HARMOHAN SHARMA

CONTACT INFORMATION

NAME: **Harmohan Sharma**
DESIGNATION: Associate Professor, Dept of Computer Science, Multani Mal Modi College Patiala, Punjab.
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Education

Master of Computer Applications (MCA) (1995-1998): Department of Computer Science and Engineering, *Punjabi University, Patiala.*

PhD (March 16, 2018) : Department of Computer Science, *Punjabi University Patiala.*

Title of PhD Thesis: Development of a Recognition System for Nastaleeq Script based Urdu Ligatures.

Professional Experience: 22+ Years

- ☞ Associate Professor, Dept of Computer Science, Multani Mal Modi College Patiala (10th October 2020 to till date).
- ☞ Assistant Professor, Dept of Computer Science, Multani Mal Modi College Patiala (10th October 2006 to 9th October 2020).
- ☞ Assistant Professor, Dept of Computer Science, Sri Guru Harkrishan College of Management & Technology, (SGH-CMT), Patiala (01st Sept 2005 to 08 October 2006).
- ☞ Lecturer, Dept of Computer Science, Gian Jyoti Institute of Management & Technology (GJ-IMT), Mohali.(31st Aug 2004 to 31st August 2005)
- ☞ Head, Computer Science Department, Punjab College of Information Technology (PCIT) Patiala (10th August 2000 to 28th Aug 2004)
- ☞ Lecturer, Dept of Computer Science, Punjab Institute of Management & Technology (PIMT), Mandi Gobindgarh (15th July 1999 to 10th August 2000).
- ☞ Lecturer, Dept of Computer Science, Multani Mal Modi College Patiala (16th October 1998 to 15th June 1999).

Teaching Interest

- ☞ Discrete Mathematics / RDBMS / C / Computer Oriented Numerical Methods.

Research Interest

- ☞ Digital Image Processing / OCR.

Publications

☞ Harmohan Sharma and Dharam Veer Sharma "State of the art in Nastaleeq Script Recognition". International Journal of Computer Trends and Technology (IJCTT) Volume-39 Number-1, pp. 40-46, September 2016. ISSN:2231-2803. https://www.ijcttjournal.org/archives/ijctt-v39p108

☞ H. Sharma and G. K. Sethi, "Advancements in optical character recognition for Gurmukhi script," In Proceedings of Fifth International Conference on Image Information Processing (ICIIP), pp. 52-57, 2019, Publisher: IEEE. **https://doi.org/10.1109/ICIIP47207.2019.8985740**

☞ Dharam Veer Sharma and Harmohan Sharma, "A Character Image Classification Technique for Collecting Training Data for Very Large Classes", In Proceedings of International Conference on Recent Advancement on Computer and Communication (ICRAC 2017), pp. 517-525, 2018, Publisher: Springer Singapore, https://www.springerprofessional.de/en/a-character-image-classification-technique-for-collecting-traini/15704890

☞ Sethi Ganesh Kumar, Sharma Harmohan and Komal, "A Study of Personality Traits from Handwriting using Digital Image Processing", Research Review International Journal of Multidisciplinary, Volume-03, Issue-12, 2018, pp 1498-1502.

☞ H. Sharma and G. K. Sethi, "Advancements in optical character recognition for Gurmukhi script," In Proceedings of Fifth International Conference on Image Information Processing (ICIIP), pp. 52-57, 2019, Publisher: IEEE. https://doi.org/10.1109/ICIIP47207.2019.8985740

☞ Girdher, Heena and Sharma, Harmohan, "A Survey on Writer Identification System for Indic Scripts", 2020.
SSRN: https://ssrn.com/abstract=3538594 or http://dx.doi.org/10.2139/ssrn.3538594.

☞ Girdher Heena, Sharma Harmohan and Gupta Akant, **Comprehensive Survey on Devanagari OCR** (February 12, 2022). Proceedings of the International Conference on Innovative Computing & Communication (ICICC) 2022, Available at SSRN: https://ssrn.com/abstract=4033489 or http://dx.doi.org/10.2139/ssrn.4033489

Book / Book Chapter

☞ Amrita Sekhon & Harmohan Sharma. AI Applications in India- Strengths and Challenges. In Prof (Dr) Ranbir Singh, Prof (Dr) V Vijayakumar and Prof (Dr) Paramjit S Jaswal (Eds.), Transcending Technology: A Cognitive Learning towards Artificial Intelligence, pp 418-425, Satyam Books Pvt. Ltd. New Delhi. (ISBN: 978-93-83043-28-6)

