Name: Ajit Kumar

Designation: Associate Professor & Registrar

Specialization: Computer Applications, NLP, MT

Email: ajit8671@gmail.com

Contact Number: 985554425

Education
- MCA from Himachal Pradesh University, Shimla (1995)
- M.Phil. from Madurai Kamaraj University, Madurai(2007)
- Ph.D from Punjabi University, Patiala (28th May, 2015)
  Topic: Development of Statistical Approach Based Hindi to Punjabi Machine Translation System

Professional Experience:
- Multani Mal Modi College, Patiala (27th August, 2002 to till date)
- Patiala College of Management and Technology, Patiala (August 2000 to 30 June 2002)
- Regional Institute of Management and Administration, Chandigarh (January 1998 to January 2000)

Teaching Interests:
- Data and File Structure
- Computer Organization and Architecture
- Artificial Intelligence
- C, C++, Java, Python

Research Interest:
Machine Translation, Natural language Processing

Publications
1. Manpreet Singh Lehal, **Ajit Kumar,** Vishal Goyal, "Comparative Analysis of Similarity Measures for Extraction of Parallel Data" in International Journal of Control and Automation (2019) ISSN: 2005-4297
   http://sersc.org/journals/index.php/IJCA/article/view/2947
2. **Ajit Kumar** and Vishal Goyal, "Hindi to Punjabi machine translation system based on statistical approach" in Journal of Statistics and Management Systems, (2018) ISSN: 0972-0510 (Print) 2169-0014 (Online)
   https://doi.org/10.1080/09720510.2018.1466963

3. Manpreet Singh Lehal, **Ajit Kumar**, Vishal Goyal, "Review of techniques for extraction of bilingual lexicon from comparable corpora", in International Journal of Engineering & Technology, 7 (2.30) (2018) 15-20 ISSN: 2278 – 1323 https://www.sciencepubco.com/index.php/ijet/article/view/13456

4. Kamal Deep, **Ajit Kumar**, Vishal Goyal, "Development of Punjabi-English (PunEng) Parallel Corpus for Machine Translation System, in International Journal of Engineering & Technology, 7 (2) (2018) 690-693 ISSN: 2278 – 1323 http://ijarcet.org/?page_id=4719

5. Manu Raj Moudgil, Preeti Dubey, **Ajit Kumar** , "Challenges in building Dogri-Hindi Statistical MT System" in An International Journal of Engineering Sciences, Issue July 2017, Vol. 24, ISSN: 2229-6913(Print), ISSN: 2320-0332(Online), UGC Approved Journal (S.No.63019) http://ijoes.vidyapublications.com/paper/Vol24/03-Vol24.pdf

6. Gurvir Kaur, Sukhdev Singh, **Ajit Kumar**, "Urdu Ligature Recognition Techniques- A Review", in International Conference on Intelligent Communication and Computational Techniques (ICCT), (2017) Electronic ISBN: 978-1-5386-3030-3 DOI: 10.1109/INTELCCT.2017.8324060 https://ieeexplore.ieee.org/document/8324060

7. Jyoti, **Ajit Kumar**, "Thresholding Techniques for Ancient Document Images" in International Journal of Advanced Research in Computer Engineering & Technology, Vol. 5 Issue 9, pp: 2345-2350, ISSN:2278-1323 (Sept. 2016) http://ijarcet.org/wp-content/uploads/IJARCET-VOL-5-ISSUE-9-2345-2350.pdf

8. **Ajit Kumar** and Vishal Goyal, "Statistical Post Editing System (SPES) Applied to Hindi-Punjabi PB-SMT System", Indian Journal of Science and Technology, Vol 8(27),ISSN (Print) : 0974-6846 ISSN (Online) : 0974-5645 (2015) http://www.indjst.org/index.php/indjst/article/view/82463

9. Kamal Deep Garg and **Ajit Kumar***, "A Survey of Spell Checkers Available for Hindi and Punjabi*" in the proceedings of International Conference of Advances in Computers, Communication, and Electronic Engineering (COMMUNE-2015) held in the University of Kashmir, Srinagar, India from 16-18 March 2015.

