The COMBAT-VT Project

Computational-model-based decision support for patients at risk for sustained ventricular tachycardias

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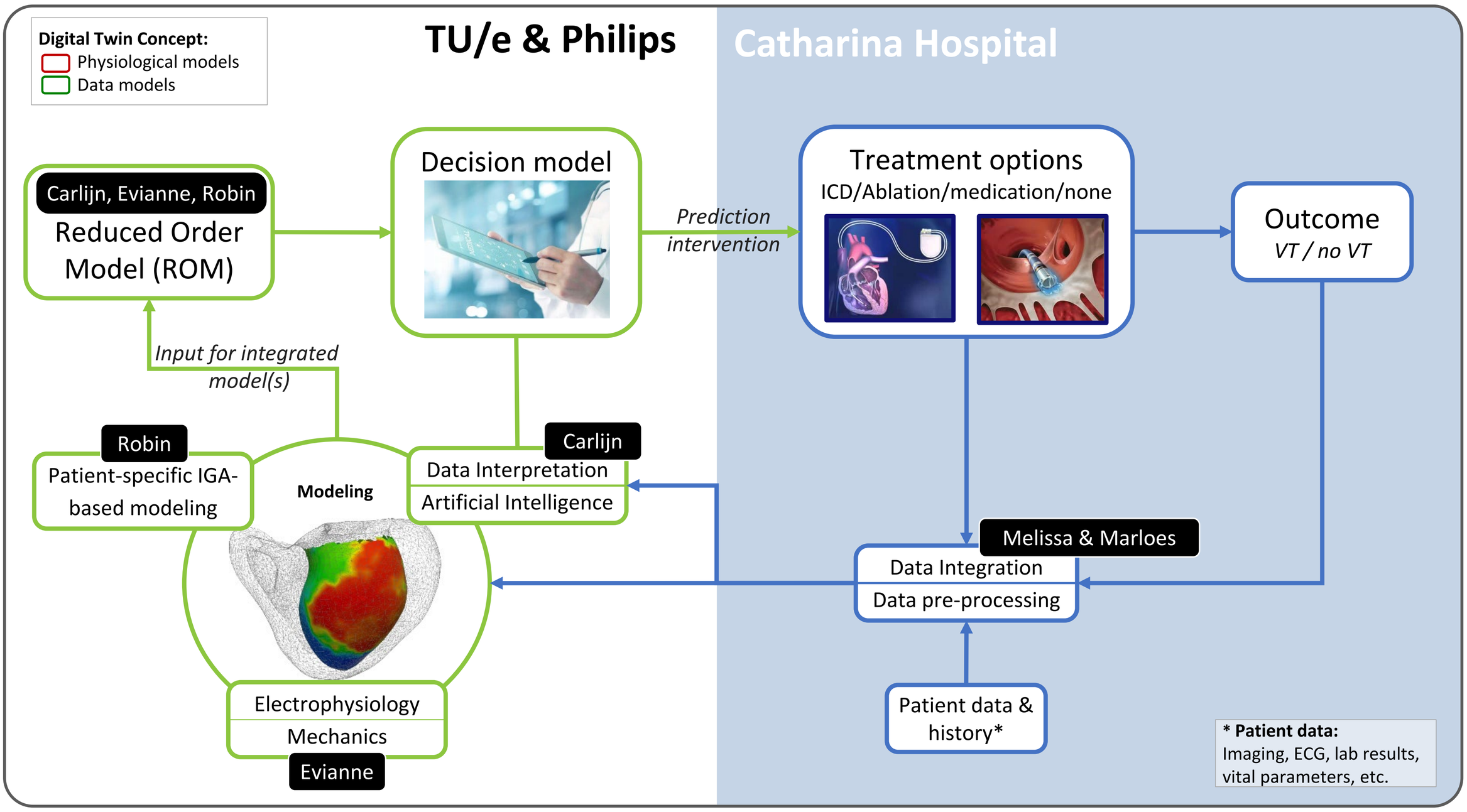
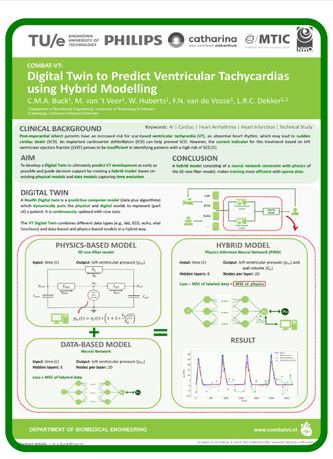
MOTIVATION AND OBJECTIVE

Post-myocardial infarct patients have an increased risk for scar-based **ventricular tachycardia** (VT), an abnormal heart rhythm, which may lead to **sudden cardiac death** (SCD). Ablation therapy is used to treat VTs, but has moderate success rates of 50-80%. Secondly, an implanted cardioverter defibrillator (ICD) can help prevent SCD if ablation is inexecutable. Current guidelines for ICD treatment are based on left ventricular ejection fraction but prove to be insufficient in identifying patients with a high risk of VT. The **electro-mechanical interaction** of the heart is key to understand VT development. Here, **patient-specific computational models** can be used to create a cardiac **Digital Twin** which can serve as a decision support tool in the clinic.

GOAL

To improve the **understanding** and **prediction** of the occurrence of **Ventricular Tachycardias** and provide optimized **patient-specific therapy guidance** using computationally efficient models.





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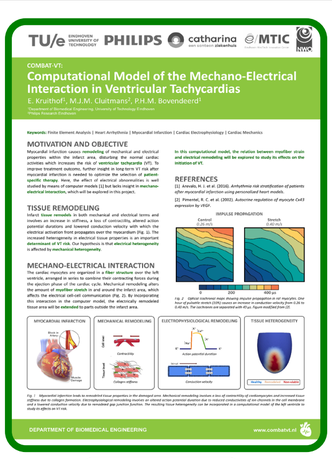

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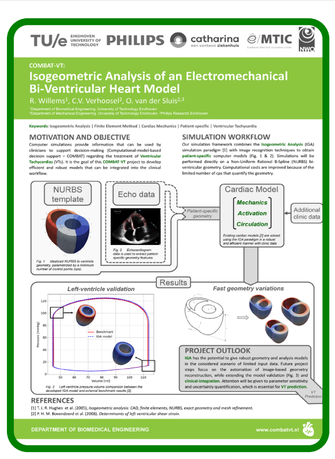

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