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Qualifications:

- Ph.D. (Electrical Engineering), National Institute of Technology, Rourkela, India.
- B.E. (Instrumentation Engineering), Sant Longowal Institute of Engineering and Technology (Deemed University Established by MHRD Govt. of India), Punjab.

Professional Experience:

- Principal Scientist, CSIR-IMMT, Bhubaneswar from 2017 till date
- Senior Scientist, CSIR-IMMT, Bhubaneswar from 2014 to 2017.
- Scientist-C, CSIR-IMMT, Bhubaneswar 2010 to 2014.
- Scientist-B, CSIR-IMMT, Bhubaneswar from 2007 to 2010.
- JTA, CSIR-NAL, Bangalore from 2004 to 2007.

Awards and Honors:

- Fellow of the Institute of Engineers
- Fellow of the Institution of Electronics and Telecommunication Engineers (IETE).
- Received the prestigious IETE (The Institution of Electronics and Telecommunication Engineers) – Hari Ramji Toshniwal Award (2022) on 25th September 2022 at 65th Annual IETE Convention held at Hyderabad for his excellent contribution to the development and commercialization of two unique industrial instruments for use in iron ore pelletization plant automation.
- Received IIME Mineral Excellence award at Bhubaneswar in 2022
- Best Paper Award for the paper "Machine Learning based Image Processing for Iron Ore Pellet Size Analysis," 2021 4th Biennial International Conference on Nascent Technologies in Engineering (ICNTE), at Navi Mumbai, by *A. J. Deo, A. Sahoo, S. K. Behera and D. P. Das (*Presenting Author).
- Received best poster presentation award of the Department of Electrical Engineering for the poster entitled "Hybrid active noise control system for a mixture of tonal and chaotic noise at the NIT, Rourkela on Research Scholars week 2016 held during 12-14 February, 2016.
- Received NI Engineering Impact Awards 2014 under system category by National Instruments India during NI Days Conference 2014 at Bangalore for Eye-On-Pellet Technology. (Runners -up)
- Received PSSI poster award 2013 during the 28th National Symposium on Plasma Science and Technology jointly organized by school of applied sciences, KIIT

University and Plasma Science Society of India (PSSI) from 3rd to 6th December 2013 for the poster on “Study of the H α line broadening in plasma torch used for coating application“by *Sarita Das, Debi Prasad Das, Sisir Mantry, Santosh Kumar Behera (*Presenting Author).

Professional Activities:

- Fellow of the Institution of Electronics and Telecommunication Engineers (IETE).
- Fellow of the Institute of Engineers.
- Life member of the Instrument Society of India and IIME.
- Life Member of the Computer Society of India
- Joint Secretary of Indian Institute of Mineral Engineers (IIME) Bhubaneswar local chapter.
- Ex-Treasurer of the Indian Institute of Mineral Engineers (IIME) Bhubaneswar local chapter.

Area of Interest:

- Industrial Instrumentation and Control, Computer Vision, Machine Learning, Active Noise Control, and LabVIEW-based soft sensor development.

Technology Developed/ Commercialized:

Eye-on-pellet System: Online pellet size monitoring system for Pelletization Industries; Technology License has been transferred to SVNT Infotech Pvt. Ltd. Hyderabad for production and marketing as Principal Investigator.

Expert Eye-On-Pellet System: Pelletization Disc Control System; Technology License has been transferred to M/s SVNT Infotech Pvt Ltd. Hyderabad for production and marketing as Principal Investigator.

Eye-on-pellet and Expert Eye-on-pellet technology were commercialized at

JSW Steel Ltd. Pellet Plant 1, Karnataka

JSW Steel Ltd. Pellet Plant 2, Karnataka

BMM ISPAT Ltd, Hospete

Thesis Guidance:

PhD: Two Awarded, Two Continuing

Patents filed/granted:

- S. K. Behera, D. P. Das & A. J. Deo "An apparatus and method for control of disc pelletizer by accurate size monitoring of pellets", India, Application No. 201911042004, dated 17.10.2019, **Patent No.504441, Date of Grant 29.01.2024**
- S. K. Behera, D. P. Das, S. Bhuyan, S. Rath, S. K. Mishra, S. K. Biswal, B. K. Mishra and A. S. Prasad "A method and apparatus for controlling the speed of pelletization disc using image processing based pellet-size-distribution trend to reduce recycling load", India, Application No. 3830DEL2013, dated 31.12.2013, **Patent No. 430663, Date of Grant 29.04.2023.**
- S. K. Angadi, S. K. Behera, P. S. R. Reddy and B. K. Mishra "A novel technique and apparatus for monitoring hydrocyclone spigot choking", India and South Africa Application No-0618DEL2013 PP2014/01623, dated 04.03.2013, **Date of Grant 26.11.2014.**
- S. Rath, S. K. Pandey, D. P. Sandha, B. Rath, M. Mohapatra, B. K. Parida, T. Dash, D. P. Das, S. K. Behera, S. K. Mishra and B. K. Mishra "Software controlled and operated apparatus for real time location based air pollution monitoring system in a moving node", India, Application No 201611009092, dated 16.03.2016.

