

Singularity - PhD work in progress

Creative Computing Education | Classical Ballet & EEG explore Signal Processing & Bio-Digital Ethics

BACKGROUND

DataDrivenDance was born out of the lower numbers of female students opting for Computing GCSE or A-level during my secondary teaching career. Girls continue to be heavily underrepresented in computing education, current figures for the UK show that only 10% of A-Level computer science students are female (Kemp, Berry, & Wong, 2018). DataDrivenDance, classical ballet productions as a medium for delivering computing theory and concepts aimed at none specialist audiences. An ongoing award winning project since 2012 uses ballets as an R&D platform for developing creative computing educational classroom resources.

RESEARCH FOCUS

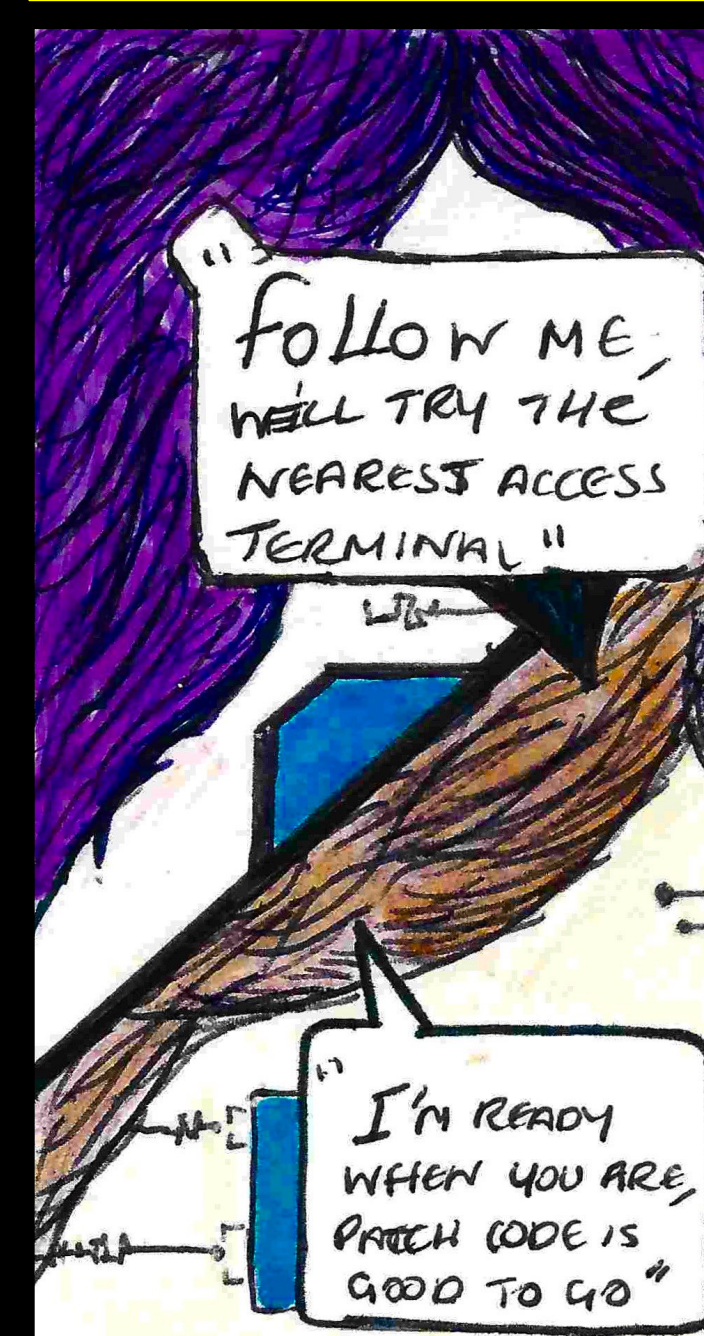
The literature lead to an awareness of two particular issues that are central for computing education in the current landscape. In their simplest form: One: how do you **engage girls in computing**? Two: how do you raise **awareness of biodigital ethics**? These conjectures paved the way to DBR as the most appropriate methodology to answer these central issues in computing education. Why so few girls taking Computing pre-university exams? The precise attributes of classical ballet, with set structures, routines, rules, and terminology, marry with programming and computational thinking (Wing 2006). Make available opportunities to address future ethical questions of neuroethics - cognitive privacy (cognitive liability (Farahany, 2018))?

Singularity:

Combining the traditions of classical ballet with the futurism of computing & biodata to develop new ways to understand our technological, ethical, & artistic future.



BIODIGITAL- NEURO -ETHICS



Neuroethics is an interdisciplinary research area that focuses on ethical issues raised by our increased and constantly improving understanding of the brain and our ability to monitor and influence it. Before AI & biodigital tech take over the world we need to step back and ask philosophical questions relating to:

- Privacy & Consent
- Neuro data collection, storage, & ownership
- Education
- Policy

METHODOLOGY

AgileDBR Not confined to a single approach but the amalgam of education, computing and traditional ballet practice, materials, and pedagogy.

DBR is iterative in nature, similar to Agile software methodology. Conjecture/ hypothesis mapping. Repurposing user flow/journey to align with learning trajectories. User story mapping as a tool for project scoping and planning supported with kanban boards.- the proposed design framework will consist of 3 iterations. Each interaction will test the use of ballet and biodata, both as tools for creativity and a platform for discourse on (neuro) ethics (Le, 2019). Cyclic conjectures leading to a more refined design framework and design principles, part theory generation. Iteration one focuses on dancer participants, second iteration - students, and the third: trainee computing teachers; all co creators within this study.

Researcher Biography

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