Profile Page

Name	:	Dr Kuldeep Singh Nagla
Designation	:	Professor
Department	:	Instrumentation & Control Engg.
Qualification	:	PhD Robotics (Dr BR Ambedkar NIT Jalandhar) M Tech (By Research) Control and Instrumentation (Dr BR Ambedkar NIT Jalandhar) BE Electronics and Instrumentation (College of Engineering and Technology Bathinda under Punjabi University Patiala)
Address	:	Department of ICE Dr BR Ambedkar NIT Campus Jalandhar, Punjab - 144011
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Research Interests :

Space Robotics, Artificial Intelligence, Sensor Fusion, IoRT, SLAM, Industrial Automation, Intellectual Property Rights (IPR) etc.

Other Profile Links :

Google Scholar Link :

Dr. KS Nagla Click Here

Personal Web Link :

Dr Kuldeep Singh Nagla Click Here

Journal Publications :

Year	Journal	Publication
2022	Official Journal of patent office, Vol 3, PP 3208	Sushendra Kumar Misra, Kuldeep Singh Nagla, Vehicle disinfection system and method thereof
2021	International Journal of Image and Data Fusion 12 (2), 122-154	Archana Khurana, KS Nagla , Improved Auto-Extrinsic Calibration between Stereo Vision Camera and Laser Range Finder,
2021	MAPAN 36 (3), 669-690	A Khurana, KS Nagla, Extrinsic Calibration Methods for Laser Range Finder and Camera: A Systematic Review
2021	MAPAN volume 36, pages215–226	S. Yadav & D. K. Aswal A. Varshney, N. Garg, K. S. Nagla, T. S. Nair, S. K. Jaiswal, Challenges in Sensors Technology for Industry 4.0 for Futuristic Metrological Applications
2020	Journal of Intelligent & Robotic Systems 99 (3), 693-712	Archana Khurana, KS Nagla "An Improved Method for Extrinsic Calibration of Tilting 2D LRF",

2019	Sensor Review Vol. 39 No. 4, pp. 456-472	Singh R, Nagla K.S.,"A modified sensor fusion framework for quantifying and removing the effect of harsh environmental conditions for reliable mobile robot mapping",
2019	MAPAN, Springer, Vol. 34 No. 1, pp. 31–42	Singh, R. and Nagla, K.S., Removal of specular reflection and cross talk in sonar for precise and accurate range measurements
2019	MAPAN, Springer, Vol. 34 No. 2, pp. 239–257	Singh, R. and Nagla, K.S., Sonar sensor model for the precision measurement to generate robust occupancy grid map
2019	Sensor Review, Emerald Publishing Limited, Vol. 40 No. 1, pp. 17-41	Singh, R. and Nagla, K.S., Comparative analysis of range sensors for the robust autonomous navigation–a review", Sensor Review
2019	Sensor Review, Emerald Publishing Limited. Vol. 39 No. 4, pp. 456-472	Singh, R. and Nagla, K.S., A modified sensor fusion framework for quantifying and removing the effect of harsh environmental condition for reliable mobile robot mapping
2019	International Journal of Vehicle Autonomous Systems, Vol. 14 No. 4, pp. 305–324	Singh, R. and Nagla, K.S., Modified probabilistic laser sensor model to reduce the effect of the mixed pixel for robust autonomous mobile robot navigation
2019	Taylor & Francis, Vol. 10 No. 3, pp. 177–198	Singh, R. and Nagla, K.S., Development of an efficient laser grid mapping technique: P-SLAM",
2019	International Journal of Intelligent Unmanned Systems, Vol. 7 No. 1, pp. 2-18	Singh R, Nagla K.S., "Multi-data sensor fusion framework to detect transparent object for the efficient mobile robot mapping"
2018	Official Journal of the Patent office (India), Vol 04/2018 PP 3196	KS Nagla, Water Melon seed extracting device and method thereof
2018	Official Journal of the Patent office (India), Vol 04/2018 PP 3197	KS Nagla, Cookies dispensing machine
2018	Official Journal of the Patent office (India), Vol 04/2018 PP 3198	KS Nagla, Robotic modular transportation system
2018	MAPAN 33 (1), 33-41	A Khurana, KS Nagla, Signal averaging for noise reduction in mobile robot 3D measurement system
2018	World Journal of Engineering, Vol. 15 No. 5, pp. 626–632	Singh, R. and Nagla, K.S., "Error Analysis of Laser Scanner for Robust Autonomous Navigation of Mobile Robot in Diverse Illumination Environment",
2018	MAPAN Springer, Vol. 34 No. 1, pp. 31–42	Singh, R. and Nagla, K.S., 2018, "Removal of Specular Reflection and Cross Talk in Sonar for Precise and Accurate Range Measurements",
2018	International Journal of Intelligent Unmanned Systems, 6(2) 2017, pp.93-114	Singh, R. and Nagla, K.S., "Improved 2D laser grid mapping by solving mirror reflection uncertainty in SLAM", International Journal of Intelligent Unmanned Systems,
2018	MAPAN Springer, Vol. 34 No. 2, pp. 239–257	Singh, R. and Nagla, K.S., "Sonar sensor model for the precision measurement to generate robust occupancy grid"
2015	International Journal of Robotics and Automation, Vol 4(1), p.82.	,Nagla, K.S., Uddin, M. and Singh, D. Dedicated Filter for Robust Occupancy Grid Mapping
2014	International Journal of Robotics and Automation (Google Scholar)	Multisensor Data Fusion and Integration for Mobile Robots: A Review
2012	Robotics and autonomous Systems 60 (10), 1245-1252	KS Nagla, M Uddin, D Singh, Improved occupancy grid mapping in specular environment
2012	International Journal of Advanced Research in Computer Science and Software Engineering, vol 2 (5) pp 241-245	Ravinder Singh, KS Nagla, Proposed model of an earthquake detector by using UBG-04LX-F01 laser rangefinder