☞ Harmohan Sharma & Ganesh K Sethi (2019). Writer Identification System - Facts and Fundamentals. In Prof (Dr) Ranbir Singh, Prof (Dr) V Vijayakumar and Prof (Dr) Paramjit S Jaswal (Eds.), Transcending Technology: A Cognitive Learning towards Artificial Intelligence, pp 836-844, Satyam Books Pvt. Ltd. New Delhi. (ISBN: 978-93-83043-28-6)

☞ Khushvinder Kumar & Harmohan Sharma (Eds.). (2019). *YUVA*. Zohra Publications Patiala. (ISBN: 978-93-82376-82-8).

☞ Sharma H., Sharma D.V., Lehal G.S., Rana A. (2020) Extraction and Recognition of Numerals from Machine-Printed Urdu Documents. In: Nain N., Vipparthi S., Raman B. (Eds) Computer Vision and Image Processing. CVIP 2019. Communications in Computer and Information Science, vol 1147. Springer, Singapore. https://doi.org/10.1007/978-981-15-4015-8_30

CONFERENCES / SEMINARS

(a) Resource Person / Invited Lecture

☞ Delivered a lecture on DBMS & RDBMS at University College Ghanour (Patiala) on March 07, 2014.

☞ Resource person in the National Seminar organised by Manohar Memorial (PG) College, Fatehabad sponsored by Director Higher Education, Haryana (March 16, 2019).

(b) Papers Presented

☞ Presented a paper titled **Music for Nurturing Life** in the UGC-Sponsored National Conference on Role & Relevance of Music for Healthy life held on October 26th, 2012 at GSSDGS Khalsa College Patiala.

☞ Presented a paper titled **Understanding the Urdu Language for performing OCR** in the National Conference on Role of Information Technology in Transforming India organised by Desh Bhagat University, Mandi Gobindgath on March 15, 2014.

☞ Presented a paper on **Music and Spirituality** in 13th International Conference on Spirituality and Management organised by Sri Guru Teg Bahadur Khalsa College Anandpur Sahib in association with Punjab Commerce and Management Association on November 27-28, 2015.

☞ Presented a paper entitled **Globalization and its Impact on Indian Culture** in International Seminar on Impact of Globalization on Values organised by Govt. College of Education, Patiala in collaboration with CTE Punjab and Chandigarh Chapter and State College Alumni Association on February 24, 2016.

☞ Presented a paper entitled **E-Waste : A Looming Threat** in the National Conference on Environmental Sustainability and Social Dynamics NAT-EN-16 organised by Rajiv Gandhi National University of Law, Punjab sponsored by Punjab Pollution Control Board, Patiala on March 05, 2016.

☞ Presented a paper titled **Indian Music : A supplement to Yoga** in the National Conference on Transformation in Music and Music Education : A Multifaceted Analysis organised by Guru Nanak College Budhlada Sponsored by Rhythm School of Indian Music Ltd. Auckland, New Zealand on April 09, 2017.

☞ Presented a paper entitled **A Character Image Classification Technique for Collecting Training Data for very Large Classes** in the International Conference on Recent Advancement in Computer and Communication (IC-RAC 2017) organized by Technocrats Institute of Technology and iMPLab Research & Innovation Foundation, Bhopal on May 26-27, 2017.

☞ Presented a paper entitled **Writer Identification System - Facts and Fundamentals** in International Conference on Digital Transformation: A Cognitive Learning towards Artificial Intelligence organised by RGNUL, Punjab in association with NLIU, Bhopal; NLU, Delhi; MNLU, Nagpur; HPNLU, Shimla and DNLU, Jabalpur at Rajiv Gandhi National University of Law, Punjab on 06-08, 2019.

☞ Presented a paper entitled **Extraction and Recognition of Numerals from Machine Printed Documents** in the 4th International Conference on Computer Vision and Image Processing (CVIP 2019) organised by Malaviya National Institute of Technology, Jaipur held on September 27-29, 2019.

☞ Presented a paper entitled **Advancements in Optical Character Recognition for Gurmukhi Script** in the 2019 Fifth International Conference on Image Information Processing (ICIIP 2019) organised by the Department of Computer Science & Engineering

and Information Technology at Jaypee University of Information Technology, Waknaghat, Solan, Himachal Pradesh, India, during November 15-17, 2019.

