KOUSHLENDRA KUMAR SINGH

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Objective: I would like to work in challenging projects with scope to contribute technically and managerially and improve my scientific and leadership skills.

Educational Qualification:

PhD : IIITDM Jabalpur, India, Dec 2011- Dec. 2015, (Thesis submitted)

M.Tech: IIITDM Jabalpur, India, 2011

B.Tech: Computer Science and Engineering, Bhagalpur College of Engineering, Bhagalpur, Bihar

10+2: Bihar Intermediate Education Council, Patna with first division

10th : Bihar School Examination Board, Patna with first division

Research Experiences:

Dec 2011 to Dec 2015: Graduate Research Scholar, IIITDM Jabalpur, India

Thesis Title: *Chebyshev polynomial based approximation of an efficient fractional order mask for different image processing applications*

Thesis Supervisors:

Dr. Manish Kumar Bajpai, Computer Science & Engineering, IIITDM, Jabalpur

Dr. Rajesh Kumar Pandey, Department of Mathematical Sciences, IIT (BHU), Varanasi

The work carried out in my PhD research is related to design and development of an image processing approach for finding out the geometric as well as texture feature of wood non-invasively. The present work encompasses a micro level reconstruction of Palash and Rose-wood by using micro *X* rays CT scanner. It also encompasses a new edge detection algorithm using newly designed Chebyshev fractional order filter.

I have also developed an algorithm for drop size measurement of multi phase flow. The

proposed algorithm has been based on the newly designed fractional order based filter.

List of Publications:

(a) Refereed SCI Listed International Journal:

1. R.K.Pandey, S.Suman, **Koushlendra K. Singh**, O.P.Singh, "An Approximate Method for Abel Inversion using Chebyshev Polynomials" Applied Mathematics and Computation, Vol. 237, pp.120-132, 2014.

2. **Koushlendra Kumar Singh**, Manish Kumar Bajpai, Rajesh K Pandey, Prabhat Munshi "A novel non-invasive method for extraction the geometrical and texture features of wood" Research in Nondestructive Evaluation (accepted).

3. **Koushlendra Kumar Singh**, Manish Kumar Bajpai, Rajesh K. Pandey, "A Novel Approach for Enhancement of Geometric and Contrast Resolution Properties of Low Contrast Images" IEEE Journal of Automatica sinica.

(b) National Journal:

1. **Koushlendra K. Singh,** R.K.Pandey, Anil Kumar, *"Numerical Inversion of Laplace Transform using Wavelets"* Vol. 4, No-1 2013/88-93, Indian Journal of Industrial and Applied Mathematics (IJIAM), 1945-919X.

(c) Refereed International Conferences:

1. **Koushlendra Kumar Singh,** Manish Kumar Bajpai, Rajesh K. Pandey "Reconstruction of Original Signal from contaminated signal using fractional order differentiator" 15th 2015 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2015), Abu Dhabi, UAE, December 7-10, 2015.

2. **Koushlendra Kumar Singh,** Manish Kumar Bajpai, Rajesh K. Pandey "Fractional order differentiator based technique for drop size measurement in multi phase flow" 7th International symposium on process tomography, Dresden Germany September 01- 03, 2015.

3. **Koushlendra Kumar Singh,** Manish Kumar Bajpai, Rajesh K. Pandey, *"A Novel Approach for Edge Detection of Low Contrast Satellite Images"* Photogrammetric Image Analysis (PIA15+ HRIGI15) 25-17, March 2015, Munich, Germany

4. **Koushlendra Kumar Singh**, Manish Kumar Bajpai, Rajesh K. Pandey, "*Edge Detection in Low Contrast Images*" XIII International Conferences on Image Processing 2015, Zurich, Switzerland, January, 13-14, 2015.

5. **Koushlendra Kumar Singh,** Manish Kumar Bajpai, Rajesh K. Pandey, " *Fractional Order Differentiator using Chebyshev Polynomial* " XIII International Conference on Acoustics, Speech, Image and Signal Processing, Zurich, Switzerland, January, 13-14, 2015.

6. *Koushlendra Kumar Singh,** Durgesh Kumar, Shubham Kumar, Manish Kumar Bajpai **,* **"***Parallel Architecture Based Fast Algorithm for Image Enhancement"* IBSS 2015, Mumbai, September 10-12, 2015(Accepted for publication).

7. Suraj Suman, **Koushlendra Kumar Singh,** Rajesh Kumar Pandey, *"Approximate Solution of Integral Equation using Bernstein"3rd* International Conference on Soft Computing for Problem Solving (SocProS 2013), IIT Roorkee, INDIA, December 26-28, 2013.

8. **Koushlendra Kumar Singh**, Rajesh Kumar Pandey, B.N.Mandel *"An Analytical Method for Solving Integral Equation of Abel Type*" Procedia Engineering, 38, 2726-2738*,* International Conferences on Modeling Optimization and computation 2012.

9. **Koushlendra Kumar Singh,** Rajesh Kumar Pandey, *"Contrast Enhancement using Lifting Wavelet Transform Method"* Proceeding of ICCICCT2014, pp.447 – 451, July 10-11, 2014.

10. **Koushlendra Kumar Singh**, Suraj Suman, Rajesh Kumar Pandey, *"Fractional Order Differentiator using Legendre Polynomial"* IEEE Digital library, pp.246-250, 2014, 5th Confluence, 2014, Amithy University, Noida.

11. **Koushlendra Kumar Singh**, Rajesh Kumar Pandey, "*Texture Classification of Medical Images Based on Ridgelet Transform"* ICSIVP-2011, IIT Patna, 344-348, January /2012.

12. **Koushlendra Kumar Singh**, Suraj Suman, Rajesh Kumar Pandey, *"Solution of Generalized Abel Equations using Legendre Wavelet"* XVI International Academic of physical sciences, CONIAPS2013, Jabalpur, March 2014.

Awards/ Honors:

1. Awardees of travel grant from the ISPRS Foundation to attend the PIA15 and HRIGI15.

2. Awardees of international travel grant from the department of Science and Technology, Government of India to attend the international conference PIA15, Munich (Germany).

3. Awardees of international travel grant from the department of Science and Technology, Government of M.P.

Software Skills:

Computer Languages and Software: C, C++, Core JAVA, MATLAB, MathCad, Mathematica

Operating System Platform: Windows, Linux

Academic Excellence:

- University Topper of third year Computer Science and Engineering Department in 2007.

- Overall 2nd rank in University in Department of Computer Science and Engineering of batch 2004-2008.

- School Topper in Matriculation board Examination.

Extra-Curricular Activities:

1. Convener, Core Committee TARAN 2013(Annual Cultural Fest of IIITDMJ)
2. Student Senate Member, IIITDM Jabalpur for year 2013-2014.
3. Published many Articles and Poem in Hindi, English daily newspapers.
4. Certificate of Pratham, Dwitiya, Tritya sopan of Bharat Scout and Guide.
5. Elected as Camp leader for Dwitiya and Tritya camp among 32 High Schools.
6. Three times Troup leader of High School for representing in District Sports.
7. Represent the College in Department of Science and Technology, Bihar on various issues.
8. Secured Second Prize in General Knowledge Competition on Hindi Day at IIITDM Jabalpur

Declaration: I hereby declare that all statements made in the curriculum are true, complete and correct to the best of my knowledge.

Place: Jabalpur, India   (Koushlendra Kumar Singh)