# Musrrat Ali

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## Professional Experience

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| August 2015 - Present | **Associate Professor**<br>Department of Civil Engineering, The Glocal University, Mirzapur Pole, Saharanpur, India. |
| April 2012 - May 2015 | **Research Professor**<br>Department of Computer Science, Sungkyunkwan University, Suwon, Republic of Korea. |
| Sept. 2011 –March 2012 | **Assistant Professor**<br>Department of Mathematics, Amity University, Noida-201303, India. |
| January 2007 –July 2011 | **Research Fellow and Teaching Assistant**<br>Department of Applied Science and Engineering, Indian Institute of Technology (IIT)Rookree, India. |

## Professional Qualification

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| January 2007 - July 2011 | **PhD, Applied Mathematics (Evolutionary computation)**<br>*Thesis title:* Enhanced Variants of Differential Evolution Algorithm and their Applications<br>*Institute*: Department of Applied Science and Engineering, IITRookree, India.<br>*Advisor*: Prof. Millie Pant and Prof. V.P. Singh |
| July 2003 –June 2005 | **Master in Science (MSc) Applied Mathematics**<br>*Institute*: Department of Mathematics, IITRookree, India.<br>*Grade of* passing: First division. |
| July 1999 –June 2002 | **Bachelor in Science (BSc)**<br>*Institute*: ChaudharyCharan Singh (CCS) University, Meerut, India.<br>*Grade of Passing*: First division |

## Courses Taught- Primary Instructor

- Linear Algebra
- Integral Calculus
- Operations Research
- Probality & Statistics
- Real Analysis
- Optimization
- Differential Calculus
- Differential Equation
- Numerical Anaysis
- Integral Transforms
- Complex Analysis
- Vector Calculus

## Courses Assisted- Teaching Assistant

- Eng. Mathematics-I
- Eng. Mathematics-II

- ➢ Operations Research
- ➢ Computer Systems & Programming
- ➢ Numerical Methods

## Research Interest

- Evolutionary Computation
- Multi objective Optimization
- Applied Mathematics
- Image Processing
- digital watermarking

## Awards, Achievements and Memberships

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| Awards | Junior Research Fellowship<br>*Funding agency*: Ministry of Human Resource Development (MHRD), India<br>*Funding Period*: January 2007 – December 2008<br>Senior Research Fellowship<br>*Funding agency*: Ministry of Human Resource Development (MHRD), India<br>*Funding Period*: January 2009 – July 2011<br>Ph.D. Sandwich fellowship<br>*Funding agency*: Ministry of foreign affairs, France<br>*Funding Period*: May 2010- October 2010<br>Brain Korea 21 (BK21) Postdoctoral fellowship<br>*Funding Agency*: Korea Research Foundation<br>*Funding Period*: March 2012– May 2015 |
| Achievements | Listed in Marquis Who's Who in the World 2010.<br>I have total citation counts of 625 for all the publications published since 2008 |
| Membership | IEEE Member (Membership number- 91197215)<br>International Association of Engineers (IAENG)<br>Life member of Indian Society of Industrial and Applied Mathematics |

## Foreign Visit

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| France | *Purpose*: PhD sandwich program at Université de Paris XII, Val de Marne, Laboratory Images, Signals and Intelligent Systems (LiSSi, EA 3956) France<br>*Supervisor*: Prof. Patrick Siarry<br>*Duration*: 6 months (May-2010 to October 2010) |
| Malaysia | *Purpose*: To present the paper in ACM ICUIMC- 2013 conference<br>*Duration*: one week |
| Singapore | *Purpose*: To present the paper in IEEE SSCI-2013 conference<br>*Duration*: one week |
| Korea | *Purpose*: working as postdoctoral fellow at Sungkyunkwan University.<br>*Supervisor*: Prof. Chang WookAhn<br>*Duration*: March 2012- May 2015 |

## Personal Details

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| Date of birth | 01-July-1982 |

