



UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Biomedical Engineering Research Centre



Virtual Perfusionist

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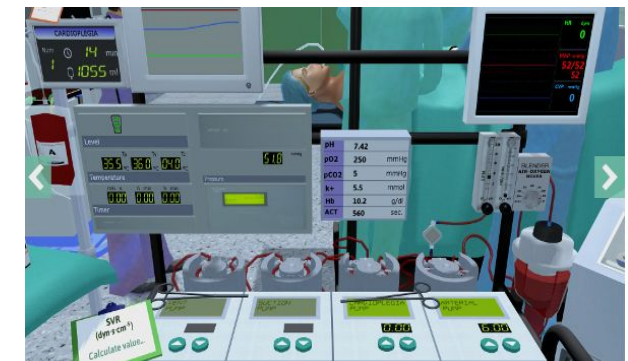
1. Need or problem to be solved

- Growing need of operating complex medical devices
- Accidents caused by human errors at facing infrequent but critical situations
- Lack of affordable, ubiquitous training tools

- Increased demand for e-learning tools

- Next generation training paradigm in healthcare:
On-line simulations and 3D serious games

- Ubiquity
- Variety of situations and incidents
- Immersion, motivation
- Better learning outcomes
- More safety

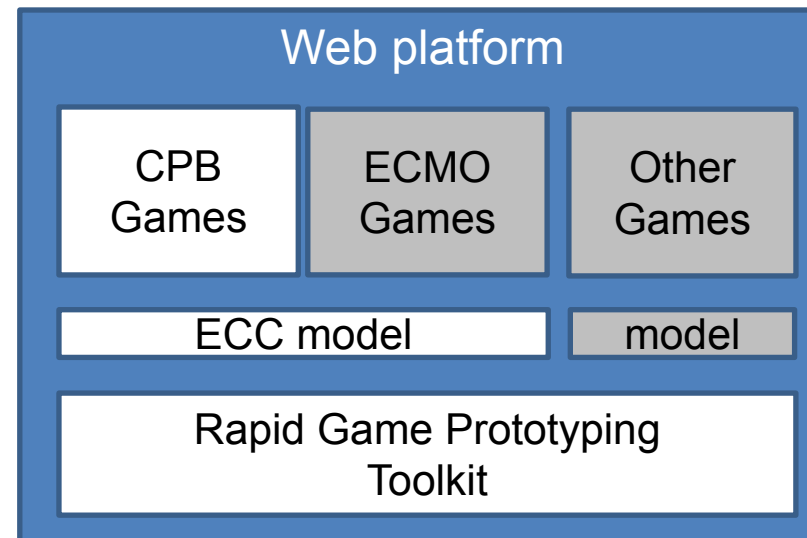


2. The asset

A novel web-based training platform of 3D physiologically realistic simulation games.

