

Dr. Bharti

Research Interests

My research interests span the areas of machine learning, image processing and pattern recognition. I have a specific interest in developing Computer-aided diagnosis (CAD) methods for differential diagnosis of an individual and identification of imaging biomarkers of a disease. I've worked on T1-weighted MRI dataset of Parkinson's disease (acquired at All Indian Institute of Medical Science, Delhi), Alzheimer's disease and fMRI dataset of Schizophrenia disease. I like to practice applied research for developing CAD methods that may be helpful for the clinicians and patients.

Education

Ph. D. in Computer Science (July 2012 - May 2016)

School of Computer and Systems Sciences, Jawaharlal Nehru University (JNU), Delhi, INDIA

Thesis title: Computer Aided Diagnosis of Parkinson's Disease using T1-weighted Magnetic Resonance Imaging

Master of Technology in Computer Science & Technology (Aug 2010 - July 2012)

School of Computer and Systems Sciences, Jawaharlal Nehru University (JNU) Delhi, INDIA

Dissertation title: Salient Features Selection for Multi-class texture classification

Master of Computer Applications (Aug 2006 - June 2009)

Tecnia Institute of Advanced Studies, Guru Gobind Singh Indraprastha University (GGSIPU) Delhi, INDIA

Dissertation title: Implementation of Image Retrieval Techniques

For Dissertation, worked at: Defence Terrain Research Laboratory (DTRL), Defence Research & Development Organization (DRDO), Metcalfe House, Delhi, INDIA.

Awards and Achievements

- Department of Science & Technology-INSPIRE Fellow from July 2013 to Aug, 2015.
- 1st Position during Master of Technology (SC&SS, JNU).
- UGC-NET (Computer Science), June 2012
- GATE-2010 qualified in Computer Science

Work Experience

- Worked as a Skill Assistant Professor, Computer Science Engineering/Information Technology, Skill Faculty of Engineering & Technology, Shri Vishwakarma Skill University, Haryana, INDIA from August 06, 2019 to

December 03, 2020.

- Worked as an Assistant professor (Ad-hoc) at Hansraj College, University of Delhi, Delhi, INDIA from Sept 8, 2015 to August 05, 2019.
- Worked as Senior Research Fellow under Department of Information Technology, Ministry of Communication & IT, Govt. of India funded project entitled "Agri-Bioinformatics Promotion Programme" at Indian Institute of Wheat & Barley Research, (formerly named as Directorate of Wheat Research) Karnal, Haryana, INDIA from October 1, 2009 to August 10, 2010.
- Completed Master of Computer Applications (VI semester) project at Defence Terrain Research Laboratory (DTRL), Defence Research & Development Organization (DRDO), Metcalfe House, Delhi, INDIA as a Trainee.

Administrative Activities

- Member, Dean of Students' Welfare, Shri Vishwakarma Skill University, Palwal, Haryana
- Project Coordinator, Post Graduate Diploma in Aerospace Structural Design, Skill Faculty of Engineering & Technology, Shri Vishwakarma Skill University, Palwal, Haryana
- Project Coordinator, Post Graduate Diploma in Aerospace Technical Publication, Skill Faculty of Engineering & Technology, Shri Vishwakarma Skill University, Palwal, Haryana
- NSS Officer, Shri Vishwakarma Skill University, Palwal, Haryana
- Coordinator, Monthly Progress Report, Skill Faculty of Engineering & Technology, Shri Vishwakarma Skill University, Palwal, Haryana
- Member, Anti-ragging squad, Shri Vishwakarma Skill University, Palwal, Haryana
- Convener, Cultural Committee, Shri Vishwakarma Skill University, Palwal, Haryana
- Member, Youth Red cross committee, Shri Vishwakarma Skill University, Palwal, Haryana
- Member, Adventure Cell, Shri Vishwakarma Skill University, Palwal, Haryana
- Member, Admission committee, Shri Vishwakarma Skill University, Palwal, Haryana
- Member, Board of Studies, Skill Faculty of Engineering & Technology, Shri Vishwakarma Skill University, Haryana
- Member, Social-media Committee, Admission Committee, Shri Vishwakarma Skill University, Haryana
- Active member of Election Committee in Hans Raj College since 2015.
- Active member of the Admission Committee in Hans Raj College since 2016.