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| Nationality | Indian |
| Gender | Male |
| Passport No. | H8549690 |
| Father's Name | Mohd. Kasim |
| Mother's Name | Smt. Rukhsana |
| Language known | Hindi, English, Urdu |

## Special Skills

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| Programming languages | C, C++ and Matlab |
| Operating Systems | Windows XP, Windows Vista and Windows 7 |
| Software Package | MS Office 2007, SPSS |

## Professional Activities

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| Journal Referee Service | ☛ Applied Mathematics and Computation<br>☛ Soft Computing<br>☛ Applied Soft Computing<br>☛ Engineering Application of Artificial Intelligence<br>☛ IEEE Transactions on Evolutionary Computation<br>☛ Neurocomputing<br>☛ Egyptian Informatics Journal<br>☛ Applied Computational Intelligence and Soft Computing |
| Conference Referee Service | ☛ ACM ICUIMC -2013, Kotakenabalu Malaysia<br>☛ SocProS 2011, Roorkee (AISC Springer), India,<br>☛ SocProS 2012, Jaipur (AISC, Springer) India.<br>☛ SocProS 2013, Jaipur (AISC, Springer) India.<br>☛ 2013 IEEE Symposium on Computers & Informatics (ISCI 2013) |
| Conference program committee member | ☛ International Conference on Computational Intelligence and Communication Networks (CICN 2011), Gwalior India.<br>☛ International Conference on Computational Intelligence and Communication Networks (CICN 2012), Mathura India.<br>☛ International Conference on Communication Systems and Network Technology (CSNT 2011), Jammu India.<br>☛ International Conference on Communication Systems and Network Technology (CSNT 2012), Rajkot India.<br>☛ International Conference on Communication Systems and Network Technology (CSNT 2013), Gwalior India.<br>☛ Soft Computing for Problem Solving, 2012, Jaipur India.<br>☛ 3rd International Conference on Soft Computing for Problem Solving 2013, Noida India. |

## Contributed Research Publications

**Books:**

2016 [B1] Embodying Intelligence in Multimedia Data Hiding, Editted by Chang WookAhn, **Musrrat Ali**, Millie Pant, Science Gate Publisher, GCSR Volume 5, ISBN 978-618-81418-9-6, DOI 10.15579/gcsr.vol5

**Journals** (Under review- 02, Accepted-00, Published-27)

Under review

[J29] Pravesh Kumar, Millie Pant, and **Musrrat Ali,** Enhance DE with Weighted Base Vector for Solving Molecular Potential Energy Problem, *International Journal of System Assurance Engineering and Management.*

[J28], An Efficient Lossless Robust Watermarking Scheme by Integrating Redistributed Invariant wavelet and Fractional Fourier Transforms, *Digital Signal Processing*.

2016

[J27]**Musrrat Ali**, ChangWookAhn, Millie Pant, and Patrick Siarry, A Reliable Image Watermarking Scheme Based on Redistributed Image Normalization and SVD, *Discrete Dynamics in Nature and Society,* Vol. 2016, Article ID 3263587, 15 pages, DOI: http://dx.doi.org/10.1155/2016/3263587

2015

[J26]**Musrrat Ali,** Chang WookAhn, Millie Pant and Patrick Siarry, An image watermarking scheme in wavelet domain with optimized compensation of singular value decomposition via artificial bee colony, *Information Sciences*, Vol. 301, pp. 44-60, (2015).

[J25]**Musrrat Ali,** Chang WookAhn,Comments on "Optimized gray-scale imagewatermarking using DWT-SVD and Firefly Algorithm", *Expert Systems with Applications*, Vol. 42(5), pp. 2392-2394, (2015).

[J24]Musrrat Ali, Chang WookAhn,Comments on "a robust logo watermarking technique in divisive normalization transform domain", *Multimedia Tools and Applications*, DOI, 10.1007/s11042-014-2415-2. (2015).

