Invitation to the Oral Examination – Department CS

For the occasion of his examination for a Doctoral Degree,

Mr. Anjany Sekuboyina

will present his dissertation entitled

Machine Learning with Structural Priors for Image Analysis of the Spine

on Wednesday, **6th of November 2024** at 2:00 pm (German time)

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 subsequent examination will take place online via Zoom:

https://tum-conf.zoom-x.de/j/61190080789?pwd=BmPkoeo5tpSFWFqf1etSdHeylJlHt9.1

Meeting-ID: 611 9008 0789
Passcode: 172390

Examination committee:
Chair: **Prof. Daniel Cremers**
First Examiner: **Prof. Björn Menze, Universität Zürich**
Second Examiner: **Prof. Georg Langs, Medical University of Vienna**
Third Examiner: **Prof. Martin Reuter, Rheinische Friedrich-Wilhelms-Universität Bonn**

Garching, the 24th of October, 2024

Mailing list:
Members of the examination committee
Doctoral candidate

Abstract:

We address the problem of localising and identifying the vertebrae by proposing a convolutional neural network architecture that works on two-dimensional, orthogonal projections, and reinforce it adversarially to enforce anatomical shape prior. Next, we explore anatomical prior enforcement using a linear conditional random field. Lastly, we investigate vertebral fracture detection by tasking a generative model to learn the data distribution of healthy vertebrae and detect fractures as outliers.