Name: Dr. Anu Bala

Designation: Assistant Professor

Specialization: Applied Mathematics

 Email: anu_singla13@yahoo.com

Contact Number: +91- 8909683940

Education

M.Sc. Mathematics (2006, Himachal Pradesh University, Shimla)

M.Phil. Mathematics (2009, MMU, Mullana)

CSIR - JRF –NET (2010)

CSIR-JRF Fellowship (Jan. 2012 –Dec. 2013)
CSIR-SRF Fellowship (Jan.2014-June2016)

Ph.D. (2016, Indian Institute of Technology (IIT) Roorkee)

Title of Ph. D Thesis: Object Reconstruction and Registration with Image Gradients using Numerical Simulation

Professional Experience:

Department of Mathematics, M.M. Modi College, Patiala, India (01 December, 2018 to till date)

Department of Mathematics, Dr. B.R. Ambedkar National Institute of Technology (NIT), Jalandhar, India (24, August, 2016 to 2 June, 2017)

Department of Mathematics, Guru Nanak Dev Engineering College, Ludhiana, India, (02, August, 2007 to 27 December, 2010)

Department of Mathematics, Sh. Lal Bahadur Shastri Arya Mahila College, Barnala, India, (09, November, 2002 to 17 May, 2003)

Teaching Interests:
- Numerical Methods
- Ordinary Differential Equations
- Partial Differential Equations
- Optimization Techniques

Research Interest:

Numerical Methods, Computer Vision, Digital Image Processing, Artificial Intelligence, Machine Learning

Publications:

1. **Anu Bala**, Sanjeev Kumar and Rama Bhargava "2D-3D Non-rigid Registration Using Depth from Gradient Information", *3D Research (Springer).* (2015) **6 (30):** -1-11.

https://link.springer.com/article/10.1007/s13319-015-0066-3

2. **Anu Bala,** Sanjeev Kumar and Rama Bhargava "Recovering Depth Map from Enhanced Image Gradients", *Procedia Computer Science (Elsevier).* (2015) **70:** 572-578

https://www.sciencedirect.com/science/article/pii/S1877050915031968

3. Sandeep Kumar Singla, Rahul Dev Garg, Om Prakash Dubey and **Anu Bala** " Extraction of Crop Information from Reconstructed Landsat Data in Himalayan Foothills Region ", *Procedia Computer Science (Elsevier),* (2018) **125:** 99-106.

https://www.sciencedirect.com/science/article/pii/S1877050917327795

4. Hardeep Kaur, Sandeep Kumar Singla and **Anu Bala** " IRIS Recognition System Based on Mode Decomposition and Fractal Dimensional " *Interntional Journal of Research in Electronics and Computer Engineering (IJRECE),* **(**2018) **6(4):** 988-993.

5. Nancy Gupta, Sandeep Kumar Singla and **Anu Bala** " Enhancement With Data Encryption Method in Multi-Model Biometric System ", *Journal of Applied Science and Computations,* (2018) **5(11):** 208-218.

6. Sandeep Kumar Singla, Rupinder Kaur and **Anu Bala** " Prediction of Depression in Human Behaviour using Deep Learning Neural Network", *International Journal of Health and Economic Development,* (2018) **4(2)**: 16-23.

7. **Anu Bala**, Asha Rani and Sanjeev Kumar, An Illumination Insensitive Normalization Approach to Face Recognition Using Locality Sensitive Discriminant Analysis, *Traitement du Signal,* **37(3):** 451-460, 2020 **(IF 2019: 1.541) (SCIE indexed)**

http://www.iieta.org/journals/ts/paper/10.18280/ts.370312

Conference / Seminars

A) Paper presented:

1. Anu Bala, Sanjeev Kumar, Rama Bhargava and Maulik Agarawal "Surface Reconstruction by Evaluating Height from Gradient Values", 4th IEEE International Advance Computing Conference (IACC), 2014
https://ieeexplore.ieee.org/document/6779467?section=abstract

2. Maulik Agarawal, Sanjeev Kumar and Anu Bala "Three Dimensional Object Retreival using a Skeleton based Approach", 4th IEEE International Advance Computing Conference (IACC), 2014
https://ieeexplore.ieee.org/document/6779488

3. Anu Bala, Sanjeev Kumar, Rama Bhargava "Recovering Depth Map from Enhanced Image Gradients", International Conference on Eco-Friendly Computing and Communication System (ICECCS), 2015
https://www.sciencedirect.com/science/article/pii/S1877050915031968

4. Sandeep Kumar Singla, Rahul Dev Garg, Om Prakash Dubey, Anu Bala " Extraction of Crop Information from Reconstructed Landsat Data in Himalayan Foothills Region ", 6th International Conference on Smart Computing and Communications (ICSCC), 2017

https://www.sciencedirect.com/science/article/pii/S1877050917327795

B) Attended

1. Attended First National Conference on Applied Mathematics (NCAM) in Guru Nanak Dev Engineering College, Ludhiana, 30November-01 December 2007.

2. Attended International Conference on Computer Vision & Image Processing (CVIP-2016) in IIT Roorkee, 26 February- 28 February 2016..

NPTEL/Swayam course

Gold Elite (Topper) for completing the course on "Essential Mathematics for Machine Learning" with a consolidated score of **92%** during September-November, 2020.