10. Deepali, Vishal Goyal, **Ajit Kumar***, "Sentiment Analysis of Views Written in Gurmukhi Script*" in the proceedings of International Conference of Advances in Computers, Communication, and Electronic Engineering (COMMUNE-2015) held in the University of Kashmir, Srinagar, India from 16-18 March 2015.

11. **Ajit Kumar** and Vishal Goyal, "Practical Approach For Developing Hindi-Punjabi Parallel Corpus" in the proceedings of Workshop on Indian Language and Data: Resources and Evaluation, Istanbul, Turkey, (2012) (Available Offline)

12. **Ajit Kumar** and Vishal Goyal, "Comparative Analysis of Tools Available for Developing Statistical Approach Based Machine Translation System" in Springer:

Communication in Computer and Information Science Vol 139 with ISSN:1865-0929 (2011) (Available Offline)

13. **Ajit Kumar** and Vishal Goyal, "TDIL Programme: A Government Initiative" in An international Journal of Engineering Sciences, Journal Inauguration Issue 2010 with ISSN:2229-6913 (print), 2320-0332(online) (2010) http://ijoes.vidyapublications.com/paper/JSI/1.pdf

14. Manpreet Singh Lehal, **Ajit Kumar,** Vishal Goyal, (2020)"Document Alignment for Generation of English-Punjabi Comparable Corpora from Wikipedia " in International Journal of E-Adoption ISSN: 1937-9633 **https://www.igi-global.com/article/document-alignment-for-generation-of-english-punjabi-comparable-corpora-from-wikipedia/250302**

15. Kamal Deep, **Ajit Kumar**, Vishal Goyal ,(2021) "SMT Versus NMT: An Experiment with Punjabi–English", In: Singh P.K., Singh Y., Kolekar M.H., Kar A.K., Chhabra J.K., Sen A. (eds) Recent Innovations in Computing. ICRIC 2020. Lecture Notes in Electrical Engineering, vol 701. Springer, Singapore. https://doi.org/10.1007/978-981-15-8297-4_6 **https://doi.org/10.1007/978-981-15-8297-4_6**

16. Kamal Deep, **Ajit Kumar**, Vishal Goyal ,(2021)"Machine Translation System Using Deep Learning for Punjabi to English", In: Dave M., Garg R., Dua M., Hussien J. (eds) Proceedings of the International Conference on Paradigms of Computing, Communication and Data Sciences. Algorithms for Intelligent Systems. Springer, Singapore. **https://www.springerprofessional.de/en/machine-translation-system-using-deep-learning-for-punjabi-to-en/18883174**

17. *G. Kaur and A. Kumar, "Multi-level Image Enhancement for Text Recognition System using Hybrid Filters", International Journal of Intelligent Systems and Applications in Engineering IJISAE, 2023, 11(6s), pp. 816–824.*

18. G. Kaur and A. Kumar, "Autoseg: An Automated Segmentation Approach For Typewritten Gurmukhi Character Recognition" *Journal of Data Acquisition and Processing*, ISSN: 1004-9037, Vol. 38 (1), 2023, pp. 1857-1870, DOI: 10.5281/zenodo.7752024.

19. *G. Kaur and A. Kumar, "Typewritten Gurmukhi Character Recognition using Deep Learning Architecture" Journal of Harbin Engineering University, ISSN: 1006-704, Vol. 44 No. 7 (2023): Issue 7, pp. 2198-2207.*

20. Kaur, G. ., & Kumar, A. . (2023). A Study of Techniques and Challenges in Text Recognition Systems. *International Journal on Recent and Innovation Trends in Computing and Communication*, *11*(8), 342–356

