2), [Shubham Mahajan](https://www.nature.com/articles/s41598-025-12602-6#auth-Shubham-Mahajan-Aff3), [Seifedine Kadry](https://www.nature.com/articles/s41598-025-12602-6#auth-Seifedine-Kadry-Aff4), [Jungeun Kim](https://www.nature.com/articles/s41598-025-12602-6#auth-Jungeun-Kim-Aff5), “A novel unified Inception-U-Net hybrid gravitational optimization model (UIGO) incorporating automated medical image segmentation and feature selection for liver tumor detection.” *Scientific Reports* (2025), <https://doi.org/10.1038/s41598-025-14333-0> **(SCIE IF=3.8)**

**Conference Publications:**

**1.** ***Davinder Paul Singh***, Abhishek Gupta and Baijnath Kaushik, Anti-Drug Response and Drug Side Effect Prediction Methods: A Review. In: Buyya, R., Hernandez, S.M., Kovvur, R.M.R., Sarma, T.H. (eds) Computational Intelligence and Data Analytics. Lecture Notes on Data Engineering and Communications Technologies, vol 142. Springer, Singapore, <https://doi.org/10.1007/978-981-19-3391-2_11>.

**2.** ***Davinder Paul Singh***, Abhishek Gupta and Baijnath Kaushik, Anti-drug Response Prediction: A Review of the Different Supervised and Unsupervised Learning Approaches. In: Agrawal, S., Gupta, K.K., Chan, J.H., Agrawal, J., Gupta, M. (eds) Machine Intelligence and Smart Systems. Algorithms for Intelligent Systems. Springer, Singapore, https://doi.org/10.1007/978-981-16-9650-3\_29.

**3.** ***Davinder Paul Singh***, Abhinav Sharma, Debabrata Swain, Vijayaragunathapandian Sathya, Jayaramalingam Senthil Kumar, Makarand Upadhyaya, "Rice type classification using RBF Kernel Svm." Hybrid and Advanced Technologies. CRC Press, 2025. 537-540, <https://doi.org/10.1201/9781003559139>.

**4.** ***Davinder Paul Singh***, Ramaswamy Sivaraman, Pushpalata Verma, Amit Khare, Krishnamoorthy Suresh, Pankaj Singh Chandel, "Dragon fly algorithm-based feature selection for airline customer satisfaction." Hybrid and Advanced Technologies. CRC Press 310-314, <https://doi.org/10.1201/9781003559139>.

**5.** ***Davinder Paul Singh***, Rakesh Kumar, Sameer Yadav, Amrita Tatia Karnawat, Sanjay Bandi, Akshay Raj, "Application of neural network in analysis of stock market prediction based on VG16-CNN-SVM model." Hybrid and Advanced Technologies. CRC Press 173-178, <https://doi.org/10.1201/9781003559139>.

**6.** ***Davinder Paul Singh***, Vinod Wamanrao Gangane, P. Sukumar, Jyoti Kaushal, Neerav Nishant, Harshal Patil, "A novel approach to constructing features and models for intrusion detection systems using SAE-ELM model." Hybrid and Advanced Technologies. CRC Press, 2025. 401-406, <https://doi.org/10.1201/9781003559139>.

**7.** ***Davinder Paul Singh***, Ajay Prakash Pasupulla, Ayano Shanko, Nithya P, Neha, Ram Murat Singh, "Performance Analysis of ECG Disease Classification using SVM classifier." 2024 IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation (IATMSI). Vol. 2. IEEE, 2024, 10.1109/IATMSI60426.2024.10502948.

**8.** ***Davinder Paul Singh***, Divesh Kumar, Harshad N. Prajapati, R. Sivaraman, Meenakshi Dwivedi, Nripendra Narayan Das, "Optimizing Virtual Machine Migration Technique for Cloud Computing." 2024 15th International Conference on Computing Communication and Networking Technologies (ICCCNT). IEEE, 2024, 10.1109/ICCCNT61001.2024.10724722.

**9.** ***Davinder Paul Singh***, Piyush Charan, Divij Pasrija, Dhananjay Singh Shyamal, K. Suresh, Veeraraghavan Vishnu Priya, "An Energy Efficient Naïve Bayes-based Clustering Protocol for Wireless Sensor Network." 2024 IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation (IATMSI). Vol. 2. IEEE, 2024, 10.1109/IATMSI60426.2024.10502529.