☞ Presented a research paper titled **A Survey on Writer Identification System for Indic Scripts** in the 5th International Next Generation Computing Technologies (NGCT-2019) held on 20-21 December, 2019 at School of Computer Science, UPES, Dehradun.

(c) <u>Attended</u>

☞ Participated in the One Day National Seminar on Recent Advances and Future Trends in Digital Image Processing (RAFIP) 2010 organised by Department of Computer Science, Punjabi University Patiala held on March 30, 2010.

☞ Participated in the One Day National Seminar on Role of ICT in Distance Education organised by Department of Distance Education, Punjabi University Patiala held on August 09, 2010.

☞ Participated in the One Day National Seminar on Emerging Challenges in Service Sector in India, organised by Department of Distance Education, Punjabi University Patiala held on October 20, 2010.

<u>Ph.D Students</u>

1. **Heena - DEVELOPMENT OF A WRITER IDENTIFICATION SYSTEM FOR OFFLINE HANDWRITTEN DOCUMENTS IN DEVANAGARI SCRIPT** (Ongoing, Regd on September 29, 2019 in DCS, Punjabi University, Patiala)

2. **Akant Mohan Gupta - DEVELOPMENT OF HANDWRITTEN DEVANAGARI TEXT RECOGNITION SYSTEM USING DEEP LEARNING** (Ongoing, Regd on February 27, 2020 in DCS, Punjabi University, Patiala)

<u>Workshops and Training Courses</u>
FDPs/Workshps/Orientations/Refresher Courses

☞ Attended **NSS Training and Orientation Course** from 01.12.2008 to 10.12.2008 at Training & Orientation Centre (National Service Scheme), Ministry of Youth Affairs & Sports (Govt of India) Punjabi University Ptiala.

☞ Participated in the Train the Trainer (TTT) workshop on Life and Communication Skills held at Department of Computer Science, Punjabi University Patiala in collaboration with Placement Cell Punjabi University Patiala and Infosys Technologies Limited from March 12-14, 2011.

☞ Participated in the UGC-Sponsored **Orientation Programme** from 15.06.2011 to 12.07.2011 at UGC-ASC Punjabi University, Patiala.

☞ Participated in the UGC-Sponsored **Refresher Course** in Information Technology from 19.12.2011 to 07.01.2012 at UGC-ASC University of Rajasthan, Jaipur

☞ Participated in the UGC-Sponsored **Refresher Course** from 10.05.2017 to 30.05.2017 in Emerging Issues in Information Technology (ID) - Computer Science at UGC-HRDC Punjabi University, Patiala.

☞ Attended UGC Sponsored One Week National Workshop on Digital Image Processing using MATLAB organised by Department of Computer Science, Punjabi University Patiala from November 29 to December 05, 2012.

☞ Attended UGC Sponsored One Week National Workshop on Multilingual Technologies organised by Department of Computer Science, Punjabi University Patiala from November 11-17, 2013.

☞ Participated in the 15-Days UGC-Sponsored Faculty Development Programme organised by Multani Mal Modi College Patiala from July 01-15, 2014.

☞ Participated in Leadership & Advocacy Workshop organised by Rajiv Gandhi Institute of Youth Development, Regional Centre, Chandigarh at Multani Mal Modi College Patiala from May 25-31, 2015.

☞ Participated in the 7-Days UGC-Sponsored Faculty Development Programme organised by Multani Mal Modi College Patiala from July 09-15, 2015.

☞ Attended 7 Days Workshop on Enhancing Legal Efficacy among Teachers (with special reference to women related laws) at Women's Studies Centre, Punjabi University, Patiala from March 15-21, 2016.

☞ Participated in the 7-Days UGC-Sponsored Faculty Development Programme on the theme Academic Writing from Critical Appreciation to Publication organised by Internal Quality Assurance Cell (IQAC) Multani Mal Modi College Patiala from January 09-16, 2017.

☞ Participated in One Day Workshop on Voluntary Blood Donation conducted by Department of Immunohematology and Blood Transfusion, Govt. Medical College, Patiala in association with Punjab State AIDS Control Society Chandigarh and Punjab State Blood Transfusion Council on 25.02.2017.

☞ Participated in one week Faculty Development Programme on Contemporary Issues on Higher Education organised by IQAC, Multani Mal Modi College Patiala from July 20-26, 2018.

