

An augmented reality application for
immersive learning of cardiology

HeARtbeat



Kevin Moffat School of Life Sciences, University of Warwick

- A Monash – Warwick Alliance Project



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Acknowledgements - HeARtbeat

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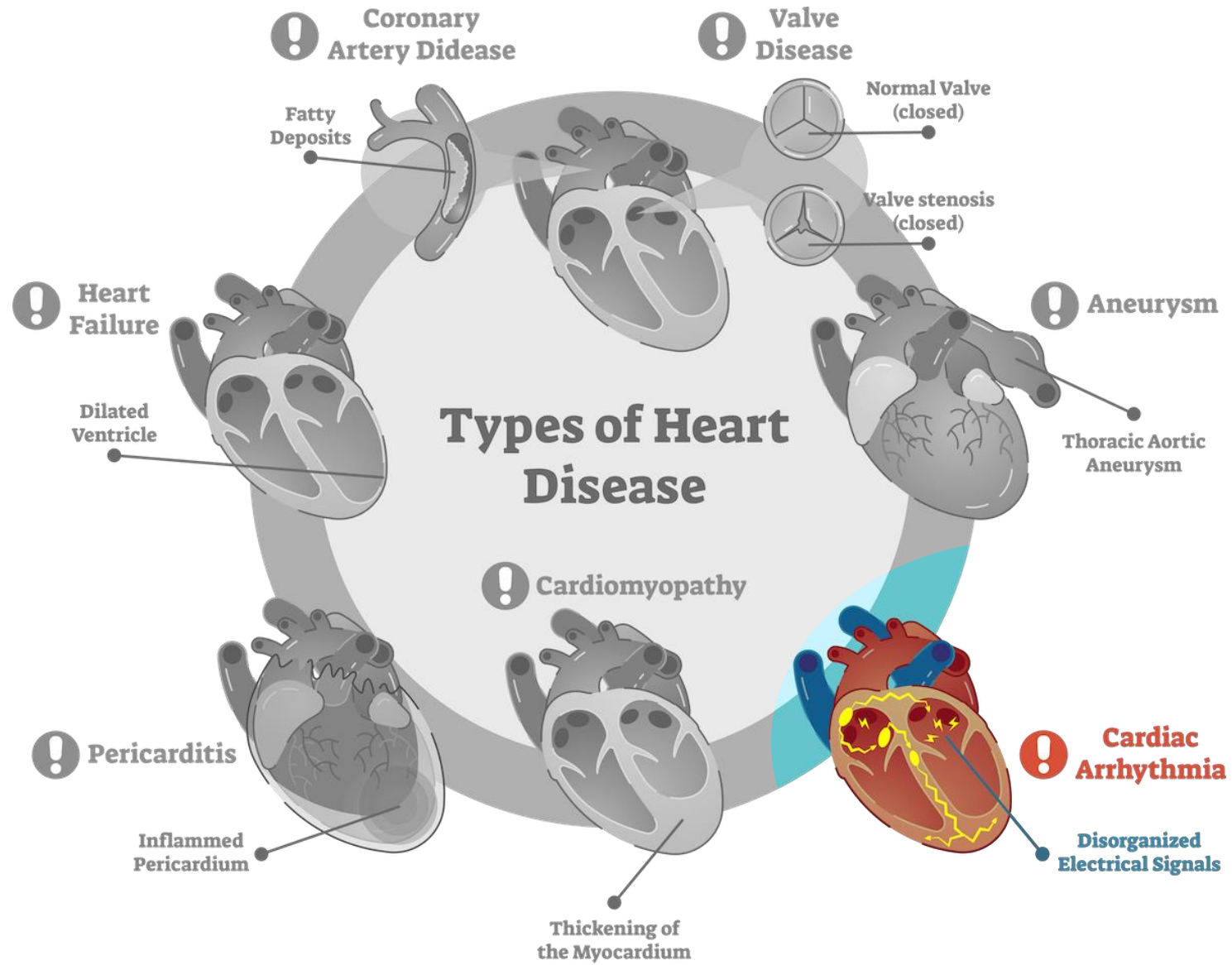
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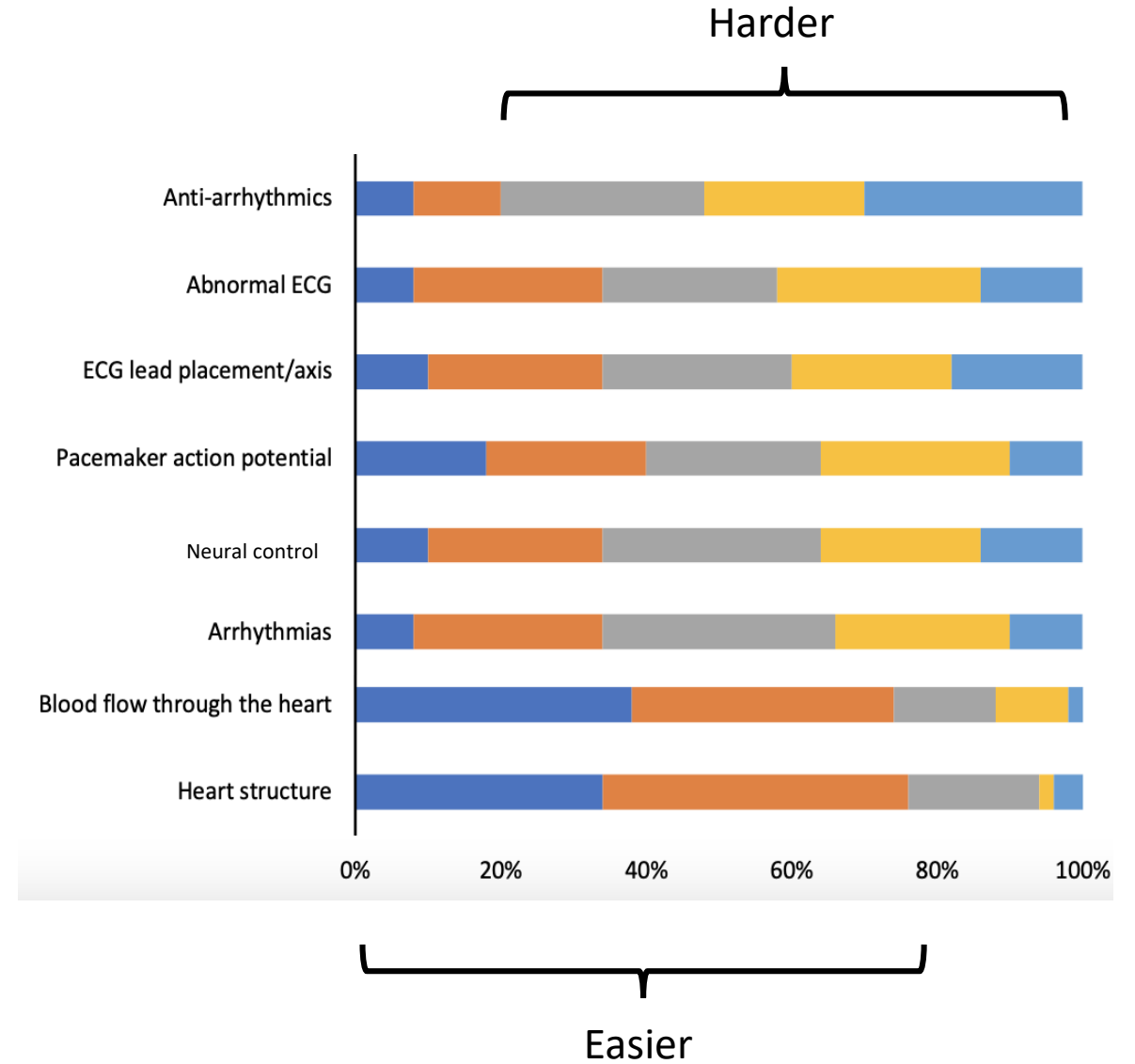
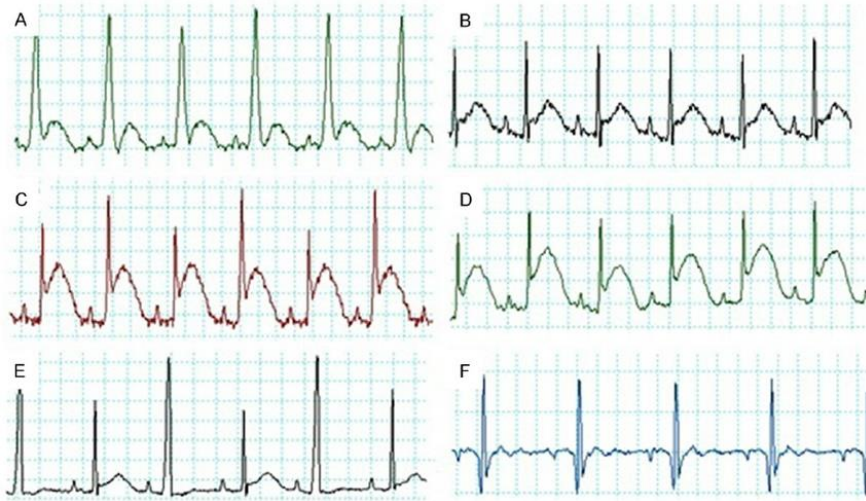
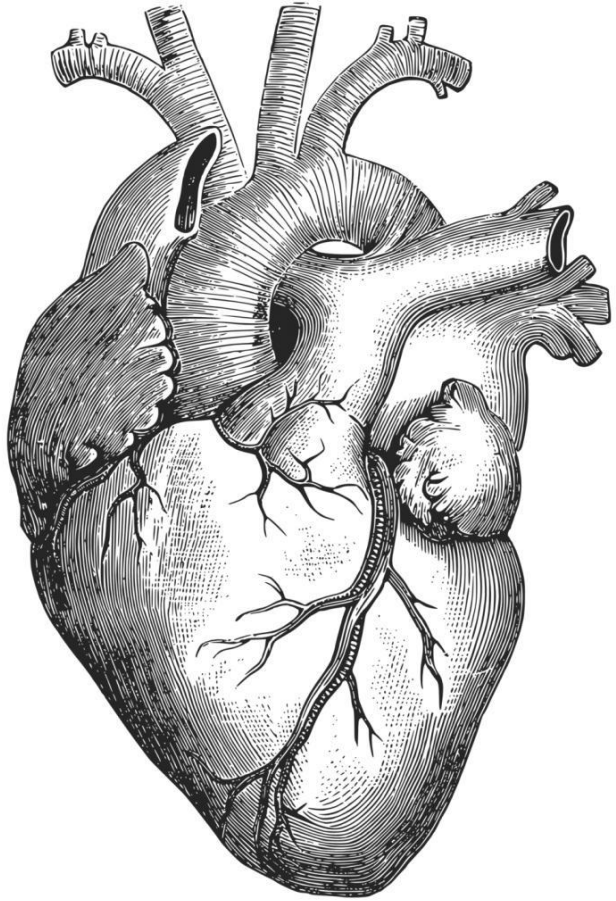




