



Durgesh Haribhau Salunkhe

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I believe in approaching a problem from its foundation and achieving excellence through exploring unconventional yet efficient solutions.

Applying for: Post Doctoral Research opportunities

- Double degree in advanced robotics
- Collaboration with industry and academic labs
- Publications with high h-index
- Professional experience in product development
- Completed 3 international research projects
- Representative in International Study Council

Education

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| Current | PhD in Robotics, CNRS Cuspidal robots : Analysis, classification and application of 6R cuspidal serial robots Advisors: Philippe Wenger, Damien Chablat |
| Sep '20 | Ecole Centrale de Nantes Robotics Engineering - Erasmus Mundus Master thesis: Optimal design of a robot mechanism for otological surgery |
| Sep '19 | University of Genova Robotics Engineering - Erasmus Mundus Student Representative in Council of study courses |

Professional Experience

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| Oct '17 May '18 | Indian Institute of Technology, Jodhpur Junior Research Fellow, Robotics Laboratory <ul style="list-style-type: none"> • Developed full-body sensorless active compliant 6dof parallel mechanism • Collaborated with DFKI GmBh for an architecture of dynamic analysis • Derived a kinematic solution for multi-agent payload manipulation for scalability |
| Jul '16 Oct '17 | Grey Orange Robotics, Gurgaon Design engineer, R&D Department <ul style="list-style-type: none"> • Designed robotic grippers for automated logistics applications • Design for impact loading leading to sort 50% heavier packages • Involved in optimisation of a sorting mechanism |

Publications (top 2)

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|---------|--|
| May '23 | Trajectory planning problems in commercial cuspidal robots in ICRA 2023 |
| Jan '22 | Necessary and sufficient condition for a generic 3R serial robot to be cuspidal , Journal on Mechanism and Machine Theory |

Courses

- **Summer school** on Singularities in Mechanisms & Robotic manipulators
- **National Workshop** on Human Collaborative Robotics
- **Workshop** on Robot modeling & control and, applications to aerial robotics

Research projects

- Design, control and trajectory generation of a quadrotor at Indian Institute of Technology, Jodhpur
- Design of a mechanism to eject and manipulate a radioactive part at Bhabha Atomic Research Centre, Mumbai

Scholarships

- Erasmus Mundus Consortium Scholarship, EMARO+
- Invest Your talent in Italy, 2019

Technical Skills

- **Inventor** - Professional experience
- **Maple** - Professional experience
- **Python** - Professional experience
- **CATIA** - Academic projects
- **MATLAB** - Academic projects
- **C, C++** - Academic projects

Soft skills

- Quick learner
- Adaptable
- Result oriented
- Leadership
- Mentorship
- Management

Languages

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|------------|---------|---------|-------|
| Proficient | English | Marathi | Hindi |
| Basic | Italian | French | |

Journal articles

- Jul '22 | **An efficient combined local and global search strategy for optimization of parallel kinematic mechanisms with joint limits and collision constraints**
Salunkhe, D.H., Michel, G., Kumar, S., Sanguineti, M., Chablat, D.
International Journal on Mechanism and Machine Theory
- Jan '22 | **Necessary & sufficient condition for generic 3R serial robot to be cuspidal**
Salunkhe, D.H., Spartalis, C., Capco, J., Chablat, D., Wenger, P.
International Journal on Mechanism and Machine Theory
- Aug'21 | **Literature Review on Endoscopic Robotic Systems in Ear and Sinus Surgery**
Michel. G, Salunkhe. D. H, Bordure. P, Chablat. D
Journal of Medical Devices, American Society of Mechanical Engineers (ASME),
- Mar '21 | **Geometric atlas of the middle ear and paranasal sinuses for robotic applications**
Michel. G, Salunkhe. D. H, Chablat. D, Bordure. P
International journal on Surgical Innovation, 2021
- May '19 | **Sensorless full body active compliance in a 6 DOF parallel manipulator**
Anirvan Dutta, Durgesh H Salunkhe, Shivesh Kumar, Arun D Udai & Suril V Shah
Robotics and Computer-Integrated Manufacturing, Volume 59

Conference proceedings

- May '23 | **Trajectory planning problems in commercial cuspidal robots**
Salunkhe. D. H, Chablat. D and Wenger. P
International Conference on Robotics and Automation (ICRA), 2023
- Jul '22 | **Geometry based analysis of 3R serial robot**
Salunkhe. D. H, Capco. J, Chablat. D and Wenger. P
International Conference on Advances in Robot Kinematics (ARK), 2022
- May '22 | **Design optimization of a parallel manipulator for otological surgery**
Salunkhe, D.H., Michel, G., Kumar, S., Olivier, E., Sanguineti, M., Chablat, D.
New frontiers of parallel robotics, workshop of International Conference on Robotics and Automation (ICRA), 2022
- May '22 | **Deciding cuspidality of manipulators through computer algebra and algorithms in real algebraic geometry**
Chablat. D, Prebet. R, Safey El Din. M, Salunkhe. D. H and Wenger. P
International Symposium on Symbolic and Algebraic Computation (ISSAC), 2022
- Jun '20 | **A new RCM mechanism for an ear and facial surgical application**
Michel. G, Salunkhe. D. H, Chablat. D, Bordure. P
International Conference on Robotics in Alpe-Adria Danube Region (RAAD), 2020
- Aug '19 | **Motion planning for multi-mobile-manipulator payload transport systems**
Tallamraju. R, Salunkhe. D. H, Rajappa. S, Ahmad. A, Karlapalem. K, Shah. S
International Conference on Automation Science and Engineering (CASE), 2019
- Jun '17 | **Force/position control of 3 dof delta manipulator with voice coil actuator**
Udai. A. D, Salunkhe. D. H, Dutta. A, Mukherjee. S
Proceedings of International conference on Advances in Robotics (AIR), 2017
- Dec '16 | **Design, trajectory generation and control of quadrotor research platform**
Salunkhe. D. H, Sharma. S, Topno. S. A, Darapaneni. C, Kankane. A, Shah. S
International Conference on Robotics and Automation for Humanitarian Applications