☞ Participated in one week Faculty Development Programme on Emerging Issues & Challenges in Higher Education organised by IQAC, Multani Mal Modi College Patiala from July17-22, 2019.

☞ Participated in the Workshop on NDLI (National Digital Library of India) Club held at Govt. (State) College of Education, Patiala on 13th December, 2019 organised by National Digital Library of India.

☞ Participated in the AICTE recognized Faculty Development Programme on Neural Network and CNN conducted by Curriculum Development Centre Department from April 20 to April 24, 2020 (Except) at NITTTR, Chandigarh.

☞ Participated as a Programme Officer in Seven Days Inter College NSS Camp held at Mata Gujri College, Fatehgarh Sahib from June 15th to June 21st, 2020 under special Camping Programme.

Achievements, Awards and Recognitions

☞ Awarded **University Color by Punjabi University, Patiala** for securing First position in Classical Instrumental in North Zone Inter University Youth Festival organized by the Association of Indian Universities, New Delhi, at Rani Durgawati University, Jabalpur.

☞ Awarded **University Color by Punjabi University, Patiala** for securing Second position in Classical Instrumental in the Punjab State Inter University Youth Festival, Chandigarh.

☞ Recipient of **Gold Medal** in Classical Instrumental in All India Inter University Youth Festival Organized by the Association of Indian Universities, New Delhi, at Nagpur University, Nagpur.

- ☞ Recipient of **Gold Medal** for securing First position in Folk Instrumental Solo in the Inter Zonal Youth Festival of Punjabi University, Patiala for the year 1991-92.
- ☞ Recipient of **Gold Medal** for securing First position in Classical Instrumental Music in the Inter Zonal Youth Festival of Punjabi University, Patiala for the year 1991-92.
- ☞ Recipient of **Gold Medal** for securing First position in Classical Instrumental Music in the Inter Zonal Youth Festival of Punjabi University, Patiala for the year 1992-93.
- ☞ Recipient of **Gold Medal** for securing First position in Classical Instrumental Music in the Inter Zonal Youth Festival of Punjabi University, Patiala for the year 1995-96.
- ☞ Recipient of **Gold Medal** for securing First position in Classical Instrumental Music in the Inter Zonal Youth Festival of Punjabi University, Patiala for the year 1996-97.
- ☞ Secured **First position** in Percussion Instrumental Solo in All India Inter College Cultural Festival (21-24 Nov. 1996) organized by Thapar Institute of Engineering & Technology, Patiala.
- ☞ Secured **First position** in Hindi Group Song in All India Inter College Cultural Festival (21-24 Nov. 1996) organized by Thapar Institute of Engineering & Technology, Patiala
- ☞ Honoured twice by Punjabi University, Patiala for developing Software for Management of the North Zone Inter-University Youth Festival. This software was developed for the Dept. of Youth Welfare, Punjabi University, Patiala.
- ☞ Honoured for commendable contribution to organize National Voters Day by Department of Elections Punjab, held at Multani Mal Modi College Patiala (25.01.2013).
- ☞ Awarded as *Best Programme Officer* for NSS Activities (2014-15) by NSS Department, Punjabi University Patiala on 19.01.2016.
- ☞ *Award of Honour* for motivating voluntary blood donors on the Occasion of Voluntary Blood Donation Day by Deptt. of Transfusion Medicine, Govt. Medical College, Patiala (26.10.2016).
- ☞ Awarded as *Best Programme Officer* for NSS Activities (2015-16) by NSS Department, Punjabi University Patiala on 31.01.2017.

Additional Responsibilities / Services
- ☞ Member of Printing Committee & Media Coverage Committee in International Conference on Information Systems for Indian Languages (ICISIL2011) at Department of Computer Science, Punjabi University Patiala, held on March 9-11, 2011.
- ☞ Member, Board of Under Graduate Studies, Department of Computer Science, Mata Gujri College (Autonomous College) Sri Fatehgarh Sahib, for the session 2018-19 & 2019-20
- ☞ NSS Programme Officer (Unit-3), Multani Mal Modi College Patiala.
- ☞ Deputy Registrar, Multani Mal Modi College Patiala.
- ☞ Member, Editorial Board, Annual College Magazine **The Luminary**, Multani Mal Modi College Patiala.
- ☞ Member, IQAC, Multani Mal Modi College Patiala.
- ☞ Designated as a Subject Expert for the Undergraduate Board of Studies in Computer Science at Punjabi University Patiala, from January 1, 2024, to June 29, 2025