

KHUSHDEEP SINGH

Robotics and AI aspirant

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EXPERIENCE

Research Engineer

INRIA

- Apr'21 - Present Grenoble, France
- AI-based perception for Autonomous vehicles

Student Assistant

Max Planck Institute for Intelligent Systems - Perceiving Systems

- Nov'20 - Feb'21 Tübingen, Germany
- My work involves development of outdoor navigating robot

Master Thesis at BethgeLab

AI research Centre, University of Tübingen

- July'20 - Jan'21 Tübingen, Germany
- Exploring and benchmarking the internal dynamics of continuous RL agents with the existing baseline algorithms and Self-Supervised Learning technique

Research Assistant

Forschungszentrum Informatik (FZI)

- Feb- May 2020 Berlin, Germany
- Worked on hardware testing for toy autonomous driving car. Carried out software simulation for object detection framework

Research Engineer

Centre for Robolution

- Feb-May 2018 Hyderabad, India
- Designing swarm robots that can perform collaborative tasks

Research Internship

University of Plymouth

- May-July 2016 Plymouth, United Kingdom
- End effector design for mobile manipulator: CHAP V1, sustaining 2kg payload

PATENT

Hybrid Robot

Visvesvaraya National Institute of Technology

- June 2017 Nagpur, India

PERSONAL DETAILS

- Date of Birth: 26/01/1994
- Nationality: Indian
- Marital Status: Single

EXECUTIVE SUMMARY

"A self-driven enthusiast passionate about Artificial Intelligence"

EDUCATION

M.Sc. in Autonomous Systems

Technische Universität Berlin

- Oct'19 - Jan'21 Berlin, Germany
- Exit year of double degree program
 - Specialization: Applications of Autonomous systems

M.Sc. in Autonomous Systems

KTH Royal Institute of Technology

- Sept'18 - June'19 Stockholm, Sweden
- Entry year of double degree program
 - Relevant courses: Robotics, Distributed AI, Deep Learning, Control systems

Master of Science (double degree with integrated mobility)

EIT Digital Master School

- Sept'18 - Jan'21 Brussels, Belgium
- Major: Autonomous Systems
 - Minor: Innovation and Entrepreneurship

B.Tech. in Electronics Engineering

Visvesvaraya National Institute of Technology (VNIT)

- Sept'13 - May'17 Nagpur, India

SERVICE

- Academic**
Reviewer for IV 2022, IROS 2022.
- Co-founder of Robotics Organization**
Core member of Student Robotics Organization (IvLabs) at VNIT along with other colleagues. The organization works actively in Robotics and AI

- Under review- Indian patent application number 201721020615

PUBLICATIONS

IEEE Intelligent Vehicles Symposium (IV)

📅 June'22 📍 Aachen, Germany

- Predicting Future Occupancy Grids in Dynamic Environment with Spatio-Temporal Learning

International Conference on Robotics and Automation (ICRA)

📅 May'22 📍 Philadelphia, United States

- Fusing Event-based and RGB camera for Robust Object Detection in Adverse Conditions

ICLR 2021 Workshop SSL-RL

📅 May'21 📍 Virtual

- Out-of-distribution generalization of internal models is correlated with reward

TAROS Conference

📅 July'2017 📍 Guildford, United Kingdom

- An Open-Source Tele-Operated Mobile Manipulator: CHAP V1

IEEE ROBIO International Conference

📅 Dec'2016 📍 Qingdao, China

- Design Analysis and Development of Low Cost Under actuated Robotic Hand

PROJECTS

Autonomous warehousing system

DAI-Labor, TU Berlin

📅 Oct'19- Feb'20 📍 Berlin, Germany

- Worked on simulation of Multi-agent robotic system for fetching and storing packages in industry environment. Developed the motion planning and obstacle detection nodes

Acoustic Sensing for soft robotic fingers

RBO Lab, TU Berlin

📅 Oct'19- Feb'20 📍 Berlin, Germany

- Acoustic sensing uses 'sound' technique to acquire information between soft robotic finger and the object in contact. Experimenting the sensitivity of this technique to the inflation pressure in soft robotic finger



Meeting of National Innovation Club

Invited twice to President's House of India for presentation of Robotic hand and Hybrid robot



Excellence Award

Innovative robotic projects at IvLabs, VNIT

SKILLS

Robotics Software: Robot Operating System (ROS), VREP, MORSE

Robotics Hardware: Drones, UAVs, Snake robots, Prosthetics, Manipulators, Biped

Deep Learning: PyTorch, Pandas, Numpy, OpenCV

Distributed AI: GAMA

Reinforcement Learning: MuJoCo, OpenAI Gym, PyBullet

Autonomous Driving: CARLA

Processors: Arduino, Atmel, ARM Cortex, Raspberry Pi

CAD Design: Solidworks, AutoCad

Machines: CNC, 2D-3D Printing

Actuators: Servos, Brushless DC (BLDC), Dynamixels, Herkules

Programming: C, C++, Python, Java, Embedded C, Jupyter

Productivity tools: MS Office, LaTeX, GitHub, GitLab, VS Code

LANGUAGES

English



REFEREES

Mr. Steffen Schneider

@ steffen.schneider.94@gmail.com

✉ PhD candidate at University of Tübingen, IMPRS-IS Tübingen and ELLIS

Prof. Shital Chiddarwar

@ shitalsc@mec.vnit.ac.in

✉ Associate Professor, M-0-9 FMS and Robotics Laboratory Department of Mechanical Engineering

Bachelor's Thesis-Snake robot reconfigurable into Quad copter (Hybrid Robot)

IvLabs, VNIT

📅 Oct'16- Apr'17

📍 Nagpur, India

- An attempt to make snake robot's navigation simpler by imparting flying properties to the robot

Design and Control of Quad copter

IvLabs, VNIT

📅 Nov'- Dec'15

📍 Nagpur, India

- A quad copter capable of doing standard maneuvers

Development of five fingered robotic hand

IvLabs, VNIT

📅 May'- Oct'15

📍 Nagpur, India

- Low cost prosthetic hand suitable for sign language demonstrations and in-hand manipulation

Design and control of Biped robot

IvLabs, VNIT

📅 Sept'- Nov'14

📍 Nagpur, India

- A robot capable of walking with six degrees-of-freedom