

Invitation to the Oral Examination – Department CE

For the occasion of his examination for a Doctoral Degree,

Nikolas Wilhelm

will present his dissertation entitled

AI-Driven Multimodal Joint Analysis and Prediction

on Tuesday, **November 26th, 2024** at **15:00 h**

Attendance to the presentation is open to the public.
The presentation will be 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 examination will take place as hybrid event:

Live in room **Lecture Hall A**, Klinikum Rechts der Isar, Ismaninger Str. 22
and via **Zoom**

<https://tum-conf.zoom-x.de/j/66286914578?pwd=MKtgeE0phplJwjeBWTZOTA9rLhLkpA.1>

Meeting-ID: 662 8691 4578; Kenncode: 127655

Examination committee:

Chair: **Prof. Cristina PIAZZA**

First Examiner: **Prof. Dr.-Ing. Sami HADDADIN**

Second Examiner: **Prof. Dr. med. Rainer BURGKART**

Third Examiner: **Prof. Dr. Robert RIENER**

Abstract:

This research advances a multimodal framework for joint health, integrating machine learning and robotics into orthopedics. It offers novel bone tumor detection and limb alignment algorithms, robotic benchmarking systems for joint data, empowered by novel control strategies. To close the loop a rehabilitation exoskeleton for postoperative recovery is developed. This fusion of modern AI and robotics with clinical practice aims to refine orthopedic diagnostic, intervention and care.

Mailing list:

Members of the examination committee

Doctoral candidate