[J23]**Musrrat Ali**, Chang WookAhn, An optimal image watermarking approach through cuckoo search algorithm in wavelet domain, *International Journal of System Assurance Engineering and Management*, DOI 10.1007/s13198-014-0288-4. (2015)

[J22] RenuTyagi, Millie Pant, Yuvraj Singh Negi, **Musrrat Ali**, Optimizing the Electrical Performance of Polymeric Films, *Materials and Manufacturing Processes*, DOI: 10.1080/10426914.2014.973589. (2015).

2014

[J21] **Musrrat Ali**, Chang WookAhn and Millie Pant, Multi-level image thresholding by synergetic differential evolution, *Applied Soft Computing*, Vol. 17, pp. 1-11, (2014). **(SCI Indexed), IF = 2.140**

[J20] **Musrrat Ali,** Chang WookAhn and Patrick Siarry, Differential evolution algorithm for the selection of optimal scaling factors in image watermarking, *Engineering Applications of Artificial Intelligence*, Vol. 31, pp. 15-26, (2014).
**(SCI Indexed), IF = 1.947**

[J19]**Musrrat Ali,** Chang WookAhn and Millie Pant, A robust image watermarking technique using SVD and differential evolution in DCT domain, *Optik - Int. J. Light Electron Opt*, Vol. 125, pp. 428-434, (2014). **(SCI Indexed), IF=0.524**

[J18]**Musrrat Ali,** Chang WookAhn, An optimized watermarking technique based on self-adaptive DE in DWT–SVD transform domain, *Signal Processing*, Vol. 94, pp. 545-556, (2014). **(SCI Indexed), IF = 1.745**

2013

[J17]**MusrratAli,**ChangWookAhn and Millie Pant, Trim loss optimization by an improved differential evolution, *Mathematical Problems in Engineering*, pp. 1-8, (2013). **(SCI Indexed), IF = 1.777**

[J16] **Musrrat Ali,** Millie Pant and Ajith Abraham, Unconventional Initialization Methods for Differential Evolution, *Applied Mathematics and Computation*, Vol. 219(9), pp. 4474-4494, (2013).**(SCI Indexed), IF = 1.338.**

2012

[J15]**Musrrat Ali**, Millie Pant, Ajith Abraham and Chang WookAhn, Swarm Directions

Embedded Differential Evolution for Faster Convergence of Global Optimization Problems, *International Journal on Artificial Intelligence Tools,* Vol. 21(3), pp. 1240013-1240038, (2012). **(SCI Indexed), IF = 0.376**

[J14]**Musrratali**, Millie Pant, Atulya Nagar and Chang WookAhn, Two Local Search Strategies for Differential Evolution, *Journal of Universal Computer Science*, 18(13), pp. 1853-1870, 2012. **(SCI Indexed), IF = 0.669**

[J13]**Musrrat Ali**, Millie Pant and Ajith Abraham, Improving Differential Evolution Algorithm by Synergizing Different Improvement Mechanisms, *ACM Transaction on Autonomous and Adaptive Systems*, Vol. 7(2), pp. 1-32, 2012.**(SCI(E) Indexed) , IF = 1.364**

[J12]**Musrrat Ali**, Patrick Siarry and Millie Pant, An Efficient Differential Evolution Based Algorithm for Solving Multi-Objective Optimization Problems, *European Journal of Operational Research*, Vol. 217 (2), pp. 404-416, (2012)**. (SCI Indexed), IF = 2.158**

2011

[J11]**Musrrat Ali**, Millie Pant and Ajith Abraham, A Simplex Differential Evolution Algorithm: Development and Applications, *Transactions of the Institute of Management and Control*, Vol. 34(6), pp. 691-704, (2012).**(SCI(E) Indexed), IF=0.886**