Book/Book chapter

1. Nitin Bansal, **Ajit Kumar**, "Java Programming BCA, 5th Sem. Pbi Uni." 1st Edition , Kalyani Publishers (2014), ISBN: 93-272-2201-2
2. Nitin Bansal**, Ajit Kumar**, "A Simplified Approach to Internet Programming and Java BCA, 3rd Year Pb. Uni." 4th Edition , Kalyani Publishers (2013), ISBN: 93-272-2127-5
3. Nitin Bansal, **Ajit Kumar**, "A Simplified Approach to Java Programming PTU", 1st Edition , Kalyani Publishers (2013), ISBN: 93-272-3483-1
4. Nitin Bansal, **Ajit Kumar**, "Objective Computer Science (UGC) NET, JRF Entrance", 1st Edition , Kalyani Publishers (2013), ISBN: 93-272-3090-1
5. Nitin Bansal, **Ajit Kumar**, "A Simplified Approach to Concepts of Core and Advanced Java M.Sc. GNDU", 1st Edition , Kalyani Publishers (2012), ISBN: 93-272-2171-8
6. Nitin Bansal, **Ajit Kumar**, "Java Programming BCA, 5th Sem. Bangalore." 1st Edition , Kalyani Publishers (2010), ISBN: 81-272-6244-0

Conference
A) Resource Person / Invited Lectures:

1. Chaired a session in conference "Role of IT in Management & Engineering: Issues & Prospectus" Sponsored by Department of Science & Technology, Govt. of India, Organized by Malout Institute of Management & Information Technology (27-August 2016)
2. Delivered a lecture on 'Vision of Digital India' on 7th July 2015 at Govt. Bikram College of Commerce, Patiala.
3. Delivered a talk on Natural Language Processing at TQIP-II Sponsored Faculty Development Program on 14 January 2014 held at Guru Nanak Dev Engineering College, Ludhiana from 13 January 2014 to 17 January 2014.
4. Delivered a talk on 'Statististical Machine Translation and Installation of Moses' in the 7-days workshop held on Multilingual Technologies by the Department of Computer Science, Punjabi University, Patiala from 11 Nov 2013 to 17 Nov, 2013.

B) Paper presented:

1. Presented a paper entitled "*Urdu Ligature Recognition Techniques- A Review*" in International Conference on Intelligent Communication and Computational Techniques (ICCT) organized by Manipal University, Jaipur (Dec 22-23, 2017)
2. Presented a paper entitled *'Statistical Past Editing System (SPES) Applied to Hindi-Punjabi PB-SMT System'* in the Third Regional International Conference on Natural Language Processing (regICON-2015) held on September 18-19, 2015 at Department of Computer Science, Punjabi University, Patiala.
3. Presented a paper entitled *'Transliteration Ststem: Punjbai to English'* in the Third Regional International Conference on Natural Language Processing (regICON-2015) held on September 18-19, 2015 at Department of Computer Science, Punjabi University, Patiala.
4. Presented the paper entitled "*Comparative Analysis of Tools Available for Developing Statistical Approach Based Machine Translation System*" in International Conference on Information Systems for Indian Languages (ICISIL2011) held at Punjabi University Patiala from March 9, 2011 to March 11, 2011.
5. Presented a paper entitled '*Electronic Waste – Threat & Disposal Practices'* in the UGC sponsored National Seminar 'Prospects of IT : 2020' organized by Hindu Girls College, Jagadhri from September 14, 2010 to September 15, 2010 .

6. G. Kaur, S. Singh and A. Kumar, "Urdu ligature recognition techniques-A review," *2017 International Conference on Intelligent Communication and Computational Techniques (ICCT)*, Jaipur, India, 2017, pp. 285-291, doi: 10.1109/INTELCCT.2017.8324060.

7. G. Kaur and A. Kumar, "Automated Line Segmentation for Gurmukhi Text Recognition System," *2021 2nd International Conference on Computational Methods in Science & Technology (ICCMST)*, Mohali, India, 2021, pp. 264-269, doi: 10.1109/ICCMST54943.2021.00062.

