

Vivek Kumar Mehta

Education

Indian Institute of Technology, Kanpur, UP, India

- Doctor of Philosophy, Mechanical Engineering (July 2006 – June 2013)
 - Dissertation: Generation and Parametric Approximation of the Pareto-Set in Multi-Objective Optimization
- Master of Technology, Robotics, Mechanical Engineering (July 2003 – June 2005)
 - Dissertation: A General Approach for Optimal Kinematic Design of 6-DOF Parallel Manipulators

Bhilai Institute of Technology, Durg, CG, India

- Bachelor of Engineering, Mechanical Engineering (August 1999 – July 2003)
- Overall Marks Percentage – 77% (with honours)

Other Academic Distinction

- Qualified GATE with 99.36 percentile and AIR 161 in 2003.

Professional Experience

1. Tezpur Central University, Assam, India

- Assistant Professor (September 2016 - Present)
- Courses Taught: Theory of Mechanisms and Machines, Dynamics and Vibration, Robotics, Optimization, etc.

2. Eklavya, Bhopal, Madhya Pradesh

- Fellow (April 2015 - September 2016)
- Contributions: Teacher training, module development, article writing, translations.

3. Tezpur Central University, Assam, India

- Assistant Professor, Ad-hoc (August 2013 - June 2014)
- Courses Taught: Applied Computational Methods, Optimization in Engineering Design, Engineering Mechanics

4. Indian Institute of Technology, Kanpur, UP, India

- Senior Project Associate (September 2005 - June 2006)
- Teaching assistant for undergraduate and post graduate courses in mechanical engineering, including optimization, mathematical methods in engineering, introduction to robotics, mechanisms and machines theory, geometric modeling for CAD.
- Organizing member and tutor in several short term courses including scientific computing with MATLAB and mathematical methods in sciences and engineering.

Research Interests

- Optimization: Classical and Evolutionary Algorithms, Multi-objective Optimization, Multi-modal Optimization
- Robotics
- Science Education

Teaching Interests

- Engineering Optimization, Robotics, Applied Computational Methods, Mechanisms and Machine Theory, Dynamics and Vibration, Mathematical Methods for Engineers.

Publications in Journals

1. Chetry, A., Kamal, S.M. and **Mehta, V.K.** *A numerical model for rotational autofrettage of disks based on von mises yield criterion and its application in strengthening flanged disks used for joining high-pressure*, International Journal of Applied Mechanics, 15 (03), 2350022, 2023.
2. **Mehta, V.K.** *Improved Nelder-Mead algorithm in high dimensions with adaptive parameters based on Chebyshev spacing points*. Engineering Optimization, 2019.
3. **Mehta, V.K.** and Dasgupta, B. *Parametric Approximation of the Pareto Set in Multi-Objective Optimization Problems*. Journal of Multi-Criteria Decision Analysis, 2014.
4. Dasgupta, B., Kotha, D., **Mehta, V.K.** and Deb, K. *RePAMO: Recursive perturbation approach to multi-modal optimization*, Engineering Optimization, Vol. 45(9), pp. 1073-1090, 2013.
5. **Mehta, V.K.** and Dasgupta, B. *A constrained optimization algorithm based on the simplex search method*. Engineering Optimization, 2012.

6. Mehta, V.K. and Dasgupta, B. *A general approach for optimal kinematic design of 6-DOF parallel manipulators*. Sādhanā, Academy Proceedings in Engineering Sciences, 2011.

Publications in Conference Proceedings

1. Chakravarty, P., Mehta, V.K. and Kakoty, N.M. *Design and analysis of compliant prosthetic finger using stage-flexure systems*. In Proceedings of the 2023 6th International Conference on Advances in Robotics (pp. 1-7), 2023.
2. Mehta, V.K., and Dasgupta, B. *A multi-objective optimization method based on Nelder-Mead simplex search method*. Springer, 2020.