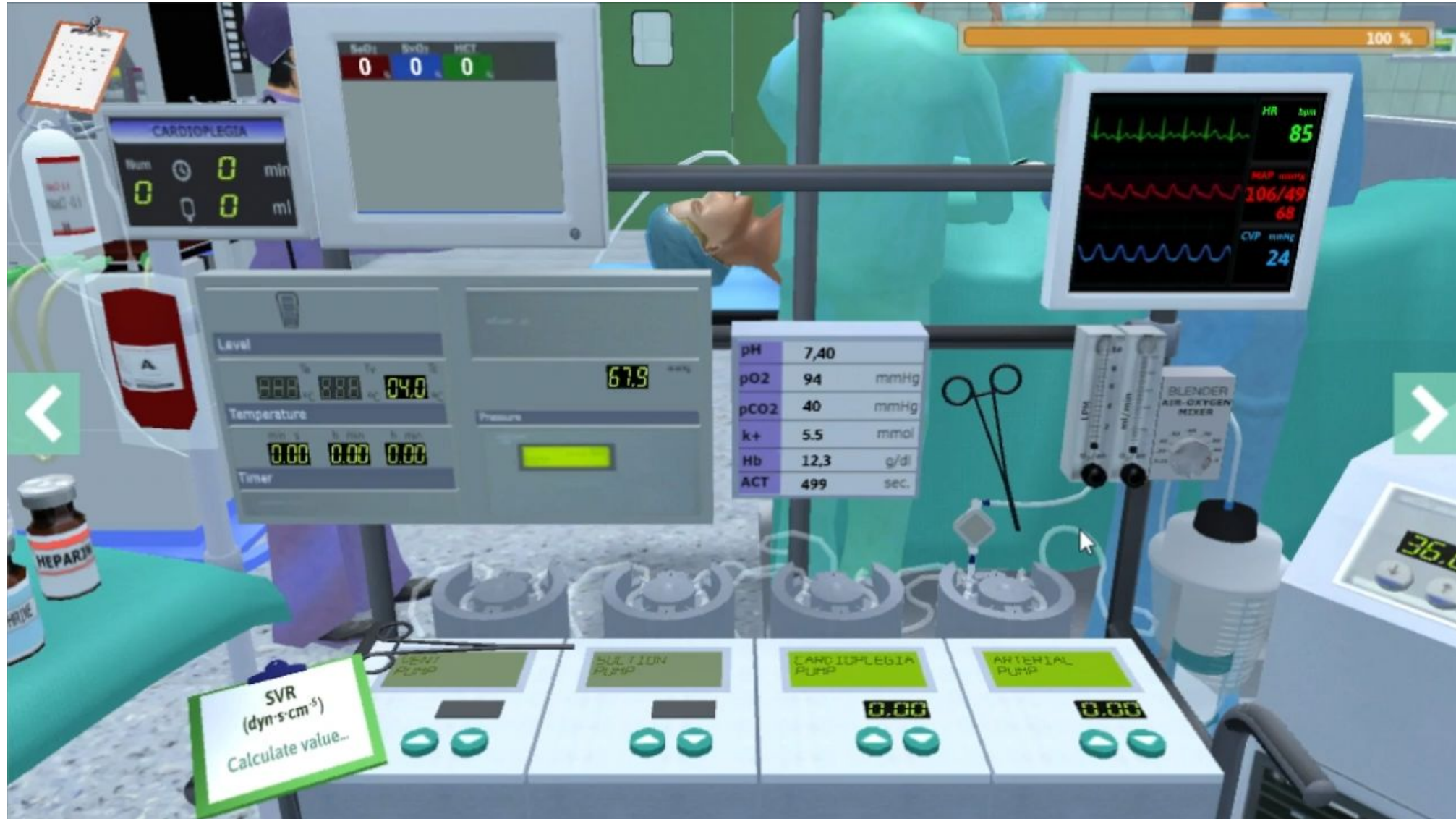


First Use Case: Cardio Pulmonary Bypass Training



Upcoming use cases:

- ECMO
- Anesthesia
- Mechanical ventilators



3. Valorisation and Commercialisation

Hospitals practicing on-pump surgery or ECMO (ELSO)

974 in 2020

ECC manufacturers and commercials

12 main manufacturers

Perfusion schools

Accredited Perfusion Education Programs:
Europe: 27
U.S.: 18

Virtual Perfusionist

ECC associations

Worldwide: >50
Europe: >21
U.S.: >21

Perfusion students
Perfusion practitioners

450,000 perioperative nurses
>20,000 certified perfusionists
U.S.: 4,522 certified in 2020

Key ECC companies

Getinge AB (SWD)

Medtronic plc (IRL)

LivaNova PLC (UK)

Terumo Corp. (JP)

XENIOS AG (DE),

Lifeline Scientific, Inc. (U.S.)

XVIVO Perfusion AB (SWD)

Repligen Corp. (U.S.)

Spectrum Lab., Inc. (U.S.)

Merck KGaA (Germany)

Harvard Bioscience, Inc. (U.S.)

ALA Sci. Instr., Inc. (U.S.)