2009	Official Journal of the Patent office (India), Vol 13, 2009	Mechanism to clean the bird droppings in cage type poultry farm
2008	Journal of Tissue Viability, 17(3):82-94	Ghosh S, Mukhopadhyay A, Sikka M, Nagla KS, Pressure mapping and performance of the compression bandage/garment for venous leg ulcer treatment
2008	Official Journal of the Patent office (India)	Intelligent Induction Hardening Device And Method Thereof

Conference Publications :

Year	Conference	Publication
2021	Recent Advances in Metrology - Select Proceedings of AdMeT 2021	Anshul Varshney, Naveen Garg, S. K. Jaiswal, K. S. Nagla and Sanjay Yadav, Challenges in Sensors Technology for Industry 4.0 for Futuristic Metrological Applications
2020	International conference Soft Computing: Theories and Applications	Archana Khurana, Rini Sharma, KS Nagla, 3D Scene Reconstruction of Vision Information for Mobile Robot Applications
2019	National seminar on social implications on artificial Intelligence, March,2011 2. Sunil Kumar , K.S. Nagla, Kinematic Analysis of Skid-Steer Wheeled Mobile Robot, A Multi-Track National Conference SLITCON 1-3 March, 2019	KS Nagla, Palavi Singla, Amanpreet Singh, Apeksha, , “Stochastic modeling of sonar sensor for mobile robot navigational applications”,
2019	A Multi-Track National Conference SLITCON 1-3 March, 2019	Mukesh Kumar Sharma, K.S. Nagla, Kinematic Analysis of Two-Wheeled Differential Drive Mobile Robot
2018	SOCTA, 2018 (Scopus)	Archana Khurana , KS Nagla, Rini Sharma " 3-D scene reconstruction of vision information for mobile robot applicatiobn
2016	Internatioal Conference on Humanizing work and work environment HWWE-2016	Archana Khurana, KS Nagla, Rini Sharma" 3D mobile robot mapping using laser range finder"
2015	12th IEEE International conference INDICON 2015, 17-20 Dec., 2015, pp 1-6	Nidhi Jain, Y Prem Kumar, KS Nagla, Corner Extraction From Indoor Environment For Mobile Robot Mapping
2014	IEEE International Conference on Advances in Computing, Communications and Informatics (ICACCI, 2014), pp 863 – 867	Goyal, J.K.; Nagla, K.S. , A new approach of path planning for mobile robots
2014	IEEE International Conference on Issues and Challenges in Intelligent Computing Techniques (ICICT)	Tripathi, P.; Singh, H.; Nagla, K.S.; Mahajan, S. , Occupancy grid mapping for mobile robot using sensor fusion
2013	Applied Imagery Pattern Recognition (AIPR) annual IEEE workshops (Sensing for Control and Augmentation) held at Washington DC (USA) on October 23-25, 2013	K.S. Nagla, Moin Uddin, Dilbag Singh , sensor fusion frame work for robust occupancy grid mapping
2012	ACODS: International conference on Advances in Control and Optimization of Dynamical Systems	Gaurav Sharma, K.S Nagla, , Evaluation of Occupancy Grid using LabVIEW software
2012	2nd International Conference on Biomedical and Assistive Technologies BEATS, India	KS Nagla, Neha Sharma, and Meera Sharma, Online performance measure of logical sensors for occupancy grid mapping
2011	22nd DAAAM World Symposium “Intelligent Manufacturing & Automation: Power of Knowledge and Creativity”, at Austria Center Vienna, Vienna, Austria from 23-26th November 2011. Pp 339-340	K.S. Nagla, Moin Uddin, Dilbag Singh, Nikhil Rathi, Sensor Fusion Frame Work for Marble/Stone Processing Industry using Low Cost Sensors

