Snehal Jauhri

PhD Candidate, Robot Perception & Learning

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Research Interests

• Robot Learning • Computer Vision • Egocentric Perception • Reinforcement Learning • Mobile Manipulation • Neural Fields • 3D Perception • Vision-Language Models • Vision-Language-Action Models

Education

- **Technical University of Darmstadt** — *June 2021 - March 2026 (Expected)*
  PhD in Computer Science - Interactive Robot Perception & Learning Lab (pearl-lab.com) — Darmstadt, Germany
  - Advisor: Prof. Georgia Chalvatzaki (pearl-lab.com/people/georgia-chalvatzaki)
  - Research focus: Perception and skill learning for mobile manipulator robots for homes
  - Publications at ICCV, CoRL, RSS, ICRA, IROS, RA-L
  - Maintainer of the lab's home robot software stack, including VLM-based object detection, segmentation, grasp detection, learning-based manipulation, navigation & whole-body control (github.com/orgs/pearl-robot-lab/repositories)
- **Delft University of Technology** — *Aug 2018 - May 2020*
  Master of Science in Embedded Systems, Specialization: Robot Learning — Delft, Netherlands
  - Grade: 8.5/10 (Cum Laude)
- **National Institute of Technology Karnataka** — *2012 - 2016*
  Bachelor of Technology - Electrical & Electronics Engineering — Surathkal, India
  - Grade: 8.01/10 (First Class)

Experience

- **Allen Institute for AI (Ai2)** — *May 2025 - Current*
  PhD Research Scientist Intern, Perceptual Reasoning and Interaction Research (PRIOR) (prior.allenai.org) — Seattle, USA
  - Working with the PRIOR team on computer vision, multi-modal learning, and embodied AI
  - Reinforcement Learning fine-tuning of Vision Language Action (VLA) models
  - Large-scale robotic simulation for sim2real learning
- **Almende b.v.** — *2019 - 2021*
  Robotics Engineer — Rotterdam, Neterhlands
  - Developed software for mobile robots: wheeled robots for home & quadrotor drones for industrial applications
  - Part of two EU research projects on autonomous drone exploration: comp4drones.eu & adacorsa.eu
- **Bosch Engineering** — *2016 - 2018*
  Software Developer — Bangalore, India
  - Part of the autonomous vehicle sensors division at Bosch Engineering
  - Developed software stack with GPS + IMU sensor fusion for localization sensors of autonomous vehicles

Research Activities

- **Presented PhD research at the Doctoral Consortium at ICCV 2025**
- **Workshops:**
  - Lead organizer of the 1st EgoAct Workshop on Egocentric Perception and Action for Robot Learning at RSS 2025 (egoact.github.io/rss2025)
  - Co-organizer of the 'Workshop on Mobile Manipulation and Embodied Intelligence (MOMA.v2): Integrating Perception, Learning, Control for Full Autonomy' at ICRA 2024 (mobile-manipulation.net/events/moma2024)
  - Co-organizer of the 'Workshop on effective Representations, Abstractions, and Priors for Robot Learning (RAP4Robots)' at ICRA 2023 (sites.google.com/view/rap4robots)
  - Co-organizer of the 'Workshop on Mobile Manipulation and Embodied Intelligence: Challenges and Opportunities' at IROS 2022 (mobile-manipulation.net/events/moma2022)
- **EU projects:** Lab representative for the EU Horizon Research Project: MANiBOT (manibot-project.eu)
- **Peer-Review:** ICCV, CoRL, RSS, ICRA, IROS, RA-L

Publications

UniFField: A Generalizable Unified Neural Feature Field for Visual, Semantic, and Spatial Uncertainties in Any Scene — Webpage, Paper
Snehal Jauhri*, Christian Maurer*, Sophie Lueth, and Georgia Chalvatzaki
Preprint, arXiv:2510.06754,
(Also presented at the Open-World 3D Scene Understanding workshop at ICCV 2025)

2HandedAfforder: Learning Precise Actionable Bimanual Affordances from Human Videos — Webpage, Paper
Snehal Jauhri*, Marvin Heidinger*, Vignesh Prasad, and Georgia Chalvatzaki
International Conference on Computer Vision (ICCV) 2025,
(Also presented at the EgoAct Workshop at RSS 2025)

6DOPE-GS: Online 6D Object Pose Estimation using Gaussian Splatting — Webpage, Paper
Yufeng Jin, Vignesh Prasad, Snehal Jauhri, Mathias Franzius, and Georgia Chalvatzaki
International Conference on Computer Vision (ICCV) 2025,
(Also presented at the RSS 2025 Gaussian Representations Workshop)

Learning Any-View 6DoF Robotic Grasping in Cluttered Scenes via Neural Surface Rendering — Webpage, Paper, Code
Snehal Jauhri, Ishikaa Lunawat, and Georgia Chalvatzaki
Robotics: Science and Systems (RSS) 2024,
(Also presented at the CVPR 2023 workshop on 3D Vision & Robotics)