[J10]**Musrrat Ali**, Millie Pant, Ajith Abraham and Vaclav Snasel, Differential Evolution Using Mixed Strategies in Competitive Environment, *International Journal of Innovative Computing, Information and Control,* Vol. 7(8), pp. 5063- 5084, (2011). **(SCI(E) Indexed), IF = 2.791**

[J9]**Musrrat Ali**, Millie Pant, Improving the Performance of Differential Evolution Algorithm using Cauchy Mutation, *Soft Computing*, Vol. 15, pp. 991- 1007, (2011). **(SCI Indexed)**, **IF = 1.512**

[J8]**Musrrat Ali,** Millie Pant and Atulya Nagar, Two New Approaches Incorporating Centroid Based Mutation Operators For Differential Evolution, *WJMS*, Vol. 7(1), pp. 16-28, (2011).

2010

[J7]**Musrrat Ali**, Millie Pant and Ajith Abraham, Improved Differential Evolution Algorithm with Decentralization of Population, *International Journal of Bio-Inspired Computation*, Vol. 3(1), pp. 17- 30, (2010).

[J6]**Musrrat Ali**, Millie Pant and Atulya Nagar, Interpolated Differential Evolution for Global Optimisation Problems, *International Journal of Computing Science and Mathematics*, Vol. 3(3), pp. 298 - 315, (2010).

[J5]**Musrrat Ali**, Millie Pant and V. P. Singh, Two Modified Differential Evolution Algorithms and their Applications to Engineering Design Problems, *World Journal of Modeling and Simulation,* Vol. 6(1), pp. 72-80, (2010).

2009

[J4]**Musrrat Ali**, Millie Pant and Ajith Abraham, Simplex Differential Evolution, *International Journal ActaPolytechnicaHungarica*, Vol. 6(5), pp. 95- 115, (2009). **(SCI(E) Indexed)**

[J3] Millie Pant, **Musrrat Ali** and V. P. Singh, Parent Centric Differential Evolution Algorithm for Global Optimization Problems, *Opsearch*, Vol. 46(2), pp. 153-168,(2009).

[J2] **Muskrat Ali**, Millie Pant and V. P. Singh, An Improved Differential Evolution Algorithm for Real Parameter Optimization Problems, *International Journal of Recent Trends in Engineering*, Vol. 1(5), pp. 63-65, (2009).

[J1] Millie Pant, **Musrrat Ali** and V. P. Singh, Modified Differential Evolution Algorithms for solving unconstrained global optimization problems, *International Journal of Mathematical Modeling, Simulation and Applications (IJMMSA)*, Vol. 2(3), pp. 245-256, (2009).

**Conferences** (Under review- 00, Accepted-00, Published-16)

2013 [C16] Musrrat Ali, Chang WookAhn and Millie Pant, Cuckoo Search Algorithm for the Selection of Optimal Scaling Factors in Image Watermarking, Proc. of the International Conference on SocProS-2013, **Noida India**, pp. 1-13, (2013)

[C15] Musrrat Ali, Chang WookAhn and Millie Pant, An optimized watermarking technique based on DE in DWT-SVD domain, Proc. of IEEE SSCI-2013, Singapore, pp. 1-6, (2013).

[C14] Musrrat Ali and Chang WookAhn, An Optimized Watermarking Technique Employing SVD in DWT Domain, Proc. of the ACM- ICUIMC 2013, Kotakenabalu Malaysia, pp. 1-7, (2013).

2011 [C13]**Musrrat Ali** and Millie Pant**,** Modified differential evolution for constrained optimization problems, Proc. of the International Conference on SocProS 2011, **Roorkee India**, pp. 933–941, (2011).

2010 [C12]**Musrrat Ali**, Millie Pant, Ajith Abraham and Vaclav Snasel, Modified Differential Evolution Algorithm for Parameter Estimation in Mathematical Models, 2010 IEEE International Conference on Systems Man and Cybernetics (SMC), **Istanbul Turkey**, pp. 2767- 2772, (2010).