2010	IEEE international conference AIPR 2010 USA	K.S. Nagla, MoinUddin, Dilbag Singh, Rajev Kumar, Object Identification in Dynamic Environment Using Sensor Fusion
2009	World Conference on Education, Jalandhar	K.S. Nagla, MoinUddin, Dilbag Singh Recent Trends in Cleaning Service Robots
2006	IEEE International Conference on IEEE international conference on Mechatronics and Automation, ICMA-06 Luoyang, HeNan, China. June 25-28, 2006	K.S. Nagla, MoinUddin, R. Jha, Akshay Mathur
2006	17th International DAAAM Symposium "Intelligent Manufacturing & Automation: Focus on Mechatronics & Robotics" 8-11th November 2006 pp 261-262	Nagla KS, Moin Uddin, R, Jha, Arora, JS, Kalra, AS, Katyal,A, , Cleaning Robot: Selection and analysis of driving Mechanism
2005	Nagla K. S., Saha S K, Jha R., Akshay Mathur , IEEE International conference ACIAR-2005 (Asian conference on Industrial Automation & Robotics)	Robot for Cleaning the Surface below the Indian Railway Tracks at Platforms: Feasibility and Kinematics
2005	16th DAAAM International Symposium "Intelligent Manufacturing and Automation: Focus on Young Researchers and Scientists" 19-22nd October 2005 at Opatija, CROATIA, pp 259-260	Nagla K. S., Saha S K, Jha R., Akshay Mathur , Kinematics of Wheeled Mobile Robot" proceedings of 16th DAAAM International Symposium
2005	National Seminar on Embedded Systems Kanya Maha Vidyalaya Jalandhar, January 24-25, 2005 pp 175-182.	Nagla KS., Jha R, Mathur A., "Embedded Robotics: an approach to design and development of embedded based Mobile Robot
2004	International Conference on Emerging Technology (ICET-2004) KIIT., Bhubaneshwar	Nagla KS, Jha R, Recent Progress in Underwater vision systems
2003	Asian Conference on Industrial Automation & Robotics, Bangkok, pp 249-252	Nagla K.S. and R. Jha ,Sequence Control of Mobile Robot for Collision Free Path
2003	Proceedings of National Conference PCIC-2003, NSS College of Engg. Palakkad (Kerala), Jan, 2003	K S Nagla and R Jha "Mobile robot on collision free path"
2002	13th DAAAM International Symposium on "Intelligent Manufacturing & Automation: Learning from Nature" at Vienna, Austria, pp 373-374.	Nagla K.S. and R. Jha. , Domestic Mobile Robot
2002	Proceedings of National Seminar, Indian Society for Technical Education (ISTE), SBSCET Ferozepur, INDIA.Oct. 26, 2002	R Jha,. KS Nagla "On Solar thermal electrical power generation
2001	Annals of DAAAM in Proceedings of 12th DAAAM International Symposium, pp 213-214	KS Nagla, Robot for Railways (with case study of Indian railways)
2001	ASIAR 2001, BITECH Bangkok THAILAND, pp 162-166	KS Nagla, PLC based remote control universal robot" Proceedings of Asian Symposium on Industrial Automation and Robotics (ASIAR 2001)
2000	Proceeding of National Symposium IPRooM, 2000, Pryadarshani College of Engineering and Technology	KS Nagla, Domestic Robot