Act*Per*MoMa: Active-Perceptive Motion Generation for Mobile Manipulation — Webpage, Paper, Code
Snehal Jauhri*, Sophie Lueth*, and Georgia Chalvatzaki
IEEE International Conference on Robotics and Automation (ICRA) 2024,
(Also presented at the RSS 2023 workshop on Taking Mobile Manipulators into the Real World)

Safe Reinforcement Learning of Dynamic High-Dimensional Robotic Tasks: Navigation, Manipulation, Interaction — Webpage, Paper, Code
P. Liu, K. Zhang, D. Tateo, Snehal Jauhri, Z. Hu, J. Peters, and Georgia Chalvatzaki
IEEE International Conference on Robotics and Automation (ICRA) 2023

Robot Learning of Mobile Manipulation with Reachability Behavior Priors — Webpage, Paper, Code
Snehal Jauhri, Jan Peters, and Georgia Chalvatzaki
IEEE Robotics and Automation Letters (RA-L) & IROS 2022
Best Mobile Manipulation Paper Award 🏆
(Also presented at the ICRA 2022 workshop on Behaviour Priors in Reinforcement Learning for Robotics)

Regularized Deep Signed Distance Fields for Reactive Motion Generation — Webpage, Paper, Code
P. Liu, K. Zhang, D. Tateo, Snehal Jauhri, J. Peters, and Georgia Chalvatzaki
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2022

Interactive Imitation Learning in State-Space — Paper, Code
Snehal Jauhri, Carlos Celemin, and Jens Kober
Conference on Robot Learning (CoRL) 2020,
(Also presented at the RSS 2020 workshop on Advances & Challenges in Imitation Learning for Robotics)

Awards and Honors

- **Doctoral Consortium** — *October 2025*
  International Conference on Computer Vision (ICCV) 2025
  ◦ Selected to be part of the Doctoral Consortium at ICCV 2025 and present my PhD research titled: "Visual Robot Learning for Households: Coupling Perception, Mobility & Manipulation skills"
- **Best Mobile Manipulation Paper Award** — *October 2022*
  International Conference on Intelligent Robots and Systems (IROS) 2022
  ◦ For the paper "Robot Learning of Mobile Manipulation with Reachability Behavior Priors"
- **Best Project Award** — *September 2023*
  ELLIS Summer School on Large-Scale AI for Research & Industry 2023
  ◦ For the project "Camera Pose Refinement for Improved Radiance Fields"

Teaching/Mentoring

- **Teaching:**
  ◦ **Intelligent Robotic Manipulation** Lectures modules on Robot Perception and Geometric Deep Learning, 2022 - 2024
  ◦ **Statistical Machine Learning** Lead Teaching Assistant, Lectures/Assignments on SVMs & PCA, 2022
  ◦ **Project Labs** Supervising ROS projects on robotic manipulation, 2022 - 2025
- **Supervised Master Theses:**
  ◦ **Christian Maurer** "Visual and Spatial Uncertainties in Any scene via Learned Feature Fields", 2025

- **Sabin Grube Doiz** "Robot learning with egocentric 3D vision for mobile manipulation in homes", 2024
- **Lars Pühler** "Open Vocabulary Navigation for Mobile Manipulation", 2024
- **Maximilian Nießing** "Attention-based Object Pose Estimation in Cluttered Scenes", 2023
- **Jan Schneider** "Model Predictive Policy Optimization Amidst Inaccurate Models", 2022

Technical Skills

- **Programming Languages:** Python, C, Java
- **Libraries and Frameworks:** Pytorch, Open3D, stable-baselines, trimesh, OpenCV, nerfstudio, ROS, MoveIt
- **Simulators:** NVIDIA Isaac Sim, Isaac Gym, PyBullet, Mujoco, RoboSuite, Gazebo
- **Developer Tools:** Docker, Git, Conda, SLURM
- **Robots:** Tiago++ Mobile Manipulator, Franka Panda, KUKA LBR iiwa

References

1. **Prof. Georgia Chalvatzaki**
   Full Professor, Interactive Robot Perception & Learning (PEARL) Lab
   Technical University of Darmstadt (TU Darmstadt)
   Website: pearl-lab.com/people/georgia-chalvatzaki
   Email: georgia.chalvatzaki@tu-darmstadt.de
   Supervisor: PhD Thesis

2. **Dr. Rose Hendrix**
   Senior Research Engineer, Perceptual Reasoning and Interaction Research (PRIOR)
   Allen Institute for AI (Ai2)
   Website: rosehendrix.com
   Email: roseh@allenai.org
   Supervisor: PhD Research Internship

3. **Prof. Jens Kober**
   Associate Professor, Cognitive Robotics department (CoR)
   Delft University of Technology (TU Delft)
   Website: jenskober.de
   Email: j.kober@tudelft.nl
   Supervisor: Master Thesis