Certifications

- Completed "The Data Scientist's Toolbox", offered by Johns Hopkins University and offered through Coursera in July, 2020.
- Completed a guided Project entitled "Multiple Linear Regression with scikit-learn", an online non-credit course

authorized by Coursera Project Network and offered through Coursera in July, 2020.

- Completed “Introduction and Programming with IoT Boards”, Pohang University of Science and Technology and offered through Coursera in May, 2020.
- Completed Deep Learning for Visual Computing Summer School 2017 organized during July 2-8, 2017 at the Indian Institute of Technology Kharagpur-Kolkata Campus.
- Completed online course Programming Mobile Applications for Android Handheld Systems: Part 1 by University of Maryland, College Park on Coursera. Certificate earned on March 12, 2017

Journal Articles

1. Indranath Chatterjee, Virendra Kumar, Bharti Rana, Manoj Agarwal, Naveen Kumar. Impact of ageing on the brain regions of the schizophrenia patients: an fMRI study using evolutionary approach, *Multimedia Tools and Applications*, 1-23, 2020, DOI: <https://doi.org/10.1007/s11042-020-09183-z>
2. Indranath Chatterjee, Virendra Kumar, Bharti Rana, Manoj Agarwal, Naveen Kumar. Identification of changes in grey matter volume using an evolutionary approach: an MRI study of schizophrenia, *Multimedia Systems*, 26, 383–396, 2020
3. Namita Aggarwal, Bharti Rana, R.K. Agrawal. Role of surfacelet transform in diagnosing Alzheimer’s disease. *Multidimensional Systems and Signal Processing*, 30, 1839–1858, 2019. <https://doi.org/10.1007/s11045-019-00632-z>
4. Indranath Chatterjee, Manoj Agarwal, Bharti Rana, Navin Lakhyani, Naveen Kumar. Bi-objective Approach for Computer aided Diagnosis of Schizophrenia Patients using fMRI Data, *Multimedia Tools and Applications*, 77, 26991-27015, 2018. DOI: <https://doi.org/10.1007/s1104>
5. Akanksha Juneja, Bharti Rana, R.K. Agrawal. A novel fuzzy rough selection of non-linearly extracted features for schizophrenia diagnosis using fMRI, *Computer Methods and Programs in Biomedicine*, 155, 139-152, 2018. <https://doi.org/10.1016/j.cmpb.2017.12.001>.
6. Akanksha Juneja, Bharti Rana, R.K. Agrawal. fMRI based Computer Aided Diagnosis of Schizophrenia using Fuzzy Kernel Feature Extraction and Hybrid Feature Selection, *Multimedia Tools and Applications*, 77(3) 3963-3989, 2018. doi:10.1007/s11042017-4404-8.
7. Bharti Rana, Akanksha Juneja, Mohit Saxena, Sunita Gudwani, S.S. Kumaran, Madhuri Behari, R.K. Agrawal. Relevant 3D Local Binary Pattern based Features from Fused Feature Descriptor for Differential Diagnosis of Parkinson’s Disease using Structural MRI, *Biomedical Signal Processing and Control*, 34, 134-143, 2017. ISSN 1746-8094, <http://dx.doi.org/10.1016/j.bspc.2017.01.007>.
8. Akanksha Juneja, Bharti Rana, R.K. Agrawal. A Combination of Singular Value Decomposition and Multivariate Feature Selection Method for Diagnosis of Schizophrenia using fMRI, *Biomedical Signal Processing and Control*, 27, 122-133, 2016, ISSN: 1746-8094.
9. Bharti Rana, Akanksha Juneja, Mohit Saxena, Sunita Gudwani, S.S. Kumaran, Madhuri Behari, R.K. Agrawal. Graph Theory based Spectral Feature Selection for Computer Aided Diagnosis of Parkinson’s Disease using

T1-weighted MRI, International Journal of Imaging Systems and Technology, 25(3), 245-255, 2015, Online ISSN: 1098-1098