Ph.D.
1. Gurvir Kaur: **(On-going)** "*Development of OCR for Typewritten Gurmukhi Documents*" (Registration date: 21st May, 2019)

2. Kamal Deep Garg: (On-going) "*Development of Punjabi to English Machine Translation System*" (Registration date:18th January, 2017)

3. Nitin Bansal: (On-going) "*Development of Punjabi to Urdu Machine Translation System Using Hybrid Approach*" (Registration date:28th November, 2016)

4. Manpreet Singh: (On-going) "*Extracting Parallel Phrases from Comparable English and Punjabi Corpora using an Integrated Approach*" (Registration date:28th November, 2016)

Workshops and training courses

1. Attended Awareness Programme/ **Workshop** by NAAC organized by Internal Quality Assurance Cell (IQAC) Guru Nanak Dev University, Amritsar (12th October, 2018)

2. Attended one-week **faculty development program** on "Contemporary Issues in Higher Education" from July 20-26, 2018 held at Multani Mal Modi College, Patiala

3. Attended **National Workshop** on "IPR Awareness and Plagiarism Detection Tool for Indian Language" Organized by Department of Computer Science, Punjabi University, Patiala in collaboration with IPR Division, DeitY, MoC&IT, GOI, New Delhi (13th May, 2016)

4. Attended 7 Days UGC Sponsored **Faculty Development Programme** on the theme "Academic Writing from Critical Appreciation to Publication" Organized by IQAC, Multani Mal Modi College, Patiala (9th -15th July 2015)

5. Participated in Two days **workshop** on "Statistical Machine Translation: Moses Tool Kit" Organized by Centre of Advanced Computing Research, Chitkara University, Punjab and Department of Computer Science, Punjabi University, Patiala (30-31 Dec, 2014)

6. Attended 15 Days UGC Sponsored **Faculty Development Programme** Organized by Multani Mal Modi College, Patiala (1st -15th July 2014)

7. Participated in TEQIP-II sponsored **National Workshop** on Natural Language Processing at Thapar University, Patiala on December 6-7, 2013.

8. Participated in UGC Sponsored **Refresher Course** at Academic Staff College, Punjabi University, Patiala from May 06, 2013 to May 25, 2013.

9. Participated in the Indian Languages Corpora Initiative (ILCI) Phase II **National Workshop** from 18th April to 20th April 2013 held at Punjabi University, Patiala.

10. Attended **Short Term Training** cum Awareness Programme on National Mission on Education through Information and Communication Technology for faculty of Ars/Science/Commerce/Medical/Law under various Universities of Punjab on October 19,2012 held at Dr. B R Ambedkar National Institute of Technology, Jalandhar.

11. Attended Three Days **National Workshop** On Computational Sanskrit held at Sanatan Dharam College (Lahore), Ambala Cant from 11 November, 2011 to 13 November, 2011.

12. Participated in "3rd IIIT - Hyderabad Advanced School on Natural Language Processing" a 15-days **National Workshop** held at Language Technology Research Centre, International Institute of Information Technology, Hyderabad from 23rd May 2011 to 5th June 2011.

13. Participated in UGC Sponsored **Orientation Programme** at Academic Staff College, Himachal Pradesh University, Shimla from May 3, 2006 to May 30, 2006.

14. Participated in UGC Sponsored **Refresher Course** at Thapar Institute of Engineering & Technology, Patiala from December 05, 2005 to December 24, 2005.

15. Attended One Day **Workshop** on 'Integration of Information and Communication Technology in Higher Education' organized by The Secretary to Government, Punjab, Department of Higher Education, Chandigarh on September 22, 2005

Achievements, Awards and Recognitions

Membership

- Member of the faculty of computing science, Punjabi University, Patiala from 19th March, 2019 to 10th January, 2021

- Member of the Faculty of Physical Science, Punjabi University, Patiala from 12.8.2015 to 11.1.2017