BIO-DATA

1. Name and full correspondence address:

Ranjan Sen, Chief Scientist & Head, Precision Engineering and Metrology Group, Central Mechanical Engineering Research Institute, Mahatma Gandhi Avenue, Durgapur-713209

2. E-mails: rsen@cmeri.res.in,ranjansen1958@gmail.com

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3. Institution: CSIR-Central Mechanical Engineering Research Institute, Durgapur

4. Date of Birth: 28.07.1958

5. Gender: M

6. Category: Gen

7. Whether differently abled: No

8. Academic Qualifications:

Degree	Year	Subject	University/Institution	% of Marks
B. Prod.E	1982	Production Engineering	Jadavpur University	83.0
M. Prod.E	1988	Production Engineering	Jadavpur University	79.0
Ph. D	1993	Engineering(Field-Tribology)	Jadavpur University	NA

9. Ph.D. thesis title: Tribological behavior of some ferrous and nonferrous metals and alloys using solid lubricants.; **Guide's Name:** Prof. S.K.Basu and Prof. S.K. Sorkhel **; Jadavpur University, Year of Award:** 1993

10. Work experience (in chronological order)

Sl No	Position Held	Name of the Institute	From	To	Pay Scale
1.	Production Supervisor	Hindustan Motors Ltd., Uttarpara,	July 1982	Oct 1983	
2	Scientist B	CSIR-Central Mechanical Engineering Research Institute, Durgapur	Nov 1983	Oct 1988	
3	Scientist C	-do-	Nov 1988	Oct 1993	
4	Scientist E1	-do-	Nov 1993	Oct 1998	
5	Scientist E2	-do-	Nov 1998	Oct 2004	
6	Scientist F	-do-	Nov 2004	Oct 2009	
7	Chief Scientist	-do-	Nov2009	Cont.	Band Pay-Rs.62360/- GP- Rs10000/-

11. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.:

1. Jadavpur University Gold medal for standing 1st in order of merit in M,Prod.E. examination in the year 1988.
2. Excellent award from Quality Circle forum of India in NCQC 2005 at 19th National Conference of Quality Circles, Ernakulam, Kerala.
3. 'Production Engineering Division Prize' for best paper of the Institution of Engineers(India) journal in that division ,at Indian Engineering Congress, Bangalore, 26th December16, 2011.
4. AICTE - INAE Distinguished Visiting Professor for the year 2013-16
5. Life Member, Tribology Society of India.,
6. Life-Fellow, The Institution of Engineers (India), Chartered Engineer.
7. Hon. Secy, The Institution of Engineers (India), Durgapur centre, 2000-2002
8. Chairman,, The Institution of Engineers (India), Durgapur centre, 2002-2004
9. Life Member – Metrology Society of India (MSI)
10. Life Member –The Indian Institute of Welding
11. Life Member –Quality Circle Forum India
12. Chairman, MSI-Eastern Regional Chapter
13. Member, BIS Sectional Committee PG -25
14. Lead and Technical Assessor of NABL-DST & Member, Supplementary/Core Accreditation Committee.

12. Publications

Sl No	Author (s)	Title	Name of the Journal	Vol	Page	Year
1	S. Dutta, S.K. Pal, **R. Sen**	Progressive tool condition monitoring of end milling from machined surface images	Proceed. Instt. Mech. Eng., Part B: Journal of Engineering Manufacture	doi: 10.1177/0954405416640417		2016
2	S. Dutta, S.K. Pal, **R. Sen**	Tool Condition Monitoring in Turning by Applying Machine Vision	ASME Journal of Manufacturing Science and Engineering	138	051008	2016
3	S. Dutta, S.K. Pal, **R. Sen**	Progressive Tool Flank Wear Monitoring by Applying Discrete Wavelet Transform on Turned Surface Images	Measurement	77	388-401	2016

Sl No	Author (s)	Title	Name of the Journal	Vol	Page	Year
4	NN Bhat, S Dutta, T Vashisth, S Pal, **R Sen**, SK Pal	Tool Condition Monitoring by SVM Classification of Machined Surface Images in Turning	International Journal of Advanced Manufacturing Technology	83	1487-1502	2016
5	Samik Dutta, Surjya K Pal, **Ranjan Sen**	On-Machine Tool Prediction of Flank Wear from Machined Surface Images using Texture Analyses and Support Vector Regression	Precision Engineering	43	34-43	2016
6	Rajat Sen, Chinmoy Pati, Samik Dutta**, Ranjan Sen**	Comparison Between Three Tuning Methods of PID Control for High Precision Positioning Stage	MAPAN - Journal of Metrology Society of India	30	65-70	2014
7	Samik Dutta*, Chinmoy Pati and **R Sen**	Simultaneous position and angular error measurement of precision positioning stages using miniature interferometer with step-size variation	International Journal of Precision Technology	4	29-45	2014
8	S Dutta, SK Pal, S Mukhopadhyay, **R Sen**	Application of digital image processing in tool condition monitoring: A review	CIRP Journal of Manufacturing Science and Technology	6	212-232	2013
9	S Dutta, A Kanwat, SK Pal, **R Sen**	Correlation study of tool flank wear with machined surface texture in end milling	Measurement	46	4249-4260	2013
10	A Datta, S Dutta, SK Pal, **R Sen**	Progressive cutting tool wear detection from machined surface images using Voronoi tessellation method	Journal of Materials Processing Technology	213	2339-2349	2013
11	S Dutta, A Datta, ND Chakladar, SK Pal, S Mukhopadhyay, **R Sen**	Detection of tool condition from the turned surface images using an accurate grey level co-occurrence technique	Precision Engineering	36	458-466	2012
12	A Datta, S Dutta, SK Pal, **R Sen**, S Mukhopadhyay	Texture analysis of turned surface images using grey level co-occurrence technique	Advanced Materials Research	365	38-43	2012
13	S Barman, **R. Sen**	Performance Evaluation of Multi-Axis CNC Machine Tools by Interferometry Principle using Laser Calibration System	Journal of The Institution of Engineers (India): Series C	93	151-155	2012
14	S Barman, **R. Sen**	Enhancement of accuracy of multi-axis machine tools through error measurement and compensation of errors using laser interferometry technique	Mapan	25	79-87	2010

Sl No	Author (s)	Title	Name of the Journal	Vol	Page	Year
15	SC Nidhi, R Sen, RK Biswas, S Islam	Performance Characteristic of PTFE-Based Hi-Tech Lub Oil Additive	Journal of The Institution of Engineers (India): Series C		203-210	1996
16	R Sen, S Dutta, SK Das, SK Basu	Evaluation of a glass-ceramic coating for machine tool slides	Wear	130	249-260	1989

13. Detail of patents.

a. Multi Purpose Screw Driver (Indian pt.no.176141)

b. A machine useful for condition monitoring of bearings (Indian pt.no.216561)

c. Copyright- Drawings of system assembly and sub-systems of " structural frame of 3 dimensional translation stage of a micro CMM" (Reg. no. L-55933/2013)

14. Book Chapter:

Dutta S, Pal SK and **Sen R**, *Digital image processing in machining*, in: Davim, J.P. (Ed.), Modern Mechanical Engineering - Research, Development and Education, 2014, pp. 369–412 (Springer-Verlag Ltd., Berlin)