10. Namita Aggarwal, Bharti Rana, R.K. Agrawal. A Combination of Dual-Tree Discrete Wavelet Transform and Minimum Redundancy Maximum Relevance Method for Diagnosis of Alzheimer's Disease, International Journal of Bioinformatics Research and Applications, 11(5), 433-461, 2015, Online ISSN: 1744-5493
11. Namita Aggarwal, Bharti Rana, R.K. Agrawal. 3D Discrete Wavelet Transform for Computer Aided Diagnosis of Alzheimer's Disease using T1-Weighted Brain MRI, International Journal of Imaging Systems and Technology, 25(2), 179-190, 2015, ISSN:1098-1098
12. Bharti Rana, Akanksha Juneja, Mohit Saxena, Sunita Gudwani, S.S. Kumaran, R.K. Agrawal, Madhuri Behari. Regions-of-Interest based Automated Diagnosis of Parkinson's Disease using T1-weighted MRI, Expert Systems with Applications, 42(9), 4506-4516, 2015, ISSN: 0957-4174

For all publication list: <https://scholar.google.com/citations?user=CABw3dkAAAAJ&hl=en>

Conference Articles

1. Bharti Rana, Akanksha Juneja, Mohit Saxena, Sunita Gudwani, S.S. Kumaran, R.K. Agrawal, Madhuri Behari. Voxel-based Morphometry and Minimum Redundancy Maximum Relevance Method for Classification of Parkinson's Disease and Controls from T1-weighted MRI, In: The Tenth Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP-2016), pp. 22, ACM.
2. Mohit Saxena, Bharti Rana, Akanksha Juneja, S.S. Kumaran, R.K. Agrawal, Madhuri Behari. Imaging Neurodegeneration in Movement Disorders: A VBM Study, In: Nineteenth International Congress of Parkinson's Disease and Movement Disorders, JUNE 14-18,2015, SAN DIEGO, CA, USA. Movement Disorders, Vol. 30, Suppl. 1, Pg S393-394, 2015.
3. Akanksha Juneja, Bharti Rana, R.K. Agrawal. A Novel Approach for Computer Aided Diagnosis of Schizophrenia using Auditory Oddball Functional MRI, In: The ninth Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP2014), Dec 14-17, 2014, doi: <http://dx.doi.org/10.1145/2683483.2683520>, p 37, ACM, ISBN: 978-1-4503-3061-9.
4. Bharti Rana, Akanksha Juneja, Mohit Saxena, Sunita Gudwani, S.S. Kumaran, Madhuri Behari, R.K. Agrawal, A Machine Learning Approach for Classification of Parkinson's Disease and Controls using T1-weighted MRI, In: 4th Asian and Oceanian Parkinson's Disease and Movement Disorders Congress, Pattaya, Thailand, Nov 28-30, 2014. Movement Disorders, Vol 29, Suppl. 2, 2014, ISSN: 1531-8257
5. Akanksha Juneja, Bharti Rana, R.K. Agrawal. A Novel Approach for Classification of Schizophrenia Patients and Healthy Subjects using Auditory Oddball Functional MRI, In: Proceedings of 13th Mexican International Conference on Artificial Intelligence (MICAI-2014), Nov. 16-22, 2014, IEEE.
6. Namita Aggarwal, Bharti Rana, R.K. Agrawal. Detection of Alzheimer's Disease via Statistical Features from Brain Slices, In: Proceedings of the Twenty-Sixth International Florida Artificial Intelligence Research Society Conference, FLAIRS-2013, St. Pete Beach, Florida. May 22-24, 2013. AAAI Press 2013.
7. Bharti Rana, R.K. Agrawal. Salient Features Selection for Multiclass Texture Classification, In Proceedings of

11th Mexican International Conference on Artificial Intelligence, MICAI 2012, San Luis Potosi, Mexico, Oct 27-Nov 4, 2012, Volume Part I, 2012, 205-215, Lecture Notes in Computer Science Springer.

8. Namita Aggarwal, Bharti Rana, R.K. Agrawal. Computer Aided Diagnosis of Alzheimer's disease from MRI Brain Images. ICIAR, Aveiro, Portugal, June 25-27, 2012, Proceedings, Volume Part II, 2012, 259-267, Lecture Notes in Computer Science 7325, Springer 2012.