SCI Journals:

- S. P. Sethi, D. P. Das and S. K. Behera, "Monitoring of Arc Plasma Process Parameter Using CNN-Based Deep Learning Algorithm to Accommodate Sensor Failure," in *IEEE Transactions on Plasma Science*, vol. 51, no. 6, pp. 1434-1445, June 2023, Impact Factor: 1.368, doi: 10.1109/TPS.2023.3274788.
- S. P. Sethi, D. P. Das, S. K. Behera and N Ray "Instability and fault analysis of arc plasma using advanced signal processing methods" *Review of Scientific Instruments*, vol. 94, no. 10, pp. 1434-1445, Oct 2023, doi: doi.org/10.1063/5.0161187.
- A. J. Deo, S. K. Behera and D. P. Das, "Online Monitoring of Iron Ore Pellet Size Distribution Using Lightweight Convolutional Neural Network", in *IEEE Transactions on Automation Science and Engineering*, 2023, Impact Factor: 6.636, doi: 10.1109/TASE.2023.3253574.
- S. Bagha, D. P. Das and S. K. Behera, "Reference Microphone Free Active Headrest System for Noise Containing Varying Frequency Tonal Components," in *IEEE Transactions on Circuits and Systems II: Express Briefs* vol. 70, no. 8, pp. 3184-3188, Aug. 2023, Impact Factor: 3.69, doi: 10.1109/TCSII.2023.3246437.
- S. P. Sethi, D. P. Das and S. K. Behera, "Cathode Position Detection in a Transferred Arc Plasma Using Artificial Neural Network", in *IEEE Transactions on Plasma Science*, vol. 51, no. 3, pp. 913-921, March 2023, **Impact Factor: 1.368**, doi: 10.1109/TPS.2022.3229199.
- A. J. Deo, A. Sahoo, S. K. Behera and D. P. Das, "Iron Ore Pellet Size Analysis: A Machine Learning-Based Image Processing Approach", in *IEEE Industry Applications Magazine*, vol. 29, no. 1, pp. 67-79, Jan.-Feb. 2023, **Impact Factor: 0.756**, doi: 10.1109/MIAS.2022.3214020.

- A.J. Deo, A. Sahoo, S. K. Behera and D. P. Das, “Vision-based size classification of iron ore pellets using ensembled convolutional neural network”, *Neural Computing & Applications*, 34, 18629–18641, 2022, **Impact Factor: 5.102**, doi: 10.1007/s00521-022-07473-1.
- S. Bagha, D. P. Das and S. K. Behera "An Efficient Narrowband Active Noise Control System for Accommodating Frequency Mismatch", in *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol.28, pp.2084-2094, 2020.**Impact Factor: 4.364**, doi: 10.1109/TASLP.2020.3008803.
- D. K. Nayak, D. P. Das, S. K. Behera, S. P. Das "Monitoring the fill level of a ball mill using vibration sensing and artificial neural network" *Neural Computing and Applications*, 1-11, 2020, **Impact Factor: 5.102**, doi: 10.1007/s00521-019-04555-5.
- D. K. Nayak, D. P. Das, S. K. Behera, S. P. Das, J. K. Sadangi, “Prevention of Hydrocyclone Choking Through Detection of Sub-Hz Frequency Shift of Vibration Signal”, *Journal of Vibration Engineering & Technologies*, Springer, 1-12, 2019. **Impact Factor: 2.333**, doi: 10.1007/s42417-019-00107-2.
- S. K. Behera, D. P. Das and B. Subudhi “Head movement immune active noise control with head mounted moving microphones”, *Journal of Acoustic Society of America*, vol.142, no.2, pp.573-587, 2017, **Impact Factor: 2.482**, doi: 10.1121/1.4996125.
- S. K. Behera, D. P. Das and B. Subudhi “Adaptive nonlinear active noise control algorithm for active headrest with moving error microphones” *Applied Acoustic*, Elsevier, vol.123, pp.9-19, 2017. **Impact Factor -3.614**, doi: 10.1016/j.apacoust.2017.03.002.
- S. K. Behera, D. P. Das and B. Subudhi "Functional link artificial neural network applied to active noise control of a mixture of tonal and chaotic noise" *Applied Soft Computing*, Elsevier, vol. 23, pp. 51–60, October 2014. **Impact Factor: 8.263**, doi: 10.1016/j.asoc.2014.06.007.
- S. P. Das, D. P. Das, S. K. Behera and B. K. Mishra, “Interpretation of mill vibration signal via wireless sensing”, *Elsevier Minerals Engineering*, Vol 24, Issues 3-4, Feb-Mar 2011, pp 245-251. **Impact Factor: 5.479**, doi: 10.1016/j.mineng.2010.08.014

Conferences:

