








Quentin Leboutet, PhD | Research Scientist




✉ quentin.leboutet@tum.de | ☎ +49-152-27636341 | 🌐 github.com/quentin-leboutet | 🔗 [linkedin.com/in/quentinleboutet](https://www.linkedin.com/in/quentinleboutet)
| 🎓 [Google Scholar](https://scholar.google.com/citations?user=...) | 🆔 ORCID: 0000-0002-8155-0965 | 🖱 [quentin-leboutet.github.io](https://github.com/quentin-leboutet) | 📍 Munich, Germany

Research Scientist in Robotics and AI with 10 years of experience across academic and industrial R&D. Expertise in Artificial Intelligence, Deep Learning, Generative AI, Reinforcement Learning, Robotics, Control, Inertial Parameter Identification, Sensor Fusion and Prototyping.

PROFESSIONAL EXPERIENCE

-  **Research Scientist – Applied Graphics and Vision** 05/01/2025 → Present
Intel Corporation *Munich, Germany*
- **XeSS:** Architecture research for Intel’s Super Sampling pipeline.
 - **Kernel Generation:** SYCL kernel generation using evolutionary coding agents.
-  **Research Engineer – Robotics & AI** 02/01/2025 → 04/30/2025
Intel Corporation *Munich, Germany*
- **3D Foundation Models:** Benchmarked and refined diffusion models and representations for high-fidelity 3D asset generation. Results published in TMLR (2025) [3].
 - **Articulated Assets Generation:**
 - Spearheaded the development of **MIDGARd**, a generative framework for synthesis of 3D articulated assets. Results published in NeurIPS (2024) [4].
 - Collaborated on the **HoloScene** project for the generation of simulation-ready interactive 3D environments. Results published in NeurIPS (2025) [2].
 - **Simulation & Software Tools:**
 - **SPEAR:** Enhanced a photorealistic simulator for testing embodied AI algorithms [6]. Co-supervised a Master’s thesis at ETH Zurich using SPEAR for interactive path planning. Results published in IEEE-IROS 2024 [5].
 - **Open3D:** Integrated primitive shape fitting pipeline to Open3D.
 - **OpenBot:** Investigated sim2real transfer and policy training in the SPEAR simulator [7].
-  **Graduate Research and Teaching Assistant** 04/01/2016 → 09/30/2021
Institute for Cognitive Systems – Technical University of Munich *Munich, Germany*
- **Doctoral Research:** “*Enhanced Robot Compliance, State Estimation and Identification using Distributed Tactile Feedback: Leveraging Redundancy and Multimodality*” [8],[9],[10],[11],[12],[13].
 - **Teaching Activities:**
 - Humanoid Robotics Systems (2017 – 2021)
 - Humanoid Sensors and Actuators (2017 – 2021)
 - Humanoid Robo-Cup (2018 – 2021)
 - Multi-sensory based robot dynamic manipulation (2016 – 2018)
 - Multiple research seminars, research projects and “HiWi” (research student) supervision.
 - **Mentorship:** Supervised 5 master thesis students from the Technical University of Munich, as well as research students from “ENS Paris-Saclay” (France), “ENS Ulm” (France) and “ENSEA” (France).
-  **Engineering Consultant** 03/01/2016 → 12/31/2016
EyeLights SAS *Toulouse, France*
- Designed the Printed Circuit Board (PCB) of the first Head-Up Display (HUD) prototype.
-  **Student Research Assistant** 12/01/2015 → 02/29/2016
Institute for Cognitive Systems – Technical University of Munich *Munich, Germany*
- **Robot Skin Sensor:**
 - CAD design of an artificial skin cover for a UR5 industrial robot.
 - Selection, purchase and calibration of multiple 3D printers for the lab.
 - Manufactured sensor prototypes using 3D printers and validated them on real robots during endurance tests.
 - **Teaching Activities:** Tutor in Multi-sensory based robot dynamic manipulation.
-  **Engineering Intern** 06/17/2013 → 07/26/2013
FH Joanneum *Kapfenberg, Austria*
- Designed, built and tested a persistence-of-vision screen with an embedded Linux.
-  **Engineering Intern** 06/21/2012 → 08/19/2012
Wuhan University of Technology *Wuhan City, China*
- Developed fuzzy logic controllers for a Stewart platform.

EDUCATION

 Ph.D. in Electrical Engineering & Computer Science Technical University of Munich – TUM	<i>July 2016 – January 2022</i> <i>Munich, Germany</i>
 M.Sc. in Electrical Engineering & Computer Science Technical University of Munich – TUM	<i>October 2013 – February 2016</i> <i>Munich, Germany</i>
 M.Eng. in Mechatronics École Nationale Supérieure de l'Électronique et de ses Applications – ENSEA	<i>September 2011 – June 2013</i> <i>Cergy-Pontoise, France</i>

SKILLS

Programming:	C/C++ ^{***} , Python ^{***} , SYCL ^{**} , MATLAB ^{***} , Bash ^{**} , R [*] , Swift [*] , VHDL [*]
AI Frameworks:	PyTorch ^{***} , TensorFlow ^{**}
CAD ECAD:	SolidWorks ^{***} , Fusion 360 ^{***} , CATIA [*] , Eagle CAD ^{***} , KiCad ^{**}
Content Creation:	Blender ^{**} , Unreal Engine ^{**} , Unity [*]
Other Tools:	ROS ^{***} , Slurm ^{**} , Git ^{**} , L ^A T _E X ^{***} , Microsoft Office ^{**}
Domain Expertise:	Machine Learning, Deep Learning, Generative AI, Reinforcement Learning, Robot Control, State Estimation, Parameter Identification, PCB & CAD Design, CNC Machining, 3D Printing.
Languages:	French ^{***} (<i>mother tongue</i>), English ^{***} , German ^{**} , Spanish [*] .

