**"CT/MR image fusion and automatic parameters estimation for TAVI procedure"**
**Approach/methods/PhD:**
The standard imaging work-up prior transcatheter aortic valve intervention (TAVI) is currently driven by a contrast-enhanced aortoiliacal computed tomography angiography (CTA). Fusion of a comprehensive cardiovascular MR image dataset with a non-contrast enhanced CT would combine the advantages of both modalities with immediate clinical applicability. Thus, in this project, we aim to develop software for fusing CT and MR images into one stacked image sequence (SIS) and to establish fully automatic data-driven parameter estimation techniques based on SIS. Mathematical image registration algorithms are developed which transform corresponding image regions of the two modalities into each other. For the automatic estimation of TAVI parameters, data-driven methods based on statistical learning and deep learning are developed, implemented and analyzed.
Envisioned qualification of the candidates is mathematics / computer science student with knowledge of medical imaging applications and good programming skills or medical student with additional expertise in mathematics or computer science.

**Please apply here:** phd-igdt-art@i-med.ac.at ; Application form under this link: https://phd-igdt-art.i-med.ac.at/wp-content/uploads/2021/07/IGDT-ART_Application-form.docx

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