Book/Chapter Publications :

Type	**Title**	**Publisher**	**Authors**	**ISBN/ISSN No.**	**Year**
Book Chapter	Challenges in Sensors Technology for Industry 4.0 for Futuristic Metrological Applications	Springer	Anshul Varshney, Naveen Garg, S. K. Jaiswal, K. S. Nagla and Sanjay Yadav		2021

Research Projects :

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
Principal Investigator	R&D	Design and Development of Underwater Robot	Dr. BR Ambedkar National Institute of Technology Jalandhar	2004	2005	30K	Completed	NIL
Principal Investigator	R&D	Robot for Cleaning the Railway Tracks (Project No. 26-11/2001.TSV, S.No-89)	MHRD (Ministry of Human Resource Development), Government of INDIA	2009	2012	Rs 13 Lakh	Completed	NIL
Co-Investigator	R&D	Designing Non-Woven Fabric for Pulse-Jet Filtration	MHRD (Ministry of Human Resource Development), Government of INDIA	2009	2013	8Lakh	Completed	KS Nagla
Principal Investigator	Indo Korean (R&D)	Real time shared autonomy system for the field mobile robot	DST and Govt. of South Korea	2015	2018	36 Lakh Indian side	Completed	
Co-PI	R&D	Modeling and Simulation of Antenna Control Servo System	ISRO	2020	2022	7 Lakh	Completed	KS Nagla
PI	R&D	Service Robot for Hospitals	TEQIP-III	2020	2021	2.40 Lakh	Completed	Dr LK Awasthi

Events Organized :

Category	Type	Title	Venue	From	To	Designation
AICTE-STC	National	Modern Practices in Measurement and Instrumentation Engineering	Dr BR Ambedkar NIT Jalandhar	13-07-2009	17-07-2009	Coordinator
Workshop	National	Robotics	Dr BR Ambedkar national Institute of Technology Jalandhar	21-08-2016	22-08-2016	faculty coordinator

One day workshop	National	Workshop on Drone	Industrial Block NITJ	25-02-2018	25-02-2018	Coordinator
Workshop	National	One day workshop on robotics under R-tist Robotics club	Seminar Hall Industrial Block	25-02-2018	25-02-2018	Faculty Coordinator
STC	National	Optimization and Control Design Techniques Innovations and Challenges	NIT Jalandhar	10.01.2019	14-01-2019	Coordinator
FDP	National	On Embedded system Wireless sensor network for IoT	NIT Jalandhar	8-11-2019	12-11-2019	Coordinator
STC	National	IPR	NIT Jalandhar	18-08-2020	22-08-2020	Coordinator

Professional Affiliations :

Designation	Organization
Member	IEEE
Life member	Instrument Society of India (ISOI)
Member	RAS (Robotics and Automation Society)
Life member	India Innovator Association

PhD Supervised :

Scholar Name	Research Topic	Status	Year	Co-Supervisor
Archana Khurana	3D mobile robot mapping	Submitted	2021	NIL
Ravinder Singh	Mobile robot mapping	Awarded	2020	NIL

PG Dissertation Guided :