Image: Birt et al *Information* **2018**, 9(2), 31; <https://doi.org/10.3390/info9020031>

The alpha build – success and failure



Executive Summary - HeARtbeat

Augmented Reality (AR) application (App)

- Immersive, interactive, real time experiential navigation of a heart

Presents:

- Anatomy, physiology, pathophysiology and pharmacology and clinical application

Portrays:

- Beating heart in normal sinus rhythm (SR)
- Atrial Fibrillation (AF)
- External and internal views
- Cell membrane and channels
- Drug interactions on cell membrane and on action potential (AP) to impact on rate and rhythm
- Risk factors
- Clot formation
- Patient information

Easily installed on smart phone and tablet

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<https://www.youtube.com/watch?v=-ksww4-rYGg>

....and? Focus groups run

Things they liked 😊

- 100 % of students said they will use it to aid learning
- Novelty
- Content
- Link of drugs to Action potential to heart rate to ECG

Things they didn't like or wanted..... 😞

- Live ECG
- More heart conditions
- Need of trigger

Technology and Testimony - HeARtbeat

Need

- Complex subject difficult to comprehend

Educators

- Professional development

Students

- Initial surveys - well received by students
- Novel, realistic heart model, and easy to understand content improved learning
- Visualisation and learning design encourages use

Cardiologists and patients

Industries and stakeholders

Awarded Gold medal in the 31st International Invention, Innovation & Technology Exhibition (ITEX'2020) held in Kuala Lumpur Nov 2020

Lee awarded Best Women Inventor Award in same event



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