Workshops and training courses

One Week AICTE Sponsored Short Term Training Programme (STTP) on "Artificial Intelligence and Machine Learning with Data Science", organized by the Guru Nanak Dev Engineering College, Ludhiana from December 14- 19, 2020 (Online Mode).

AICTE Training And Learning (ATAL) Academy Online FDP on "Cyber Security" at Poornima Institute of Engineering & Technology, from October 06-10, 2020.

TEQIP-III Online Short Term Course (STC) on "Machine Learning: Theories and Applications (MLTA-2020)", organized by the Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, from September 14-18, 2020.

TEQIP-III Online STC on "Soft Computing: Theories and Applications", organized by the Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, from September 09-13, 2020.

Five Day Online Faculty Development Program (FDP) on "Soft Computing" organized by Amarpali Institute of Technology & Sciences, during September 02-06, 2020.

One Day National Webinar on the Theme "Hind Di Chadar : Shri Guru Tegh Bahadur" (dedicated to 400th Prakash Utsav of Shri Guru Tegh Bahadur Ji) At Punjabi University, Patiala held on August 26, 2020.

One Week Online Faculty Development Program (FDP) on Advanced Research Trends of Satellite Image Processing in Land Surface Monitoring At Integral University, Lucknow during August 24-28, 2020.

TEQIP-III Online STC on "Applications of Machine Learning in the Advancements of Computer Science", organized by the Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, from August 17- 22, 2020.

One Day Online Capacity Building Program on Basic Tools and Techniques for online Teaching At Punjabi University, Patiala held on August 09, 2020.

One Week Online National Faculty Development Program on "E-Contents

and ICT Tools for Innovative and Effective Teaching & Learning Process" organized by Roorkee College of Management & Computer Applications, Roorkee from August 08- 14, 2020.

4-Week Induction/Orientation Programme for "Faculty in Universities/Colleges/Institutes of Higher Education" organized by Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of Ministry of Human Resource Development, Pandit Madan Mohan Malvaiya National Misson on Teachers And Teaching, from June 26 - July 24, 2020 and obtained **grade A+.**

Seven Days Faculty Development Programme on "Research Methodology For Social Sciences" organized by Council for Teacher Education Foundation (Punjab and Chandigarh Chapter) In collaboration with Multani Mal Modi College, Patiala held on June 20-26, 2020.

Online STTP on "Sensor, IoT & Machine Learning" organized by K. J. Somaiya College of Engineering, Vidyavihar, Mumbai, from 1st June 2020 to 5th June 2020.

One Day International Webinar on Post COVID Challenges Before Indian Education System At Multani Mal Modi College, Patiala held on May 29, 2020.

5 Days Online Faculty Development Program (FDP) on MATLAB based Teaching-Learning in Mathematics, Science & Engineering by the Department of Electronics Engineering, Ramrao Adik Institute of Technology, Nerul, Navi Mumbai in collaboration with Design Tech Systems Pvt. Ltd., Mumbai during May 18-22, 2020.

5 Days Online Faculty Development Program (FDP) on R Programming by Indo Global Group of Colleges, New Chandigarh in association with IIT Bombay Spoken Tutorial (An Initiative of National Mission on Education through ICT, MHRD, Govt. of India) from April 27-May 01, 2020.

One Week Short Term Course on Recent Advancements in Software Intensive Systems: Machine Learning And Cyber Security Prespectives At Indian **Insti**tute of Technology (IIT) , Roorkee from December 23-27, 2019.

One Week Faculty Development Programme (FDP) on Emerging Issues & Challenges in Higher Education At Multani Mal Modi College, Patiala from July 17-22, 2019.

One Week Workshop on Computational Techniques for Differential Equations with MATLAB
(2015) At Indian Institute of Technology Roorkee (IIT Roorkee) from July 02-06, 2015.

One Week STC on Educational Auditing and Feedback System for Excellence in Technical Institutions
(2009) at GNDEC, Ludhiana from 12/01/2009 to 16/01/2009 organized by NITTTR Chandigarh.

One Week AICTE Sponsored STC on Understanding Soft Computing and its Applications
(2009) at GNDEC Ludhiana from 06/01/2009 to 10/01/2009 organized by NITTTR Chandigarh.

National Seminar on Problems in Communication
(2009) at Guru Nanak Dev Engineering College, Ludhiana

One Week STC on ANN & Optimization in Video Application
(2008) at GNDEC, Ludhiana from 25/11/2008 to 28/11/2008 organized by NITTTR Chandigarh.

One Week Short Term Course on Computational Aspects of Mathematics
(2008) At Sant Longowal Institute of Engineering and Technology, Longowal from December 22-26, 2008.

Symposium on Mathematical Applications in Engineering Education
(2008) at Ludhiana College of Engineering and Technology, Katani
Kalan Ludhiana

National Hiking Treking Camp
(2003) Performed Duty as House Incharge during National Hiking and Treking Camp sponsored by Govt. of India, Ministry of Youth Affairs and Sports held at Manalsu Nallah, Manali from 17.06.2003 to 25.06.2003.

UGC Sponsored Seminar on NAAC and the challenges before Colleges
(2003) at LBS Arya Mahila College Barnala affiliated to Punjabi University Patiala on 28th February 2003.

NSS
(1997) National Camp under the Youth Campaign for sustainable Development