For all publication list: <https://scholar.google.com/citations?user=CABw3dkAAAAJ&hl=en>

Book Chapter

1. Namita Aggarwal, Bharti Rana, R.K. Agrawal. Statistical Features Based Diagnosis of Alzheimer's Disease Using MRI, Chapter in Computer Vision and Image Processing in Intelligent Systems and Multimedia Technologies, Editor: Muhammad Sarfraz, 2014, 38-53. DOI: 10.4018/978-1-4666-6030-4.ch003, ISSN: 13: 9781466660304

Conferences Attended

1. Presented paper entitled "Voxel-based Morphometry and Minimum Redundancy Maximum Relevance Method for Classification of Parkinson's Disease and Controls from T1-weighted MRI", In: The Tenth Indian Conference on Computer Vision, Graphics and Image Processing, ICVGIP-2016, December 18-22, 2016.
2. Attended the "International Workshop on Big Data Analytics (WBDA-2016)" held on March 30, 2016 organized by SC&SS, JNU, New Delhi.
3. Attended "Indo-Euro Park summit 2015, Parkinson's and Movement Disorders: latest in science" endorsed by Indian Academy of Neurology & Movement Disorders Society of India, March 14-15, 2015.
4. Attended a conference entitled "102nd Indian Science Congress (ISC-2015)" held at University of Mumbai, Mumbai, Jan. 3-7, 2015.
5. Attended a conference entitled "3rd International Conference on Big Data Analytics (BDA-2014)" held at IIT, Delhi, Dec. 20-23, 2014.
6. Attended a conference entitled "The ninth Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP2014)" held at Indian Institute of Science (IISc), Bangalore, Karnataka, India, Dec. 14-17, 2014.
7. Presented "A Machine Learning Approach for Classification of Parkinson's Disease and Controls using T1-weighted MRI" in 4th Asian and Oceanian Parkinson's Disease and Movement Disorders Congress, Pattaya, Thailand, Nov. 28-30, 2014.
8. Attended a conference entitled "International Conference on Big Data Analytics (BDA-2012)" organized by University of Delhi, India And University of Aizu, Japan on Dec. 24-26, 2012.
9. Attended International Symposium on "Medical Imaging on Perception and Diagnostics" organized by IIT, Delhi on Dec. 9-10, 2010.

10. Presented paper entitled "An Efficient Approach for Color Image Retrieval using Haar Wavelet" in International Conference on Methods and Models in Computer Science, 2009 (ICM2CS-2009) conducted by JNU, New Delhi, INDIA from Dec. 14-15, 2009.
11. Participated as a Special Student in National Conference on Physics conducted by Sri Bhagawan Mahaveer Jain College, Bangalore in association with ISRO during Sept. 9-10, 2005.

Resource Person for FDPs/Workshops/etc.

1. Contributed as one of the resource persons for First International Workshop on "Transforming Online learning for Equitable, Inclusive, and Quality Education with Special focus on National Education Policy 2020" from Oct 10-11, 2020 organized by Sat Jinda Kalyana College, Kalanaur, Rohtak, Haryana.
2. Contributed as one of the resource persons for One-week National workshop on "IoT Projects for Industrial Applications" from June 9-June 14, 2020 organized by Skill Faculty of Engineering and Technology, Shri Vishwakarma Skill University, Palwal, Haryana.
3. Contributed as a resource person in "Machine Learning in Medical Imaging - An Introductory Workshop" held on Sept 8, 2018 at All India Institute of Medical Sciences, New Delhi.
4. Contributed as a resource person in the INSPIRE Programme (DST) held at Hansraj College, University of Delhi from Dec 12, 2017 to Dec 16, 2017.
5. Contributed as a resource person in "Workshop on Python: Fundamental and Advanced" held on Jan 21, 2017 and Feb 4, 2017 organized by IQAC and Department of Computer Science, Hansraj College, New Delhi 110007, India.
6. Contributed as a resource person in "Workshop on R Programming" held on January 30, 2016 organized by Ordinateur, The Computer Science Society, Hans Raj College, New Delhi.
7. Contributed as a resource person in "Workshop on MATLAB" held on October 6-7, 2015 organized by Ordinateur, The Computer Science Society, Hans Raj College, New Delhi.