Student Name	Dissertation Title	Status	Year	Co-Supervisor
Abhishek Gupta	Implementation of Simultaneous Localization and Mapping using LiDAR Scans in a Mobile Robot	Completed	2021	NIL
k. Dhanunjay	Modelling and simulation of ground station antenna control system	Completed	2021	NIL
Thrishna S Nair	IoT based 2d mapping of Mobile robot using sonar sensor	Completed	2021	NIL
Thrishna S Nair	IOT Based 2D Mapping of Mobile Robot Using Sonar Sensor	Completed	2021	NIL
Mukesh Kumar Sharma	Global path planning of mobile robot in static environment using PRM and GA	Completed	2019	NIL
Sunil Kumar	Mobile robot path planning analysis using particle swarm optimization	Completed	2019	NIL
Prasanth kumar	Localization of ORIGAMI wheeled mobile robot with augmented Kalman filter	Completed	2018	NIL
Chimata venkanna	Path planning analysis by varying growth factor with RRT and RRT* techniques	Completed	2018	NIL
Deepak Bhola	Mobile robot mapping by stereovision using feature based techniques	Completed	2017	NIL
Kirti Singh	Modeling laser intensities corresponding to extrinsic parameter of target	Completed	2017	NIL
Rajnish Partap Singh	Mobile robot localization by using Kalman filter	Completed	2017	NIL

Rini Sharma	Mobile Robot 3D Mapping using Stereovision	Completed	2016	NIL
Archana Khurana	3D Mobile Robot Mapping using Laser Range Finder	Completed	2016	NIL
Rahul Kumar	PID Tuning of 3-DOF Manipulator	Completed	2016	NIL
Nidhi Jain	Corner Extraction from indoor environment for Mobile Robot Mapping	Completed	2015	NIL
Prem Kumar	Mobile Robot Environment Mapping using Sonar Sensor	Completed	2015	NIL
Tarlok Singh	Collision Avoidance in Mobile Robots using vector histogram	Completed	2015	NIL
Vikas Kumar	Error Analysis of 3-DOF manipulator	Completed	2014	NIL
Jai Parkash Jingar	Improved Computation time for occupancy grid mapping	Completed	2014	NIL
Sanjay Kumar	Odometry error model for differential drive motor	Completed	2014	NIL
Jitin Kumar Goya	Mobile Robot Path Planning	Completed	2013	NIL
Ravinder Singh	Estimation and removal of errors in Hokuyo UBG-04LX-F01 2D laser range finder	Completed	2012	NIL
Nikhil Rathi	Object identification using sensor fusion by Dempster Shafer theory	Completed	2011	NIL
Utpal Kant	Occupancy grid mapping for the mobile robot using Scale Invariant Feature Transform	Completed	2011	NIL
Rajeev Kumar	Neural learning for sensor fusion in autonomous mobile robot	Completed	2010	NIL
Priyanshu Tripathi	Occupancy grid mapping for mobile robot using sensor fusion	Completed	2010	NIL
Ajaj Rasul	Neuro –fuzzy technique for the speed and steering control and obstacle avoidance for the autonomous guided vehicle	Completed	2008	NIL
Rajesh M	A stochastic approach to analyse mobile robot navigation using sensor fusion	Completed	2003	NIL

Patents :

Name	**Reg./Ref. No.**	**Date of Award/Filling**	**Organization**	**Status**
Mechanism to Clean Bird Dropping (Garbage) within a Cage type Poultry Farm	Patent No 210090	18/09/2007	Patent Office Delhi	Granted
An Earth Quake Alarm	Patent No 220748	04/06/2008	Patent Office Delhi	Granted
An Intelligent Leg Exercise Machine	Patent no 280792	28/02/2017	Patent Office Delhi	Granted
Induction Hardening Machine	Patent No 320045	06/09/2019	Patent Office Delhi	Granted
An Improved Packed Bed Photocatalytic Reactor With High And Uniform Illumination And An Associated Technique Of Purification	Patent No. 361300	16/03/2021	Patent Office Delhi	Granted
Decorative Article	Design Patent No 207315	06-12-2006	Design Office Kolkata	Granted
Heat treatment tray	Design Patent No 254948	03/07/2013	Design Office Kolkata	Granted

