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Artelectro: A Data-driven Interactive Platform for Young Artists to Learn Physical Computing

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Abstract:

This proposal is intended to design Artelectro, a data-driven interactive software platform for young artists to learn basic rapid-prototyping techniques for electronics and physical computing which are essential for designing interactive products and new-media installations, such as robotic arts. While there have been many toolkits, e.g. Arduino, for artists to create interactive electronic art, it is still challenging for art/design students without solid engineering background to get started in electronics. This would even discourage the students in the very beginning. Hand-in-hand workshop-based practices scaffolded by experienced senior have been proved to be efficient for artists/designers to learn basic electronics, as the senior could closely help the beginner. However, it is challenging to implement this practice for larger classes. Based on my teaching experience in tangible media (SM2716 and SM2705) and interactive wearables (SM3727) in the past three years, while some students could follow the instructions and complete the provided sample circuits, most students often find it hard to make their own design and debug while encountering errors. This project aims to design and deploy an intelligent and interactive learning platform which assists art/design students to design, implement, and debug their electronic circuits, and further encourages them to enter and explore the world of interactive electronics for art and design. The intelligence of the proposed Artelectro platform comes from a user-friendly software interface that provides templates, suggestions, and simulation for circuit design according to the student's selection of components. We will implement the proposed platform by using existing off-the-shelf technologies, mainly data mining and signal analysis. This implemented platform will be deployed in the following SM2716 classes with more than 100 students. It can be further used in many other physical-computing-related courses (e.g. SM3727 Wearables, SM3610 Hardware Hacking, and SM4703 Robotic Art) in the School of Creative Media.