

We are seeking **highly motivated PhD Students and Postdoctoral Researchers** to join the **PEARL Lab** (<https://pearl-lab.com>) at **TU Darmstadt, Germany**, led by Prof. Georgia Chalvatzaki.

Our Research Vision

Our research focuses on **structured robot learning and embodied AI**. We aim to enable robots to perceive, reason, and act in open-ended environments by leveraging the underlying structure of robot–environment systems. Our approach moves beyond black-box policies toward **composable, adaptive, and robust behaviors** that generalize across tasks, supporting grounded, language-guided decision-making and intuitive human-robot interaction.

Key Research Directions

We are particularly looking for candidates interested in:

- **Grounding for Embodied AI:** Connecting language and high-level plans to structured perception, affordances, and executable actions.
- **Grounded World Models:** Learning structured representations of geometry, semantics, and dynamics for prediction and interaction.
- **Foundation Models for Robotics:** Multimodal models (VLA) for long-horizon decision-making, interfacing with structured control modules, memory, and composable low-level skills.
- **Reinforcement Learning:** Structure-aware policy learning with efficient long-horizon credit assignment and RL-based fine-tuning for offline-to-online adaptation.
- **Mobile Manipulation:** Embodied decision-making for whole-body, contact-rich interaction and bimanual coordination in dynamic environments.

Research Opportunities

The successful candidates will contribute to two major, well-funded research initiatives:

- **European AI Lighthouse Project:** Join the brand-new EU project on **Generative AI for Robotics** — a flagship "Lighthouse" initiative developing the first **European Foundation Models for Robotics** made in Europe.
- **ERC Starting Grant SIREN:** Be embedded within the project SIREN (Structured Interactive Perception and Learning), researching the principles of robotic embodied intelligence through a holistic view of robot–environment interaction.

Environment & Collaboration

TU Darmstadt is a leading European institution for AI and Robotics. You will be part of an exceptional ecosystem, including:

- The Hessian.AI center for artificial intelligence.
- The Clusters of Excellence Reasonable Artificial Intelligence (RAI) and The Adaptive Mind (TAM).
- State-of-the-art laboratory facilities with advanced humanoids, mobile manipulators, and robot arms.

Qualifications

We are looking for candidates with a strong background in **Robot Learning, Robotics, Learning for Control, Computer Vision, Machine Learning** or related areas.

- **Technical Skills:** Proficiency in Python/PyTorch is expected.
- **Experience:** Prior work with robot learning, RL, foundation models, or real robot hardware is a strong plus.
- **Postdocs:** Should demonstrate a strong publication record and the ability to lead independent research.

How to Apply

Please send your application through our website <https://pearl-lab.com/open-positions> including:

- A detailed CV.
- Academic transcripts (for PhD applicants).
- A brief motivation letter.
- A brief research statement.
- Representative publications or project links.

Informal inquiries are very welcome!