Door Handle	Design Patent no 265973	20-02-2015	Design Office Kolkata	Granted
Packed Bed Photocatalytic Reactor	Design Patent 279651	08-03-2017	Design Office Kolkata	Granted
Watermelon seed extracting device	Design Patent 285332	19-07-2016	Design Office Kolkata	Granted
Service Mobile Robot	Design Patent no 337694-001	07-12-2021	Design Office Kolkata	Granted
Ultavilot Surface Cleaner	Design Patent no 337687-001	17-12-2021	Design Office Kolkata	Granted
Calibration of Stereo Vision camera and Laser Range Finder for mobile robot applications	copy right no SW-12007/2018	21-12-2018	Copyright office New Delhi	Granted
Program tool for estimation of translation calibration parameters along axis parameters between 2D LRF and Rotating platform	Copyright no SW12095/2019	21-01-2019	Copyright office New Delhi	Granted
Program tool for Information transformation between laser and servomotor for 3D mobile robot mapping	Copyright no SW-9112/2017	16/03/2017	Copyright office New Delhi	Granted
Discovering Buoyancy Force Based Perpetual Motion Machine	Copyright no ©L-35432/2010	09-02-2010		Granted
Discovering a Unique Twist Pattern in of Nassella Neesiana	Copyright No ©L-35431/2010	09-02-2010	Copyright office New Delhi	Granted
Discovering a twist on the stem of eucalyptus plants	Copyright No ©L-29494/2007	12-11-2007	Copyright office New Delhi	Granted
New techniques of water purifying	Copyright no ©L-36944/2011	06-01-2011	Copyright office New Delhi	Granted
Solar photovoltaic apparatus	copyright no ©L-37669/2011	18-03-2011	Copyright office New Delhi	Granted
About IPR	Copyright no ©L-37370/2011	18-03-2021	Copyright office New Delhi	Granted
Importance of solar water heating system	Copyright no ©L-37671/2011	18-03-2011	Copyright office New Delhi	Granted
Importance of robots for domestic chores	Copyright no ©L-37672/2011	18-03-2011	Copyright office New Delhi	Granted

Admin. Responsiblities :

Position Held	**Organization**	**From**	**To**
Incharge Robotics lab	NITJ	2004	till now
Warden Hostel	NITJ	2006	2009
Assistant proctor	NITJ	2006	2008
Faculty advisor Fine Arts	NITJ	2008	2010
Deputy Registrar Academic	NITJ	2013	2014
Deputy Registrar Establishment	NITJ	2014	2015
University Officer All India Survey on Higher Education	NITJ	2012	2015
Member Rashtriya Avishkar Abhiyan	NITJ	2015	till now
Faculty advisor IPR cell	NITJ	2016	2018

Coordinator SC/ST/OBC/Person with Disability (PwD) and Liaison Officer	NIJ	2008	2017
Faculty advisor IPR cell	NITJ	2016	2018
Head Department of ICE	Dr BR Ambedkar NIT Jalandhar	12-02-2018	till now
Head Department of Electrical Engineering	Dr BR Ambedkar NIT Jalandhar	12-02-2018	till now
Warden H No 5	Dr BR Ambedkar NIT Jalandhar	13-05-2017	28-02-2018
Coordinator Campus Amenities	Dr BR Ambedkar NIT Jalandhar	2017	2018
Chairman BOS Instrumentation and Control Engineering	Dr BR Ambedkar national Institute of Technology Jalandhar	2018-2019	

Award and Honours :

Title	Activity	Given by	Year
Emerald Literati Awards of Excellence 2020	for an outstanding research paper 'Multi-data sensor fusion framework to detect transparent object for the efficient mobile robot mapping', authors Ravinder Singh and Kuldeep Singh Nagla published in International Journal of Intelligent Unmanned Systems	Emerald Publishing Limited UK	2020
Best Teachers Award 2018-2019	During 15th convocation	Director cum Chairman Senate Dr BR Ambedkar National Institute of Technology Jalandhar	2019
First Prize	STC	Coordinator STC IIT delhi	2015
Certificate award	Excellence in Research	DAAAM International Vienna	2011
Third Prize	State level Exhibition of Robotics	Governer Punjab	2011
Best Teacher award	Teaching	Principal GP Bathinda	2002
Best Teacher Award	Teaching	Principal GP Bathinda	2001
Cash Award Rs. 20000	Innovative design of Domestic robot	Commissioner Bathinda	2001