Puneet Kumar

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OBJECTIVE

I am a Ph.D. student at Machine Intelligence Lab, IIT Roorkee, India, supervised by Prof. R. Balasubramanian. My major research interest is Multimodal Emotion Analysis using Image, Text, and Speech. I am seeking a research position at a multi-disciplinary academic research lab that offers professional growth and innovation, where I could utilize and expand my skills and experience.

EDUCATION

Ph.D., Computer Science (pursuing), CGPA: 9.00/10   Jul 2018 onwards

Indian Institute of Technology, Roorkee, Uttrakhand, India.
Thesis Area: *Multi-modal Emotion Analysis*
Supervisor: Prof. R. Balasubramanian

M.E., Computer Science (**Gold Medalist**), CGPA: 9.38/10   Jul 2018

Thapar Institute of Engineering & Technology, Thapar University, Patiala, Punjab, India.
Thesis Topic: *Meta-heuristic based Optimization of Deep Neural Networks*
Supervisor: Dr. Shalini Batra

B.E., Computer Science, CGPA: 7.47/10   May 2014

Manipal Institute of Technology, Manipal University, Manipal, Karnataka, India.

WORK EXPERIENCE

Industry:

Visiting Researcher   Jul 2018 - Jun 2019

Samsung R&D, *New Delhi, India.*
Worked on 'End to End Emotional Speech Synthesis' project, sponsored by Samsung R&D, in the investigation of Prof. R. Balasubramanian, IIT Roorkee.

Application Engineer   May 2014 - May 2016

Oracle *India Pvt. Ltd., Hyderabad, Telangana, India.*
Worked with the Software Development team for the sustenance of a project management tool 'Oracle Primavera P6 Professional'.

Project Intern   Jan 2014 - May 2014

Oracle *India Pvt. Ltd., Hyderabad, Telangana, India.*
Worked with the Software Testing team for the quality assurance of 'Oracle Primavera P6 Enterprise Project Portfolio Management Web'.

<u>Academics:</u>

Visiting Researcher Dec 2019

Osaka Prefecture University (OPU), Osaka, Japan.
Worked at the Department of Computer Science and Intelligent Systems, OPU, Osaka, Japan, under Japan Science and Technology Sakura Science Plan.

Teaching Assistant Jul 2018 - Present

Indian Institute of Technology, Roorkee, India.
Assisted Prof. R. Balasubramanian in tutorial and quiz sessions for Advance Algorithms (CSN 501), Database Management System (CSN 351), Data Structures (CSN 102), and Discrete Structures (CSN 106) courses.

Teaching Assistant Jul 2016 - Jul 2018

Thapar Institute of Engineering & Technology, Thapar University, Patiala, Punjab, India.
Assisted Prof. R. K. Sharma and Dr. Shalini Batra in lab and quiz sessions for Data Structures and Algorithms (UCS 406) and Compiler Construction (UCS 802) courses.

RESEARCH INTERESTS

- Multimodal Emotion Analysis & Affective Computing
- Machine Learning & Deep Learning
- Image-Text-Speech Processing
- Metaheuristic Optimization Techniques

PUBLICATIONS

Journals

[J-1] **Puneet Kumar**, Shalini Batra, Balasubramanian Raman. "Deep neural network hyperparameter tuning through two-fold genetic approach." Springer Soft Computing (SoCo) Journal. [**SCI, Q2, IF = 3.05**]

[J-2] Ankit Sharma, **Puneet Kumar**, Vikas M, Nagasai M, Kishore K, Sriram K, Balasubramanian Raman and Partha Pratim Roy. "Fast Griffin Lim based Waveform Generation Strategy for Text-to-Speech Synthesis." Springer Multimedia Tools and Applications (MTAP) Journal. [**SCI, Q2, IF = 2.31**]

[J-3] **Puneet Kumar**, Sahil Garg, Amritpal Singh, Shalini Batra, Neeraj Kumar and Ilsun You. "MVO-Based 2-D Path Planning Scheme for Providing Quality of Service in UAV Environment." IEEE Internet of Things Journal. [**SCI, Q1, IF = 9.94**]

Conferences

[C-1] **Puneet Kumar**, Vishesh Kaushik and Balasubramanian Raman. "Towards the explainability of Multimodal Speech Emotion Recognition." 22nd Annual Conference of the International Speech Communication Association (Interspeech 2021), Brno, Czech Republic [**CORE A|Qualis A1**].

[C-2] **Puneet Kumar**, Vedanti Khokher, Yukti Gupta and Balasubramanian Raman. "Hybrid Fusion Based Approach for Multimodal Emotion Recognition with Insufficient Labelled Data." 28th IEEE Int. Conference on Image Processing (ICIP 2021), Anchorage, Alaska, USA [**CORE B|Qualis A1**].

[C-3] **Puneet Kumar** and Balasubramanian Raman. "Domain Adaptation based Technique for Image Emotion Recognition using Image Captions." 5th IAPR Inetrnational Conference on Computer Vision and Image Processing (CVIP 2020) [**IAPR Endorsed|Got the 'Best Paper Award'**].

[C-4] **Puneet Kumar**, Sidharth Jain, Balasubramanian Raman, Partha Pratim Roy and Masakazu Iwamura. "End-to-end Triplet Loss based Emotion Embedding for Speech Emotion Recognition." 25th IEEE Int. Conf. on Pattern Recognition (ICPR 2020) [**CORE B|Qualis A1**].

