



## Gaurav Bhardwaj

Research Scholar

- ▶ Machine Intelligence Lab
- ▶ Computer Science & Engineering Department
- ▶ IIT Roorkee
- ▶ DOB: March 09, 1991

## Education

07/2017 - present

**Ph.D.[CGPA: 8.462]**

IIT Roorkee

*Computer Science & Engineering • Robotics*

07/2015 - 05/2017

**M.Tech [CGPA: 9.33]**

IIIT Allahabad

*Information Technology • Software Engineering*

Master's thesis: „Integration of Petri Net Supported Method Repository to Automatically Generated Code“.

07/2009 - 05/2013

**B.Tech**

J.C. Bose University of Science and Technology, YMCA

*Information Technology*

Bachelor's thesis: „E-Banking System using JAVA “.

## Objective

To become a versatile researcher and to be associated with a progressive organization which can provide me with a dynamic work sphere to extract my inherent skills and use my aptitude to further the organization's objectives.

## Work experience

**Managing Director | CEO**

PaiByTwo Private Limited  
<https://www.paibytwo.com/>

11/2021 - present

**Research Scholar | PhD student**

Department of Computer Science and Engineering  
 IIT Roorkee  
 [Supervisors: Prof. R. Balasubramanian and Prof. N. Sukavanam]

07/2017 - Present

My research is basically focused on Bipedal Robot trajectory planning along with applying novel deep learning techniques to develop robust control for the same on non flat terrains

**Teaching Assistant**

Robotics and Control:Theory and Practice-Rerun  
 (Prof. N. Sukavanam)  
 NPTEL

01/2022 - 03/2022

**Teaching Assistant**

Robotics and Control:Theory and Practice-Rerun  
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 NPTEL

01/2021 - 03/2021

**Teaching Assistant**

Robotics and Control:Theory and Practice (Prof. N. Sukavanam)  
 NPTEL

01/2020 - 03/2020

**Teaching Assistant**

Software Engineering Lab (Prof. Sudip Sanyal)  
 IIIT Allahabad

07/2015 - 05/2017

**Industrial Training**

Project: Contact Management System using JAVA  
 CMC Limited(A TATA Enterprise), New Delhi

01/2013 - 06/2013

## Skill Set and Interests

- **Programming Languages:** MATLAB, Python, C, C++, Java
- **Simulation Tools:** ROS, GAZEBO, Bullet, MUJOCO, MATLAB

## Strengths

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- Positive Attitude
- Committed to Work
- Punctual and Obedient
- Hard Working

## Contact

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[www.epminusx.com/](http://www.epminusx.com/)

- Legged Robots
- Reinforcement Learning
- Deep Learning

## Accomplishments

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- Qualified CSIR JRF 2015 Engineering Science (All India Rank 55)
- Qualified GATE 2015
- Qualified GATE 2017

## Publications

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- Gaurav Bhardwaj & Utkarsh A. Mishra & N. Sukavanam & R. Balasubramanian. "Cycloidal Trajectory Realization on Staircase with Optimal Trajectory Tracking Control based on Neural Network Temporal Quantized Lagrange Dynamics (NNTQLD)." arXiv preprint arXiv:2012.01417 (2020).
- Gaurav Bhardwaj & Utkarsh A. Mishra & N. Sukavanam & R. Balasubramanian. (2020) "Planning Adaptive Brachistochrone and Circular Arc Hip Trajectory for a Toe-Foot Bipedal Robot going Downstairs". In: *Journal of Physics: Conference Series*, ROAI, December 28-29, 2020.
- Gaurav Bhardwaj & N. Sukavanam & Ruchi Panwar & R. Balasubramanian. (2019) "An Unsupervised Neural Network Approach for Inverse Kinematics Solution of Manipulator following Kalman Filter based Trajectory". In: *IEEE Conference on Information and Communication Technology(CICT)*, December 6-8, 2019.
- Gaurav Bhardwaj, Utkarsh A. Mishra, N. Sukavanam Balasubramanian Raman, Neural Network Temporal Quantized Lagrange Dynamics with Cycloidal Trajectory for a Toe-Foot Bipedal Robot to climb stairs, Accepted for publication in *Applied Intelligence* (Springer), 2022.
- Gaurav Bhardwaj, N. Sukavanam and Balasubramanian Raman, Fast Terminal Discrete-Time Sliding Mode Control with Fuzzy based Impedance Modulation for Toe Foot Bipedal Robot going Upstairs, Accepted for publication in *International Journal of Control, Automation and Systems* (Springer), 2022.
- Gaurav Bhardwaj, Soham Dasgupta, N. Sukavanam Balasubramanian Raman, DDPG based Control for a Flat-Foot Biped Robot motion on Deformable Soil, Presented in International Conference on Dynamical Systems, Control and their Applications (ICDSCA), July 1-3, 2022.