FDPs/STTPs/Workshop Attended

1. Attended two weeks (equivalent to 3 credit 40 hours course) online Faculty Development Programme on "Advanced Optimization Techniques and hands-on with MATLAB/SCILAB" jointly organized by Electronics and ICT Academies held from 13 – 24 July 2020 under the "Scheme of financial assistance for setting up of Electronics and ICT Academies" by the Ministry of Electronics and Information Technology (MeitY), Government of India. This programme is endorsed by AICTE / UGC / NBA.
2. Attended One Day Workshop on "Swot Analysis an Effective Tool for Development" organized by Shri Vishwakarma Skill University on July 21, 2020.
3. Attended 4th Jawaharlal Nehru University Workshop on "Empowering Teaching through Online Mode" (JNU WETOM IV) for University/College Teachers from July 11-12, 2020.
4. Attended Short Term Training Programme on 'Data Science & Learning Systems for Engineering Research & Design' Jointly Organized by National Institute of Technology, Kurukshetra & GEC Bikaner; and Sponsored

by TEQIP-III from June 24- 30, 2020.

5. One-week National Workshop on "Research Challenges in Computer Science & Technology" conducted by Department of Computer Science and Information Technology, Mahatma Gandhi Central University, Bihar from June 18 to 23, 2020.
6. Attended 3rd Jawaharlal Nehru University Workshop (WETOM III) on "Online Assessment and Evaluation" for University/College Teachers from June 12-13, 2020.
7. Attended Three Days Faculty Development Program "Abhyudaya Shikshak Kaushal Karyakram" organized by Skill Faculties of Humanities and Applied Science, Shri Vishwakarma Skill University, from May 19- 21, 2020.
8. Attended One-Week online Faculty Development Program "Moodle: Learning Management System (LMS)" organized by Department of E&TC Engineering of STES'S Smt. Kashibai Navale College of Engineering, Pune in association with Spoken Tutorial, IIT Bombay from May 13-17, 2020.
9. Completed National Level One Week Online Faculty Development Program on "Arduino" with included a demonstration cum hands on exposure organized in association with Spoken Tutorial Project, IIT Bombay, funded by National Mission on Education through ICT, MHRD, Govt. of India, remotely by Department of E&TC Engineering, AISSMS College of Engineering from April 28, 2020 to May 04, 2020.
10. Attended Faculty Development Programme (FDP) on 'MOOCs and E-learning Technologies (Online Mode Only)' from April 10-15, 2020 organized by FDC, M. D. University, Rohtak, Haryana from April 10-15, 2020.
11. Attended five days training programme entitled "Molecular Markers-Discovery & Validation" conducted by CPCRI, Kasargod, Kerala, Jan. 18-22, 2010.
12. Attended a workshop entitled "Emerging Machine Learning Techniques in Bioinformatics" conducted by National Dairy Research Institute (NDRI), Karnal (Haryana) from Dec. 17-19, 2009.

Organizing team members for FDPs/Workshops/etc.

1. Co-convenor of 1st Vishwakarma National Skill Excellence Award held on Oct 02, 2020, conducted by Shri Vishwakarma Skill University, Palwal, Haryana.
2. Co-convenor of Two weeks Project-based Two-Weeks Internship/Faculty Development Programme (FDP) on "Modern Websites Development with Angular 2+" organised by Skill Faculty of Engineering & Technology, SVSU, Palwal, Haryana from July 29, 2020 to August 08, 2020.
3. Contributed as an organizing committee member for One-week National workshop on "IoT Projects for Industrial Applications" from June 9-June 14, 2020 organized by Skill Faculty of Engineering and Technology, Shri Vishwakarma Skill University, Palwal, Haryana.
4. Contributed as an organizing committee member for National Level Online Faculty Development Programme (FDP) on "Business 4.0- Embracing Digital Technology" from July 6-July 10, 2020 by Skill Faculty of Engineering and Technology, Shri Vishwakarma Skill University, Palwal, Haryana.
5. Contributed as an organizing committee member for Two-days Faculty Development Programme (FDP) on "Exploring New Frontiers of Learning" from July 01-02, 2020 organized by Shri Vishwakarma Skill University, Palwal, Haryana.
6. Organized Interindustry Online Quiz Competition "Kaushal Manthan: Digital Skillathon III on Information