[C-5] Sourav Sahoo, **Puneet Kumar**, Balasubramanian Raman and Partha Pratim Roy. "A Segment Level Approach to Speech Emotion Recognition using Transfer Learning." The Asian Conference on Pattern Recognition (ACPR 2019) [**IAPR Endorsed**].

[C-6] J. Jaiswal, A. Chaubey, B. Reddy, S. Kashyap, **Puneet Kumar**, Balasubramanian Raman and Partha Pratim Roy. "A Generative Adversarial Network based Ensemble Technique for Automatic Evaluation of Machine Synthesized Speech." The Asian Conference on Pattern Recognition (ACPR 2019) [**IAPR Endorsed**].

AWARDS & SCHOLARSHIPS

1. Best Paper Award in Int. Conference on Computer Vision & Image Processing (CVIP'20).
2. Institute Gold Medal in M.E. (CSE).
3. MHRD Scholarships during M.E. and PhD.
4. Qualified GATE Computer Science (Rank 2205, percentile 97.91).
5. Qualified CBSE UGC NET Computer Science, Nov 2017.

TECHNICAL SKILLS

Programming Languages	: C/C++ (proficient), Python (proficient), R (proficient), Core Java (acquainted), Pascal (acquainted), Delphi (acquainted).
Development Tools	: MATLAB, TensorFlow, PyTorch, Keras, Anaconda, PyCharm, Spyder, RStudio, Weka, Code::Blocks, Eclipse, Visual Studio.
Database	: Oracle DB server, Oracle XE, Microsoft SQL DB Server, Oracle SQL Developer, Microsoft SQL Management Studio.
Web Development	: HTML, CSS, PHP (acquainted), JavaScript (acquainted).
Others	: LaTeX, Rattle, Oracle P6 EPPM, Microsoft Project, Microsoft Azure, Android Development (prior experience).

WORKSHOP/TRAINING/CONFERENCES ATTENDED

1. IEEE 27th 'Int. Conference on Image Processing' (ICIP), Abu Dhabi, UAE.　　　Oct 2020.

2. IEEE 22nd International Workshop on 'Multimedia Signal Processing' (MMSP), Tampere, Finland.　　　Sep 2020.

3. Visited Osaka Prefecture University, Osaka, Japan under Japan Science and Technology Sakura Science Plan. Dec 2019.

4. 4th International Conference on 'Computer Vision and Image Processing' (CVIP), MNIT Jaipur. Sep 2019.

5. 4th Summer School on Machine Learning and Computer Vision, IIIT Hyderabad. July 2019.

6. Technical Session on 'Microsoft Azure Cloud Computing Platform', IIT Roorkee. Apr 2019.

7. 11th Indian Conference on 'Computer Vision, Graphics and Image Processing' (ICVGIP), IIIT Hyderabad. Dec 2018.

8. Workshop on 'Computer Vision and Image Processing', IIT Roorkee. Mar 2018.

9. Short term course on 'Deep Learning and Applications', IIT Kanpur. Jan 2017.

TALKS/WORKSHOPS DELIVERED

1. Organized a training session on 'Dimensionality Reduction Algorithms' during the workshop on Digital Image Processing & Applications (DIPA) at NIT Arunachal Pradesh. Aug 2020.

2. Conducted a training session on 'Classification Algorithms using Python' during the 'Winter FDP on AI and Machine Learning' at E&ICT Academy, IIT Roorkee. Dec 2019.

3. Organized a training session on 'sequence-to-sequence learning' during the course 'Deep Learning and Applications' at E&ICT Academy, IIT Roorkee. Aug 2019.

4. Organized a workshop on 'Deep Learning 101' during Thapar Summer School 2018 at Thapar Institute of Engineering and Technology, Patiala, Punjab. Jun 2018.

ACTIVITIES

Research Paper Reviewer: Reviewed research papers in various reputed international journals, including Springer Nature Computer Science (SNCS) Journal and IEEE Communication Letters Journal.

Memberships of Committees/Clubs: IEEE student member, Sakura Science Club: OPU Japan, Manipal Cognitive Science Forum, Manipal Photography Club, Thapar Movie Goers Group, Hyderabad Cycling Club, Oracle Volunteers.

Hobbies: Travel, Photography, Music, Audiobooks, Personal Finance, Meditation, Exercise & Nutrition, Volunteering, Philosophy, and Psychology.

PERSONAL DETAILS

Father's Name	: Late Shri Narayan Kumar	Mother's Name	: Smt. Sushma Rani Babbar
Date of Birth	: Aug 30, 1991	Martial Status	: Married
Nationality	: Indian	Passport No.	: S2140966

Permanent Address: 3-B, Street No. 7, Setia Colony, Ganganagar, Rajasthan, India - 335001.

REFERENCES

Prof. R. Balasubramanian

Professor, CSE Department, Indian Institute of Technology, Roorkee, India.
E-mail: bala@cs.iitr.ac.in

Prof. Anil Kumar Verma

Professor, CSE Department, Thapar University, Punjab, India.
E-mail: akverma@thapar.edu

Prof. Harish SV

Professor, CSE Department, Manipal Institute of Technology, Karnataka, India.
E-mail: harish.sv@manipal.edu