Popular Science Articles

1. संख्याओं के संसार में भटकते हुए एक खूबसूरत सफ़र (*A beautiful journey in the world of numbers*), Paathsaala: Bheetar aur Bahar, Issue 17, Sep 2023.
2. जमीनी हकीकत: परिधि और क्षेत्रफल में संबंध (*Ground Reality: Relationship between Perimeter and Area*), Sandarbh, Issue 131, Nov-Dec 2020.
3. गणितिय फसाना: फ्रेक्टल ज्यामिति (*Mathematical Fantasy*), Sandarbh, Issue 130, Sep-Oct 2020.
4. कम से कम या ज्यादा से ज्यादा (*Minimization and Maximization*), Sandarbh, Issue 121, Mar-Apr 2019.
5. गति के ग्राफ व लाईनें - II (*Lines and Graphs of Motion - II*), Sandarbh, Issue 106, Sept-Oct 2016.
6. गति के ग्राफ व लाईनें - I (*Lines and Graphs of Motion - I*), Sandarbh, Issue 105, July-Aug 2016.
7. लाईनों का नामकरण (*On Naming Lines*), Sandarbh, Issue 104, May-June 2016.
8. औसत की अवधारणा (*The Concept of Average*), Sandarbh, Issue 99, July-Aug 2015.
9. संतुलन या असंतुलन (*Balance or Imbalance*), Sandarbh, Issue 97, March-April 2015.
10. जेम्स बांड की दौड़ और स्नेल का सिद्धांत (*James Bond's Race and Snell's Law*), Sandarbh, Issue 94, Sept-Oct 2014.

Translated Articles

1. एल्गारोथिम यानी कलन-विधियों का दुष्प्रभाव (*The Harmful Effects of Algorithms*), Sandarbh, July-August, 2018.
2. नव-उदारवाद के राज में भारतीय कृषि (*India's Peasantry Under Neoliberal Rule*), RUPE, issue 66-67, October-November, 2017.

3. भावनाएं व आंसू - रोज़ेटा का शांत अंत (*Emotion and Tears in Mission Control as Rosetta Came to a Silent End*), Sandarbh, issue 108, January-February, 2017.
4. कैसे बदलती है ऊर्जा पदार्थ में? (*How Energy Becomes Matter?*), Sandarbh, issue 106, July-August, 2016.
5. मौत से पहले के वो 20 मिनट (*20 Minutes to Death*), Sandarbh, issue 104, May-June, 2016.
6. अंतरिक्ष खोजी यान रोज़ेटा फिले का मिशन (*The Rosetta-Philae Comet Mission as Physics Appreciation*), Sandarbh, issue 103, March-April, 2016.
7. बायोफिल्म: जीवाणुओं का सामुदायिक व्यवहार (*Biofilms: Community Behavior by Bacteria*), Sandarbh, issue 96, January-February, 2015.
8. सममिति में गणितीय क्या है? (*What is Mathematical about Symmetry?*), Sandarbh, issue 96, January-February, 2015.

Writing in Textbook

- जन्त के बच्चे, [Hindi Textbook](#), Class 7, SCERT, KERALA.

Other Popular Articles

1. चाय बागानों के आसपास की दुनियां (*Life in and around tea gardens*), Sandarbh, issue 85, March-April 2013.
2. डोमखाना के बगल में (*Near the Domkhana*) Sandarbh, issue 95, November-December, 2014.
3. जन्त के बच्चे (*Children of Heaven*) Chakmak, April, 2009.

Newspaper Articles

1. *Deploying AI Agents*, January 06, 2025, The Assam Tribune.
2. *Examination in the times of Corona*, June 17, 2020, The Assam Tribune.
3. *The Different Ramps*, December 10, 2017, The Assam Tribune.

Invited Talks

- *Deploying Artificial Intelligence (AI) Agents: Some Contextual and Ethical Considerations*. In a DST sponsored 3-Day workshop cum investor & MSME meet on Robotics, AI and Entrepreneurship, Tezpur University, December 17, 2024.
- *On the Modifications of Nelder-Mead's Simplex Search Method*. Department of Mechanical Engineering, IIT Kanpur, June 03, 2019.

Contact Information

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