[C11]**Musrrat Ali**, Millie Pant and V.P. Singh, Differential Evolution Using Interpolated Local Search, International Conference on Contemporary Computing (IC3, 2010), Proceeding in Springer, **Noida India**, pp. 94-106, (2010).

[C10]**Musrrat Ali**, Millie Pant and Atulya Nagar, Two Local Search Strategies for Differential Evolution, Bio-Inspired Computing: Theories and Applications (BIC-TA), 2010 IEEE Fifth International Conference, **Liverpool, UK**, pp. 1429-1435, (2010).

2009 [C9] Millie Pant, **Musrrat Ali** and V. P. Singh, A New Differential Evolution Algorithm and Its Application to Real Life Problems, International Conference on Modeling and Engineering and Technological Problems (ICMETP) and the 9th Biennial National Conference of Indian Society of Industrial and Applied Mathematics (ISIAM). AIP Conference Proceedings, **Agra India**, Vol. 1146, pp. 177-185, (2009).

[C8] Millie Pant, **Musrrat Ali** and Ajith Abraham, Mixed Mutation Strategy Embedded Differential Evolution, IEEE congress on Evolutionary Computation (CEC 2009) **Norway**, pp. 1240-1246, (2009).

[C7] Millie Pant, **Musrrat Ali** and V. P. Singh, Differential Evolution using Quadratic Interpolation for Initializing the population, IEEE International Advance Computing Conference (IACC 2009), **Patiala India**, pp. 375-380, (2009).

[C6]**Musrrat Ali**, Millie Pant and V. P. Singh, A Modified Differential Evolution Algorithm with Cauchy Mutation for global optimization, International conference on contemporary computing (IC3, 2009), Proceeding in Springer, **Noida India**, pp. 127-137, (2009).

[C5]**Musrrat Ali**, Millie Pant and Ajith Abraham, A Modified Differential Evolution Algorithm and Its Application to Engineering Problems, International conference of soft computing and pattern recognition (SoCPaR-2009), **Malaysia**, pp. 196-201, (2009).

[C4]**Musrrat Ali**, Millie Pant and Ajith Abraham, Inserting Information Sharing Mechanism of PSO to Improve the Convergence of DE, world congress on nature and biological inspired computing (NaBIC-2009) **Coimbatore, India**, pp. 282-287, (2009)**.**

[C3]**Musrrat Ali** Modified Differential Evolution Algorithms for Global Optimization, world congress on nature and biological inspired computing (NaBIC-2009) **Coimbatore, India**, pp. 1686-1689, (2009).

[C2]**Musrrat Ali**, Millie Pant and Ajith Abraham, A Hybrid Ant Colony Differential Evolution and its Application to Water Resources Problems, International Symposium on Biologically Inspired Computing and Applications (BICA-2009) **Bhubaneswar, India**, pp. 1133-1138, (2009).

2008 [C1] Millie Pant, **Musrrat Ali** and V. P. Singh, Differential Evolution with Parent Centric Crossover, Second UKSIM European Symposium on Computer Modelling and Simulation Proceeding in IEEE, **Liverpool, UK**, pp. 141-146, (2008).

**Book Chapters:**

2016 [Ch1]**Musrrat Ali**, Chang WookAhn, Millie Pant, Data Hiding Schemes: A Survey, Editted by CW Ahn et al., Science Gate Publisher, GCSR Volume 5, pp. 1-19, 2015. DOI: 10.15579/gcsr.vol5.ch1

[Ch2]**Musrrat Ali**, Chang WookAhn, Millie Pant, Intelligent Watermarking Scheme Employing the Concepts of Block Based Singular Value Decomposition and FireflyAlgorithm, Editted by CW Ahn et al., Science Gate Publisher, GCSR Volume 5, pp. 37-57, 2015. DOI: 10.15579/gcsr.vol5.ch3

# References

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For further information, please feel free to contact me.

**(Musrrat Ali)**