1. A. J. Deo, A. Sahoo, **S.K. Behera**, & D. P. Das, "Machine Learning based Image Processing for Iron Ore Pellet Size Analysis", IEEE and IAS co-sponsored 4th Biennial International Conference on Nascent Technologies in Engineering, India, 15-16, January, 2021
2. D. K. Nayak, D. P. Das, **S. K. Behera**, S P Das and J K Sadangi "Detection of Hydrocyclone Choking using Vibration Signal Processing"3rd international conference on recent trends in computer science technology, RVSCET, Jamshedpur,24-25 April 2018
3. D. K. Nayak, D. P. Das and **S. K. Behera** "Wavelet-based Classification of Mineral Hardness by Vibration " International Conference on Recent Trends in Computational Engineering and Technologies (ICRTCET'18), Bangalore, India , 17-18 May, 2018,
4. **S. K. Behera** and DP Das "Development of image processing based pellet size analysis system using LabVIEW", National Conference on Contributions of SC/ST Scientists and Technologists towards Advancement of Science and Engineering (NCSCSTASE) 2018, Bengaluru, 23-25 January 2018.
5. **S. K. Behera**, D. P. Das and B. Subudhi " Active headrest with moving error microphone for real-time adaptive noise control" , The Third Indian Control Conference, IIT, Guwahati, IEEE, Pages 356-363, 4-6 January, 2017.
6. S. P. Das, J. K. Sadangi, A. Tripathy, **S. K. Behera**, A. K. Sahu and S. K. Biswal" The effect of operating pressure on grinding of hard banded iron ore in high pressure grinding roll(HPGR)" , MPT-2017, Chennai, 1-3 February,2017.
7. **S. K. Behera** and D. P. Das "Online Measurement of Coating Thickness for Plasma Spray Coating System", National Symposium on plasma Science & Technology (Plasma 2014) organized by PSI, MG University Kottayam, Kerala, 2014.
8. S. Behera, D. P. Das, N. Rout and **S. K. Behera** " Block frequency domain implementation of feedback active noise control algorithm", International Conference on Advanced Electronic Systems (ICAES),CEERI Pilani, IEEE, pp. 54-57, 2013.
9. S. Das, D. P. Das and **S. K.Behera** "Enhancing the linearity of LVDT by two stage functional link artificial neural network with high accuracy and precision", IEEE conference ICIEA 2013, Melbourne Australia, pp.1358-1363, 2013.
10. S. Das, D. P. Das, S. Mantry and **S. K. Behera** "Study of the H alpha Line Broadening in Plasma Torch Used for Coating Application", 28th National Symposium on Plasma Science & Technology (PLASMA 2013), Bhubaneswar, India, 3rd to 6th December 2013.
11. S. Das, D. P. Das, S. Mantry, **S. K. Behera** and S. K. Mishra " Spectroscopic Monitoring of Plasma Torch", 2nd PSSI-Plasma Scholars' Colloquium and National Workshop on Plasma Devices Technology ,CEERI, Pilani , India, 22-24 July 2013.
12. C. Eswaraiyah, R. K. Soni, **S. K. Behera** and B. K. Mishra " Analysis of model parameter dependency on breakage characteristics of single particle comminution", IMPC, New Delhi, Paper no-574, 24-28 Sept.2012.

13. S. P. Das, T. K. Kundu, D. P. Das, **S. K. Behera** and B. K. Mishra "Study of Impact Spectra of different mineral systems during milling", IMPC, New Delhi, Paper No-565, 24-28 Sept. 2012.
14. B. K. Mishra, S. P. Das, D. P. Das and **S. K. Behera** " Vibration analysis of large tumbling mills", SME Annual Meeting and Exhibit and CMA 113th National Western Mining Conference 2011, Denver, Colorado, pp. 785-788, 2011.
15. S. P. Das, D. P. Das, **S.K. Behera** and B.K. Mishra "Interpretation of Vibration Signal of Tumbling Mill", Comminution '10, Cape Town, South Africa, Cape Town, South Africa, April 13-16, 2010.
16. C. Eswarajah, R. K. Soni, **S. K. Behera** and B. K. Mishra " Determination of single particle comminution characteristics of ores by drop weight test", Proceedings of International Seminar on Mineral Processing Technology, NML, Jamshedpur, Allied Publisher, New Delhi, 2010.
17. S. P. Das, D. P. Das, **S. K. Behera** and B. K. Mishra " Monitoring of Continuous Ball Mill using Vibration Signal Analysis", Proceedings of International Seminar on Mineral Processing Technology, NML, Jamshedpur, Allied Publisher, New Delhi, 2010.
18. D. P. Das, A. Nanda, **S. K Behera**, B. V. R. Murthy and J. N. Mohanty " Image processing based pellet shape and size analysis", International Seminar on Mineral Processing Technology ,IMMT, Bhubaneswar, 2009.
19. S.P. Das, D .P.Das, **S.K.Behera**,S.K.Biswal, S.K.Mishra, B.K.Mishra and B.K.Dhindaw " Charge Dynamics Study of SAG Mill", International Seminar on Mineral Processing Technology, IMMT, Bhubaneswar, 2009.