Communication and Technologies” on May 12, 2020

7. Organized Interindustry Online Quiz Competition “Kaushal Manthan: Digital Skillathon II on Materials and Machining” on May 4, 2020
8. Organized Interindustry Online Quiz Competition “Kaushal Manthan: Digital Skillathon I on Automation and Mechatronics” on April 29, 2020
9. Co-convenor of "Srijan:2020- Innovation conclave (A National Level Ideation Workshop and Competition)" to celebrate World Intellectual Property Week from April 25 to May 02, 2020 organized by Skill Faculty of Engineering and Technology, Shri Vishwakarma Skill University, Palwal, Haryana
10. Co-convenor of a Student Competition "Skillathon-2020" held on Feb 10, 2020 in collaboration with Hero Motocorp conducted at Hero Motocorp, Dharuhera
11. Convenor of the Two-Days workshop on “Arduino Based Project Development” on Dec. 19-20, 2019 held at Hero Motocorp, Dharuhera."
12. Co-convenor for the One day workshop on “Design and modelling of electrical components for domestic and industrial application” held on Dec 9, 2019 held at Transit Campus, Gurugram for the students of B.Voc (Robotics and Automation) and M.Voc (Robotics and Automation).
13. Co-convenor of the one-day workshop on “Simulation and Modelling using MATLAB” held on 28th Nov., 2019 at Transit Campus, Gurugram, Haryana.
14. Convenor for the One-Day Workshop on “Quality and Inspection Technology” at AKGEC Skills Foundation, Ghaziabad, Uttar Pradesh on Nov. 27, 2019.
15. Contributing as a part of the organizing team of the Faculty Development Programme on "Challenges before the Academia in the era of Gadgets, E-communication and Artificial Intelligence" from Dec 15 to 28, 2018.
16. Contributed as one of Technical Program Committee Members for The 32nd International Conference on VLSI Design and 18th International Conference on Embedded Systems, Jan 5-9,2019 for Autonomous Intelligence track.
17. Contributed as a Reviewer in CVIP-2018, GUCON 2018 and ICACCT-2018.
18. Reviewer for Elsevier BSPC and CMPB journals.
19. A member of the organizing committee in a conference entitled "3rd International Conference on Big Data Analytics (BDA-2014)" held at IIT, Delhi on Dec. 20-23, 2014.
20. Worked as a volunteer in "International Conference on Methods and Models in Computer Science" (ICM2CS09) held at JNU, New Delhi, India during Dec. 13-14, 2010.
21. A resource person in Training on "Introduction to Bioinformatics" organized by center of Agri-Bioinformatics Promotion Programme, Directorate of Wheat Research, Karnal, March 30-31, 2010.

Organizing team member for Co-curriculum Activities

1. Member, organizing team, Naipunya-2019, 1st Cultural Fest, held on Nov. 05, 2019, organized by Dean of

Students' Welfare, Shri Vishwakarma Skill University, Palwal, Haryana

2. Member, organizing team, Foundation Day, held on Nov. 19, 2019, organized by Shri Vishwakarma Skill University, Palwal, Haryana
3. Member, Organizing Team, Blood Donation Camp, Nov. 29, 2019, organized by Dean of Students' Welfare, Shri Vishwakarma Skill University, Palwal, Haryana
4. Co-convener, Literary Review program "Chintan", Jan 16, 2020, organized by Dean of Students' Welfare, Shri Vishwakarma Skill University, Palwal, Haryana
5. Co-convener, "International Women's Day", Feb 04, 2020, organized by Dean of Students' Welfare, Shri Vishwakarma Skill University, Palwal, Haryana
6. Co-ordinator, "Online singing competition", April 07, 2020, organized by Dean of Students' Welfare, Shri Vishwakarma Skill University, Palwal, Haryana
7. Co-ordinator, "Online poetry competition", April 09, 2020, organized by Dean of Students' Welfare, Shri Vishwakarma Skill University, Palwal, Haryana
8. Co-ordinator, "National Level Laughter and Mimicry Challenge", April 18, 2020, organized by Dean of Students' Welfare, Shri Vishwakarma Skill University, Palwal, Haryana
9. Co-convener, "Global Idea Jam-SVSU Idea Factory", April 27, 2020, organized by Dean of Students' Welfare, Shri Vishwakarma Skill University, Palwal, Haryana
10. Co-convener, Sports Day "SportiFY: Sports-Fitness-Yoga", May 13-14, 2020, organized by Dean of Students' Welfare, Shri Vishwakarma Skill University, Palwal, Haryana