3. Valorisation and Commercialisation

SaaS
Business
model

Licencing model

- Per trainee
- Per school & trainee
- Per hospital & trainee
- Per company

Approximate annual fee per user

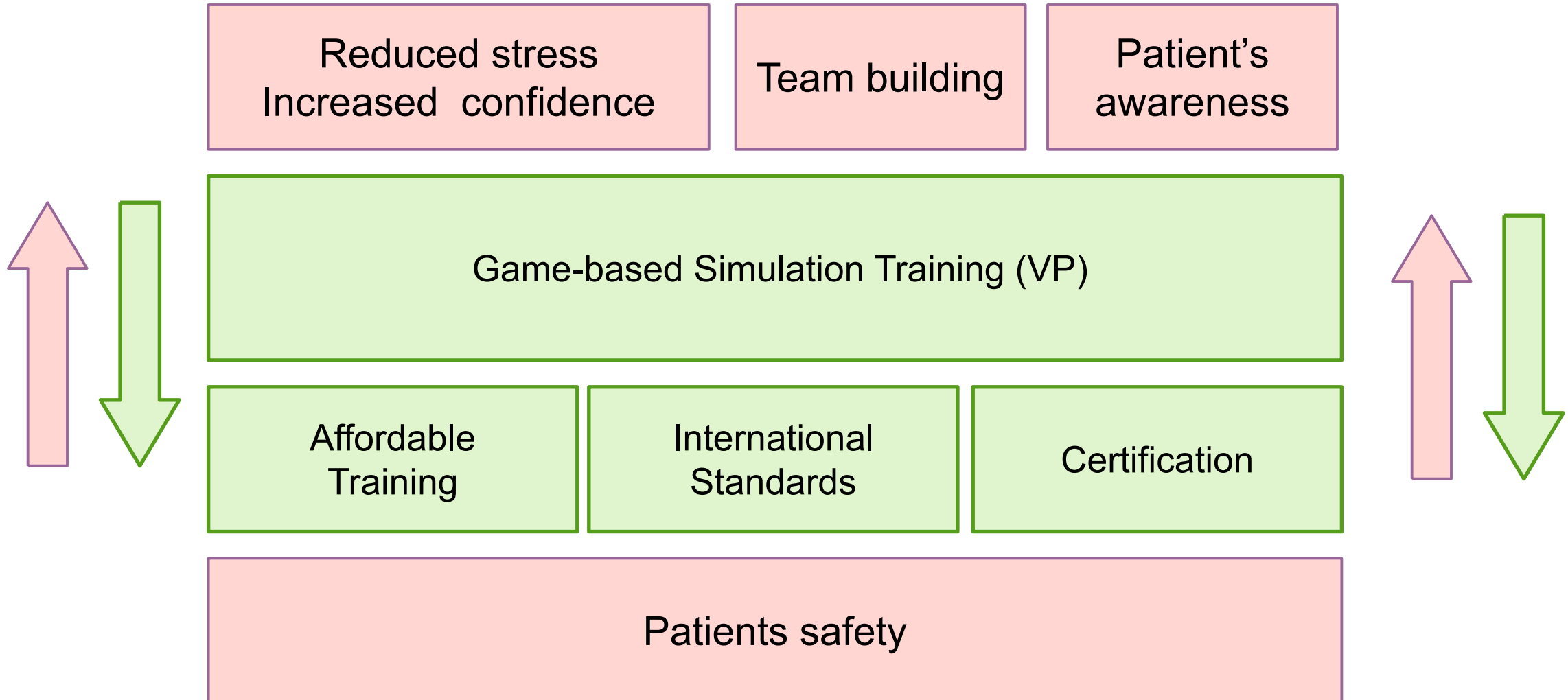
- 500€/year (USA, Canada)
- 250€/year (EU, Asia, LA)
- Personalized (Other countries)

ECC training use case: potential market size **20 Million USD\$**

- **450,000** perioperative nurses worldwide
- **20,000** Certified Clinical Perfusionists
- Requirement of recertification **every year** in USA
- The median perfusionist salary for 2019-2020 in U.S. **\$140,245.**

Notarial registry
&
patenting
on process

4. Social Impact and Responsible Innovation



5. Project leader and team



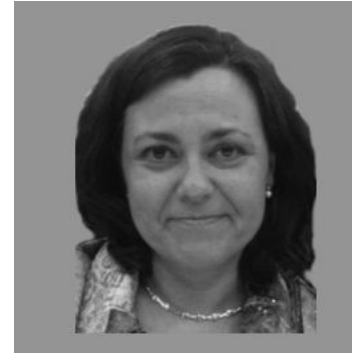
Daniela Tost, PhD
Principal Investigator
Game development
expert



Núria Bonet
Biomedical engineer
COO
Full-time dedication



Ariel von Barnekow
Software engineer
CTO
Full-time dedication



Maria Teresa Mata
Perfusion Specialist
& perfusion teacher



Carmen Gomar, PhD
Anesthesiology
specialist &
Simulation in surgery
teacher



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Virtual Perfusionist (CI21-00075)

*CaixaResearch Validate Call – Selection Panel
July 3rd 2020*

Daniela Tost Pardell
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