

## RADHE SHYAM SHARMA

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### ACADEMIC DETAILS

- **Ph.D.** (Control & Automation)

**Institute:** IIT Kanpur, India, 2020 (*Thesis submitted as on January 9, 2020*)

**CPI:** 9.0/10

- **M.Tech.** (Modelling & Simulation)

**Institute:** Defence Institute of Advanced Technology Pune, India, 2013

**Percentage:** 75.25

- **B.E.** (Biomedical Engineering)

**Institute:** Samrat Ashok Technological Institute Vidisha, India, 2007

**Percentage:** 74.25

### AWARDS AND FELLOWSHIPS

- Visiting research scholar at Khalifa University, Abu Dhabi, UAE, Oct - Nov 2018.
- Received Institute fellowship for doctoral studies from Indian institute of Technology (IIT) Kanpur, India, Jan 2015 - Dec 2019.
- Received GATE scholarship for Master of Technology course from MHRD, Govt of India, Aug 2011- May 2013.

### RESEARCH INTERESTS

- Visual Servoing
- Robot Learning
- Autonomous Navigation
- Multi-Robot Systems

### PROJECTS

- A condition monitoring system with multi-agent mechanism for external non-contact smart inspection of buried oil and gas pipelines  
*The Petroleum Institute (PI), Khalifa University, Abu Dhabi, UAE*
- Study on personal drone benefits for driver assistance  
*Renault Nissan Technology and Business Center India (RNTBCI), Chennai*

## PUBLICATIONS

- **Radhe Shyam Sharma**, Ranjith Ravindranathan Nair, Pooja Agrawal, Laxmidhar Behera, K. S. Venkatesh, "Robust Hybrid Visual Servoing using Reinforcement Learning and Finite Time Adaptive FOSMC", *IEEE Systems Journal*, 2018. [\[PDF\]](#)



Figure 1: Taped video image sequence (a)-(f); [Video of the Experiments](#)

- **Radhe Shyam Sharma**, Santosh Shukla, Hamad Karki, Amit Shukla, Laxmidhar Behera, Venkatesh K S, "DMP Based Trajectory Tracking for a Nonholonomic Mobile Robot With Automatic Goal Adaptation and Obstacle Avoidance", *IEEE International Conference on Robotics and Automation (ICRA)*, 2019. [\[PDF\]](#)



Figure 2: Various test scenarios (a)-(f); [\[PDF\]](#) [Video of the Experiments](#)

- **Radhe Shyam Sharma**, Santosh Shukla, Laxmidhar Behera, Venkatesh K S, "Position Based Visual Servoing of a Mobile Robot With an Automatic Extrinsic Calibration Scheme", *Robotica*, 2019. [\[PDF\]](#)

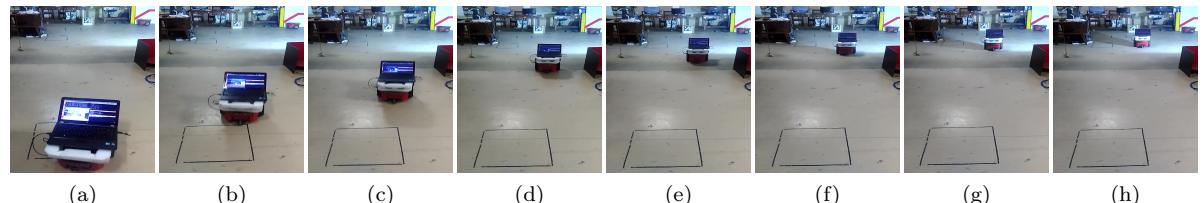


Figure 3: Taped video image sequence (a)-(f); [Video of the Experiments](#)

- **Radhe Shyam Sharma**, Arindam Mondal, Laxmidhar Behera, "Tracking Control of Mobile Robots in Formation in the Presence of Disturbances", has been accepted for publication in the *IEEE Transactions on Industrial Informatics*.

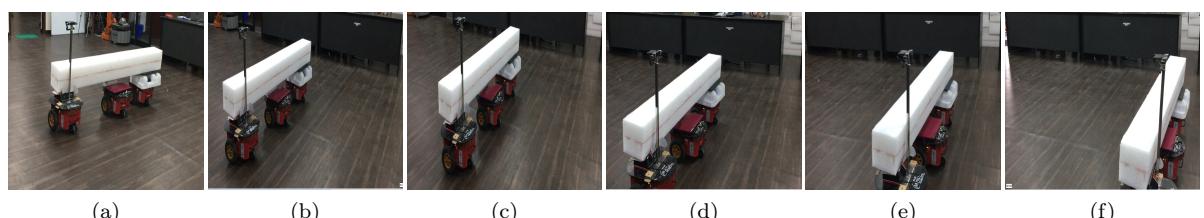


Figure 4: Payload transport by a group of robots (a)-(f); [Video of the Experiments](#)

- **Radhe Shyam Sharma**, Laxmidhar Behera, Venkatesh K S, "Trajectory Tracking by a Flexible Formation of Nonholonomic Mobile Robots", under review in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2020.