AWARDS

- **Division Recognition Award** | Intel Corporation, 2024 | For contributions to the AEGIS project.
- **Division Recognition Award** | Intel Corporation, 2022 | For contributions to the SPEAR simulation platform.
- **Best Paper Award** | MDPI Applied Sciences 2022 | For “*Inertial Parameter Identification in Robotics: A Survey*” [8].
- **Entrepreneurship Award** | ENSEA, 2013 | Best entrepreneurial project in the “Create, Convince, Grow” contest.

COMMUNITY SERVICE

Reviewer for the following scientific conferences:

- Conference on Neural Information Processing Systems (NeurIPS)
- International Conference on Computer Vision (ICCV)
- IEEE International Conference on Humanoid Robots (Humanoids)
- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE International Conference on Intelligent Robots and Systems (IROS)
- IEEE Conference on Decision and Control (CDC)
- IEEE International Conference on Space Robotics (iSpaRo)

Reviewer for the following scientific Journals:

- IEEE Transactions on Robotics (TRO)
- IEEE Robotics and Automation Letters (RA-L)
- International Journal of Robotics Research (IJRR)

Interdisciplinary Research in Motor Control & Psychiatry (Free Time):

- Collaborated with clinicians to analyze postural control in schizophrenia spectrum disorders using posturographic data.
- Contributed to the development of a new fractal analysis method for posturographic data processing.
- Manuscript submitted to Scientific Reports (Nature Portfolio) [1].

PUBLICATIONS RECORD

- [1] Hussain, M., **Leboutet, Q.**, Mangalam, M., Bonfert, M., Roell, L., Yilmaz, D., Deller, L., Spaeth, J., Theis, N., Sagstetter, L., Jamnan, J., Roeh, A., Schmitt, A., Falkai, P. “Postural Control in Schizophrenia Spectrum Disorders: Frequency-Specific Fractal Signatures Reveal Geometric Reorganization of Balance”. Submitted to: Scientific Reports (Nature Portfolio).
- [2] Xia, H., Lin, C., Hsu, H., **Leboutet, Q.**, Gao, K., Paulitsch, M., Ummenhofer, B., Wang, S. “[HoloScene: Simulation-Ready Interactive 3D Worlds from a Single Video](#)”. NeurIPS 2025.
- [3] Wiedemann, N.^{*}, Liu, S.^{*}, **Leboutet, Q.**^{*}, Gao, K., Ummenhofer, B., Paulitsch, M., Yuan, K. “[Unifi3D: A Study on 3D Representations for Generation and Reconstruction in a Common Framework](#)”. In: TMLR 2025.
- [4] **Leboutet, Q.**, Wiedemann, N., Cai, Z., Paulitsch, M., Yuan, K. “[MIDGARd: Modular Interpretable Diffusion over Graphs for Articulated Designs](#)”. NeurIPS 2024.

- [5] Schoch, P., Yang, F., Ma, Y., Leutenegger, S., Hutter, M., **Leboutet, Q.** “[IN-Sight: Interactive Navigation through Sight.](#)” IROS 2024.
- [6] Roberts, M., **Leboutet, Q.**, et al. “SPEAR: A Photorealistic Simulator for Embodied AI.” (Resubmission pending).
- [7] Müller, M., Brahmabhatt, S., Deka, A., **Leboutet, Q.**, Hafner, D., Koltun, V. “[OpenBot-Fleet: A System for Collective Learning with Real Robots.](#)” ICRA 2024.
- [8] **Leboutet, Q.**, Roux, J., Janot, A., Guadarrama-Olvera, J.R., Cheng, G. “[Inertial Parameter Identification in Robotics: A Survey](#)” MDPI Applied Sciences 11.9 (2021). **Best Paper Award.**
- [9] **Leboutet, Q.**, Bergner, F., Cheng, G. “[Online Configuration Selection for Redundant Arrays of Inertial Sensors: Application to Robotic Systems Covered with a Multimodal Artificial Skin.](#)” IROS 2020.
- [10] **Leboutet, Q.**, Guadarrama-Olvera, J.R., Bergner, F., Cheng, G. “[Second-order Kinematics for Floating-base Robots using the Redundant Acceleration Feedback of an Artificial Sensory Skin.](#)” ICRA 2020.
- [11] Cheng, G., Dean-Leon, E., Bergner, F., Guadarrama-Olvera, J.R., **Leboutet, Q.**, Mittendorfer, P. “[A comprehensive realisation of Robot Skin: Sensors, Sensing, Control and Applications.](#)” Proceedings of the IEEE, 2019.
- [12] **Leboutet, Q.**, Dean-Leon, E., Bergner, F., Cheng, G. “[Tactile-based whole-body compliance with force propagation for mobile manipulators.](#)” IEEE Transactions on Robotics, 2019.
- [13] **Leboutet, Q.**, Dean-Leon, E., Cheng, G. “[Tactile-based compliance with hierarchical force propagation for omnidirectional mobile manipulators.](#)” IEEE-RAS Humanoids, 2016.