CHANTAL PELLEGRINI

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`https://github.com/ChantalMP`

EDUCATION

PhD Candidate in Computer Science - Technical University of Munich	*Nov 2022 - tentatively Nov 2026*
Focus: Vision-Language Models for Medical Image Understanding	
Advisor: Prof. Nassir Navab	
M.Sc. in Computer Science - Technical University of Munich, Grade: 1.2 (top 10 %)	*Apr 2020 - Jul 2022*
Exchange Semester - National University of Singapore	*Aug 2018 - Dec 2018*
B.Sc. in Computer Science - Technical University of Munich, Grade: 1.5 (top 10 %)	*Oct 2016 - Mar 2020*
studium MINT (Certificate in STEM subjects) - Technical University of Munich	*Apr 2016 - Sep 2016*
German Abitur - Max-Planck High School Munich	*2007 - 2015*

EXPERIENCE

Apple	June 2025 - Sep 2025
AI/ML Intern	*New York City, USA*

- Development of AI-based error detection for Siri Visual responses.
- Investigated both zero-shot use of foundation models as well as fine-tuning based approaches.
- Deployed final tool as web server and integrated in CI/CD pipeline for automated checks.

Technical University of Munich	Nov 2022 - tentatively Nov 2026
PhD Candidate	*Munich, Germany*

- **Fine-Grained Medical Image Understanding** [1, 2]: These works propose methods for fine-grained and interpretable medical image understanding using deep learning. The first work [2] focuses on explainable zero-shot x-ray diagnosis. The second work [1] explores visual question answering for structured radiology reporting, proposing a benchmark dataset and a hierarchical VQA method.

- **Large Vision-Language Models** [3, 4, 11]: These works introduce domain-specific large vision-language models for medical environments like radiology and surgery. In the first work [3], we developed a conversational radiology assistant with state-of-the-art results in report generation and interactive image interpretation. The second work [4] introduces the first LVLM for surgery understanding and proposes a novel architecture enabling inference time knowledge integration to adapt to unseen tools and interactions in the OR. This work won the Best Paper Runner-Up Award (2nd place) at MICCAI 2024. The third work [11] introduces a Reinforcement Learning approach allowing to directly fine-tune LLMs to express calibrated confidence estimates alongside their answers to factual questions.

- **Holistic Patient Modeling** [5, 6]: Another focus of my research is on learning from multi-modal patient information including imaging, textual reports, lab results, bedside monitoring, and treatment information. In one my works [5], this information is used to solve variable tasks such as mortality and length of stay prediction. In EHR2Path [6], I focus on how to model and forecast an entire pathway of a patient during a hospital stay.

- **Teaching and Supervision**: Teaching courses related to deep learning for medical imaging and supervision of students for bachelor and master thesis as well as practical courses.

Itestra GmbH	Feb 2020 - Aug 2020
Student Researcher	*Munich, Germany*

- Analysis of the usefulness of source code comments using classical machine learning and deep learning-based approaches in natural language processing.

- Development of a Visual Studio Code plugin to show the analysed comment usefulness while coding

Qualicen GmbH Feb 2019 - January 2020
Software Developer *Munich, Germany*

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- Backend development for automated requirements analysis.
- Development of an automated testing framework for the company's software.

AWARDS AND SERVICES

- Best Paper Runner-Up (2nd place) in MICCAI 2024
- Nominated for the Apple Scholars in AI/ML PhD Fellowship 2024
- Acceptance and participation at the ICVSS 2024 Summer School
- Presentation at the open house of the Bavarian Academy of Sciences and Humanities 2024
- Reviewer for top conferences such as MICCAI, IPMI and ECCV
- Travel Grant for MICCAI 2024 in Marrakesh
- Travel Grant for MICCAI 2023 in Vancouver
- best.in.tum award 2022 - promotional program offered by the Department of Informatics of the TU Munich to the top 2% of their students
- Winner of Bertelsmann Robotics Hackathon 2018
- German Government Scholarship 2017-2018

SKILLS

Programming Languages and Frameworks Python, PyTorch, Java, Matlab, C++, OCaml
Languages German (native), English (fluent), Spanish (basic)

PUBLICATIONS

[1] **Chantal Pellegrini**, Matthias Keicher, Ege Özsoy, and Nassir Navab. Rad-restruct: A novel vqa benchmark and method for structured radiology reporting. In *International Conference on Medical Image Computing and Computer-Assisted Intervention*, pages 409–419. Springer, 2023.

[2] **Chantal Pellegrini**, Matthias Keicher, Ege Özsoy, Petra Jiraskova, Rickmer Braren, and Nassir Navab. Xplainer: From x-ray observations to explainable zero-shot diagnosis. In *International Conference on Medical Image Computing and Computer-Assisted Intervention*, pages 420–429. Springer, 2023.

[3] **Chantal Pellegrini**, Ege Özsoy, Benjamin Busam, Benedikt Wiestler, Nassir Navab, and Matthias Keicher. Radialog: Large vision-language models for x-ray reporting and dialog-driven assistance. In *Medical Imaging with Deep Learning*, 2025.

[4] Ege Özsoy*, **Chantal Pellegrini***, Matthias Keicher, and Nassir Navab. Oracle: Large vision-language models for knowledge-guided holistic or domain modeling. In *International Conference on Medical Image Computing and Computer-Assisted Intervention*, pages 455–465. Springer, 2024.

[5] **Chantal Pellegrini**, Nassir Navab, and Anees Kazi. Unsupervised pre-training of graph transformers on patient population graphs. *Medical Image Analysis*, 89:102895, 2023.

[6] **Chantal Pellegrini**, Ege Özsoy, David Bani-Harouni, Matthias Keicher, and Nassir Navab. From ehrs to patient pathways: Scalable modeling of longitudinal health trajectories with llms. *arXiv preprint arXiv:2506.04831*, 2025.

[7] Ege Özsoy, Arda Mamur, Felix Tristram, **Chantal Pellegrini**, Magdalena Wysocki, Benjamin Busam, and Nassir Navab. Egoexor: An ego-exo-centric operating room dataset for surgical activity understanding. *accepted NeurIPS 2025*, 2025.

[8] Ege Özsoy, Tobias Czempiel, Felix Holm, **Chantal Pellegrini**, and Nassir Navab. Labrad-or: lightweight memory scene graphs for accurate bimodal reasoning in dynamic operating rooms. In *International Conference on Medical Image Computing and Computer-Assisted Intervention*, pages 302–311. Springer, 2023.

[9] Ivan Ezhov, Tudor Mot, Suprosanna Shit, Jana Lipkova, Johannes C Paetzold, Florian Kofler, **Chantal Pellegrini**, Marcel Kollovieh, Fernando Navarro, Hongwei Li, et al. Geometry-aware neural solver for fast bayesian calibration of brain tumor models. *IEEE Transactions on Medical Imaging*, 41(5):1269–1278, 2021.

[10] **Chantal Pellegrini**, Ege Özsoy, Monika Wintergerst, and Georg Groh. Exploiting food embeddings for ingredient substitution. *HEALTHINF*, 5:67–77, 2021.

[11] David Bani-Harouni*, **Chantal Pellegrini***, Paul Stangel, Ege Özsoy, Kamilia Zaripova, Matthias Keicher, and Nassir Navab. Rewarding doubt: A reinforcement learning approach to calibrated confidence expression of large language models. *accepted at ICLR 2026*, 2026.