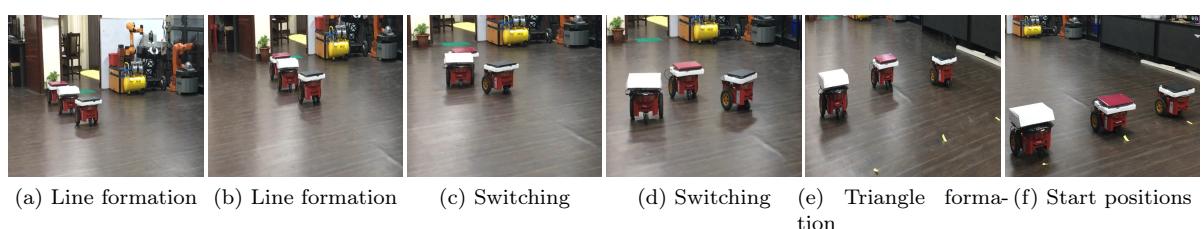


Figure 5: Experimental demonstration : Autonomous navigation of a group of robots in a flexible formation; [Video of the Experiment](#)

- Atulya Shivam Shree, **Radhe Shyam Sharma**, Laxmidhar Behera, K. S. Venkatesh, "Position Based Visual Control of The Hovering Quadcopter", International Conference on Intelligent Human Computer Interaction, pages 15–26. Springer, 2016. [\[PDF\]](#)

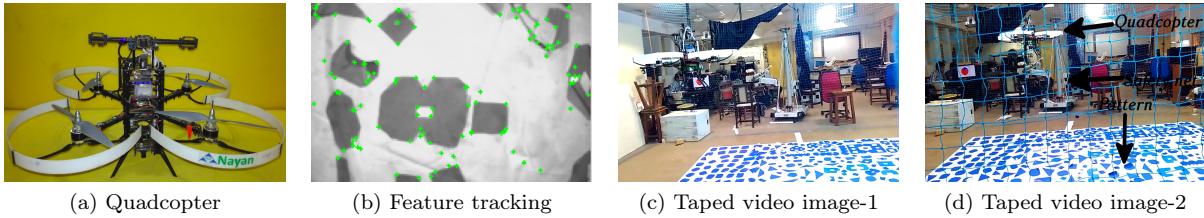


Figure 6: Real-time experiment in lab environment; [Video of the Experiment](#)

#### **EXPERIENCE (excluding the experience during the Ph.D term)**

- Faculty  
*NIT Raipur, India*  
*From 15-07-2013 to 31-05-2014*
- Lecturer  
*SGSITS Indore, India*  
*From 15-07-2008 to 11-08-2011*
- Lecturer  
*SATI Vidisha, India*  
*From 11-09-2007 to 14-07-2008*

#### **TUTORSHIPS**

- Lab Tutor for Introduction to Electronics (ESc201A), 2018-19-II Semester, IIT Kanpur
- Theory Tutor for Introduction to Electronics (ESc201A), 2019-20-I Semester, IIT Kanpur
- Theory Tutor for Introduction to Electronics (ESc201A), 2019-20-II Semester, IIT Kanpur

#### **TEACHING ASSISTANTSHIPS**

- Signals, Systems and Networks, IIT Kanpur
- Probabilistic Mobile Robotics, IIT Kanpur
- Intelligent Systems and Control, IIT Kanpur
- Neural Networks, IIT Kanpur

#### **PROFESSIONAL ASSOCIATIONS**

- Reviewer for IEEE Systems Journal
- Reviewer for IEEE Transactions on Instrumentation and Measurement
- Reviewer for IEEE RO-MAN (Robot and Human Interactive Communication)
- Student member of IEEE
- Member of IEEE Robotics and Automation Society
- Visiting research scholar in the Department of Mechanical Engineering at Khalifa University, Abu Dhabi, UAE
- Speaker for GIAN (Global Initiative of Academic Networks) course on Selected Topics in Internet of Things, Jan 2018

## POSITIONS OF RESPONSIBILITY

- Academic Mentor, Counselling Service, IIT Kanpur, 2015
- Advisor of Light & Decoration Committee in *Techno Vision, 2008*
- Convener of SAC Committee In *SU-2007*
- Co-Convener of Audio-Visual Committee In *SU-2006*

## TRAININGS ATTENDED

- National workshop on “SVM in pattern recognition & its applications in biological sciences” at *NIT Raipur (Jan 2014)*
- Faculty training/orientation program at *SGSITS Indore (Dec 2008)*
- Major training on “Imaging systems” at *AFMC (Armed Forces Medical College) Pune (Jun-Jul 2006)*
- Minor training on “Biomedical Equipments” at *MH (Military Hospital) Gwalior (Jun-Jul 2005)*

## TECHNICAL SKILLS

- Languages: MatLab, C++, Python
- Operating Systems: Linux, ROS (**Robot Operating System**)
- Others: L<sup>A</sup>T<sub>E</sub>X, GNU Octave, R, Mathematica, ExtendSim
- Hands-on experience with **unmanned ground and aerial vehicles** – Pioneer P3-DX, Guardian mobile platform, Segway RMP, Nayan, and AscTec Hummingbird



(a) Pioneer P3-DX

(b) Guardian robot

(c) Segway RMP

(d) Nayan

(e) AscTec Hummingbird

## TREKKING AND CAMPING EXPERIENCE

- Gaumukh Tapovan Trek
- Dodital Trek
- NSS CAMP

## INTEREST AND HOBBIES

- Adventure trekking
- Robotics
- Horse riding

## REFERENCES

Prof. Laxmidhar Behera  
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