**10.** ***Davinder Paul Singh***, Ram Murat Singh, T. Gopi, D Deepa, K. Parimala Gandhi, Divesh Kumar, "Improved Pulse Coupled Neural Network based on Maximize SNR for Vessel Extraction." 2024 International Conference on Advancements in Power, Communication and Intelligent Systems (APCI). IEEE, 2024, 10.1109/APCI61480.2024.10617283.

**11.** ***Davinder Paul Singh***, Umida Norboeva, P. Jagadeesan, L. B. Abhang, J. Senthil Kumar, Veeraraghavan Vishnu Priya, "A Review of Plant Disease Identification using Computational Techniques." 2024 First International Conference on Technological Innovations and Advance Computing (TIACOMP). IEEE, 2024, 10.1109/TIACOMP64125.2024.00086.

**12.** ***Davinder Paul Singh***, Kanika Gupta, Nivedita Singh, Manu Vasudevan Unni, S. Jayasudha, Amit Chauhan, "Enhancing enterprise human resource management: Predicting workers' stress for improved workplace satisfaction using a hybrid deep transfer learning approach." Hybrid and Advanced Technologies. CRC Press 328-333, <https://doi.org/10.1201/9781003559139>.

**13.** ***Davinder Paul Singh***, Vinith Kumar Nair, Ram Murat Singh, Puneet Bafna, M. Vedaraj, Veeraraghavan Vishnu Priya, "Image Forgery Detection and Classification using Deep Learning," 2024 OPJU International Technology Conference (OTCON) on Smart Computing for Innovation and Advancement in Industry 4.0, Raigarh, India, 2024, pp. 1-5, 10.1109/OTCON60325.2024.10688184.

**14.** ***Davinder Paul Singh***, Baijnath Kaushik, Yusera Farooq Khan, Akshma Chadha, Abigya Mahajan, Aman Jandwani, Gagandeep Singh Narula, Emerging Trends of Artificial Intelligence in Detecting Neurodegeneration. In: Tanwar, S., Singh, P.K., Ganzha, M., Epiphaniou, G. (eds) Proceedings of Fifth International Conference on Computing, Communications, and Cyber-Security. IC4S 2023. Lecture Notes in Networks and Systems, vol 991. Springer, Singapore, <https://doi.org/10.1007/978-981-97-2550-2_42>.

**15.** ***Davinder Paul Singh***, Mani Manjari, Dipti Jain, Shipra Bhutani Uppal, Rohtash Kumar, Priyanka Goel, "Enhancing Marketing Strategies: Analyzing Customer Behavior in Banking through Data Analysis and Machine Learning." 2024 First International Conference on Technological Innovations and Advance Computing (TIACOMP). IEEE, 2024, 10.1109/TIACOMP64125.2024.00085.

**16**. ***Davinder Paul Singh***, Mahima Rani, Saroj Kumari, Ritesh Kumar, Veeraraghavan Vishnu Priya, Ram Murat Singh, "Isolated Word Recognition and Feature Extraction Using Machine Learning." International Conference on Emerging Applications of Information Technology. Singapore: Springer Nature Singapore, 2024, <https://doi.org/10.1007/978-981-97-7532-3_3>.

# DETAILS OF PATENTS PUBLISHED

**1.** Machine Learning based Single-Cell RNA Sequencing for Targeted Anticancer Drug Discovery (Application No.202421052344 A)

**2.** Hierarchical Reinforcement Learning System with Transferable Knowledge Modules for Autonomous Decision-Making in Robotics (Application No.202421052346 A)

**3.** Neuro-Adaptive Generative AI based Real-time Rendering of Hyper-Realistic Interactive Environments in Virtual Reality (Application No.202421051519 A)

# ACHIEVEMENTS, AWARDS AND FELLOWSHIPS

1. Always a distinction-holder from school to college and university.
2. Qualified UGC CSIR-NET exam in Computer Science and Engineering in 2022 with all India rank 100.
3. Presented research papers in various conferences and won best paper/poster presentation awards.
4. Acting as an Editorial Board Member for the journals “Medicon” and “PriMera Scientific Engineering (PSEN)”

# PERSONAL DETAILS

Date of Birth: 01-12-1992 Sex: Male

Religion: Sikh Nationality: Indian

Languages: English, Hindi, Punjabi Mobile number: (+91)7006291893

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