

Invitation to the Oral Examination – Department CS

For the occasion of his examination for a Doctoral Degree,

Jose Fernando Navarro Avila

will present his dissertation entitled

Image Analysis of Anatomical Structures for Radiation Therapy

on **23.04.2026** at **9:00 h**

Attendance to the presentation is open to the public. The presentation will be held in English

The candidate, all members of the Examination Committee, and authorized examiners of the TUM School of CIT are invited to the presentation and subsequent oral examination.

The presentation and subsequent examination will take place in room 22.00.44, Einsteinstraße 25 (522), 81675 Munich and via BBB (BigBlueButton):

<https://bbb.tum.de/rooms/zhd-dbu-ewy-bqv/join> / Passcode: wpf9ir

Examination committee:

Chair: **Prof. Dr. rer. nat. Oliver Hayden**

First Examiner: **Prof. Dr. rer. nat. Björn Menze**

Second Examiner: **Prof. Dr. rer. nat. Christian Wachinger**

Munich, the 15th of April 2026

Mailing list:

Members of the examination committee

Doctoral candidate

Abstract:

Radiation therapy relies on precise CT-guided delivery to maximize tumor dose while sparing healthy tissue. Accurate segmentation and localization of organs at risk (OARs) are essential but challenged by anatomical variability. This thesis advances deep learning for OAR analysis via: a unified 3D localization–segmentation framework; shape-aware complementary-task learning for anatomically plausible multi-organ segmentation; deep reinforcement learning for localization; and self-supervised pretext tasks to boost robustness and generalizability.