

Aesthetic Coding: Exploring Computational Culture Beyond Creative Coding

Winnie Soon

Aarhus University
wsoon@cc.au.dk

Shelly Knotts

Durham University
michelle.knotts@durham.ac.uk

Abstract

Learning to code has started to be part of the core strategy in educational curriculum, from primary school to higher education, especially in many developed countries that promote stem education, or at least coding is recognized as an important aspect of science and technology development. [1][2][3][4][5] In the art and design-related disciplines, creative coding emphasizes code as an expressive material and embraces exploration and experimentation of code beyond functional applications. [3][6][7][8]. OpenFrameworks, Sonic Pi, p5.js Processing and ml5.js are some examples of open source platforms that facilitate creative and expressive creation through sharing and remixing code. In other words, the community of creative coding expands the usual way of learning to code beyond science and engineering disciplines.

However, with the increasing demand of computational practices in emerging disciplines such as software studies, platform studies, new media studies and digital humanities, coding is increasingly considered as “literacy” to humanities. [9] This perspective of coding literacy becomes a critical tool to understand the history, culture and society alongside its technical level, especially since our digital experiences are ever more programmed, both technically and culturally.

This presentation introduces two cases where two artist-coders consider code practice as a mode of aesthetic and critical inquiry, and they teach coding (in a format of workshop delivery) in a critical way through engaging with their artistic and coding practice. This aesthetic approach includes not only introducing coding

practically and creatively but also cultivating an open space where discussing and reflecting on computational culture is possible. This is similar to what scholar Michael Mates describes as ‘procedural literacy’, which is to connect social and cultural issues with coding through theoretical and aesthetic considerations. In particular, how “the culturally-embedded practices of human meaning-making and technically-mediated processes” are intertwined. [10]

By introducing two different hands-on code learning workshops, this presentation examines how aesthetic production or critical thinking can be cultivated and developed through learning to code. We suggest connecting code with social and cultural issues through performing, showcasing and discussing code-related art and performance as a departure point to develop code or procedural literacy. Without losing sight of exploring code technically and creatively, the two hands-on workshops illustrate how the suggested aesthetic coding approach could be realized in both epistemic and practical levels. The first workshop was conducted in 2017 titled ‘Feminist coding in p5.js | Can Software be Feminist?’ by Winnie Soon, and the second case was conducted in 2016 titled “Rewriting the Hack” by a live coder Shelly Knotts and curator Suzy O’Hara. [11][12] We argue that the practice of aesthetic coding provides epistemic insights to explore computational culture beyond creative coding, shedding light on how to work with code across disciplines and to consider coding practice as a means to think critically, aesthetically and computationally.

References

1. Xie Yu, Michael Fang and Kimberlee Shauman, "STEM Education," *Annual Review of Sociology* 41, (2015): 331–357.
2. Mirosław Brzozowy et al. "Making STEM Education attractive for young people by presenting key scientific challenges and their impact on our life and career perspectives (paper based on a talk presented at 11th annual International Technology, Education and Development Conference, Valencia, March, 2017)," *INTED2017 Proceedings*, <https://library.iated.org/view/BRZOZOWY2017MAK>.
3. Bryan Chung, Lam Pong and Winnie Soon, "Computer Programming Education and Creative Arts," (paper based on a talk presented at ISEA, Hong Kong, 2016) *ISEA2016 Conference Proceedings*.
4. Stuart Heaver, "STEM education key to Hong Kong's 'smart city' plan, but long-term steps must be taken now, experts warn (2017)," *South China Morning Post*, accessed August 31, 2018. <https://www.scmp.com/lifestyle/article/2124487/stem-education-key-hong-kongs-smart-city-plan-long-term-steps-must-be>.
5. Meng Jing,, "China wants to bring artificial intelligence to its classrooms to boost its education system (2017)", *South China Morning Post*, accessed August 31, 2018. <https://www.scmp.com/tech/science-research/article/2115271/china-wants-bring-artificial-intelligence-its-classrooms-boost>.
6. Winnie Soon,, "Executing Liveness: An Examination of the live dimension of code interactions in software (art) practice," (Ph.D. diss., Aarhus University, 2016).
7. John Maeda, *Creative Code: Aesthetics + Computation* (London: Thames & Hudson, 2004).
8. Kylie Peppler and Yasmin Kafai, "Creative coding: Programming for personal expression," *The 8th International Conference on Computer Supported Collaborative Learning* 2 (2009): 76-78.
9. Annette Vee, *Coding Literacy: How Computer Programming Is Changing Writing* (Cambridge, MA: MIT Press, 2017).
10. Michael Mateas, "Procedural Literacy: Educating the New Media Practitioner," *The Horizon. Special Issue. Future of Games, Simulations and Interactive Media in Learning Contexts* 13, no. 1 (2005).
11. Winnie Soon, "A Report on the Feminist Coding Workshop in p5.js." *Aesthetic Programming website* 2017, accessed August 31, 2018. <http://aestheticprogramming.siusoon.net/category/thoughts/>.
12. Shelly Knotts and Suzy O'Hara, "Rewriting the Hack (2015)," accessed August 31, 2018. <http://rewritingthehack.github.io/index.html>.

Biographies

Winnie Soon is an artist-researcher, exploring themes around digital culture. Her current research focuses on the culture of code practice, working on two books titled *Aesthetic Programming: A Handbook of Software Studies, or Software Studies for Dummies* (with Geoff Cox) and *Fix My Code* (with Cornelia Sollfrank). She is Assistant Professor at Aarhus University. More info: <http://www.siusoon.net>.

Shelly Knotts produces live coded and network technology facilitated music projects. She presents her artistic work internationally and has attended several residencies, think tanks, seminars and workshops including a number of hack events. She was recently Performance Chair for the 1st International Conference of Live Coding and has worked on several projects developing communities in technology focused music making including Network Music Festival and SOUNDKitchen. More info: <https://datamusician.net/>