Arts and Computing in NYC

(Multi-institutional collaborative) Independent Study

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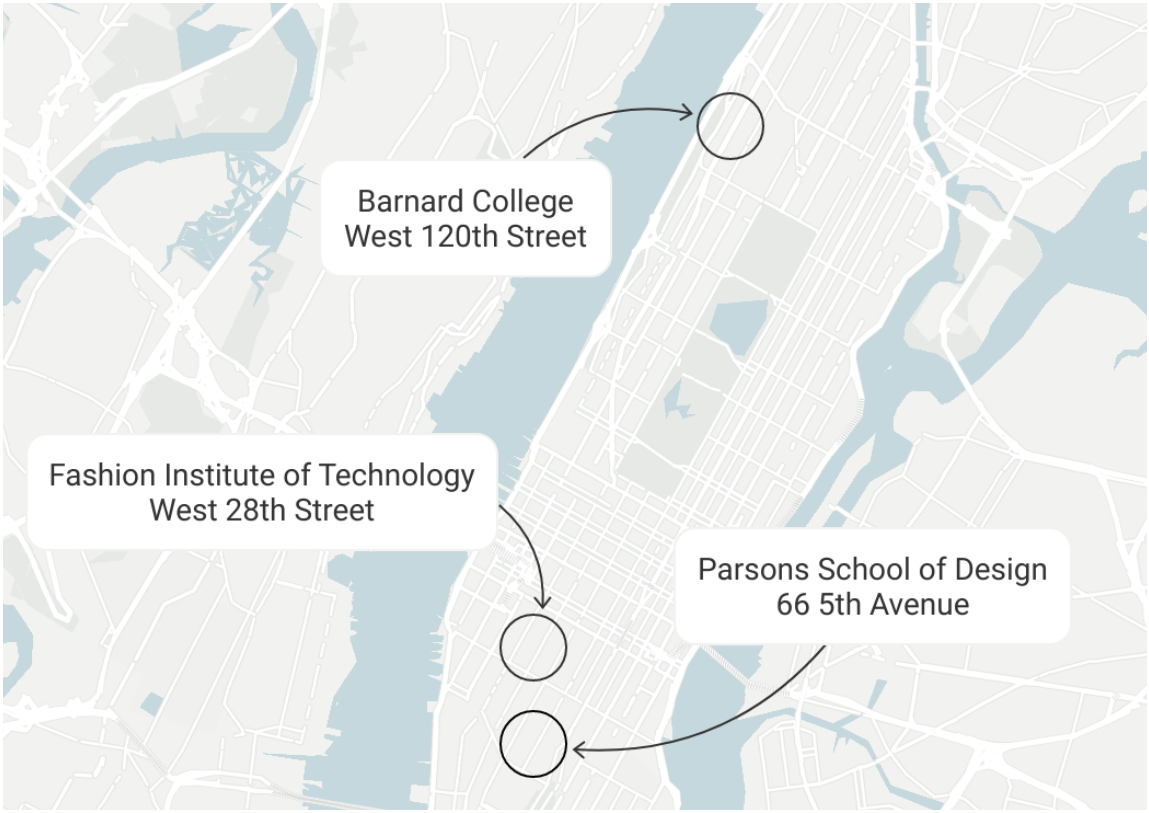

Course Description:

The **Arts and Computing in NYC** course will be an intro level survey course for non Computer Science majors to gain an appreciation for the cutting edge of the intersection between Computer Science (CS) and the arts. Students will take away from the class an understanding of where the future lies for the use of technology in a wide array for arts endeavors. Students will get hands-on experience with the technologies used in various arts fields, such as computer music, digital embroidery, and architectural preservation. The fundamentals of CS will be covered on an as-needed basis to allow students to fully appreciate the tools they will use.

Credits: 3 credits (3 lecture hours), computer classroom
Prerequisite: Mathematics Proficiency
Schedule:

Thursday 5:30pm - 8:30pm (please take into consideration travel time between institutions)
First day of class: Sept 9
Last day of class: Dec 16 (Gallery opening)

Location:

All classes must be attended in-person.
Class locations will rotate between the three campuses.

Learning outcomes:

Throughout the course, students will:

- provide a broad overview of computational art practices and research approaches
- introduce influential computational arts concepts, theories, and historical precedents
- develop basic programming skills directly applicable to art making
- develop a systematic approach for achieving an artistic vision with computational tools.
- an understanding of what fundamentally can and cannot be done with computers, and how this understanding can help to anticipate the future development of new tools for computing in artistic domains.
- engage conceptual, aesthetic, and technical issues through creative projects and critiques
- experience taking part in a gallery show opening, displaying their own work and the work of their peers

Evaluation:

Readings will be assigned each week.

15% - Attendance and Participation

20% - 4 Written responses (~1 page, single spaced) to weekly readings (5% each). Two responses must come before the midterm point, and two responses must come after the midterm point.

15% - Project proposal.

15% - Project progress report. Progress report on gallery show.

35% - Final Group Gallery Show (grades are assigned individually by the instructor of the student's home institution). Opening on 12/16 @ 5pm.

Reading List:

Selected Chapters from: *Processing: Creative Coding and Generative Art in Processing 2* by Ira Greenberg, Dianna Xu, Deepak Kumar, 2013.

Burg, Jennifer, and Karola Luttringhaus. "Entertaining with science, educating with dance." *Computers in Entertainment (CIE)* 4, no. 2 (2006): 7-es.

Dannenberg, R.B., Gold, N.E., Liang, D. and Xia, G., 2014. Methods and prospects for human–computer performance of popular music. *Computer Music Journal*, *38*(2), pp.36-50.

Gold, N., 2011, September. Knitting music and programming: Reflections on the frontiers of source code analysis. In *2011 IEEE 11th International Working Conference on Source Code Analysis and Manipulation* (pp. 10-14). IEEE.

Economou, Athanassios, Tzu-Chieh Kurt Hong, Heather Ligler, and James Park. "Shape Machine: A primer for visual computation." In *A New Perspective of Cultural DNA*, pp. 65-92. Springer, Singapore, 2021.

Zhao, L. and Min, C., 2019. The rise of fashion informatics: A case of data-mining-based social network analysis in fashion. *Clothing and Textiles Research Journal*, *37*(2), pp.87-102.

Hsiao, W.L., Katsman, I., Wu, C.Y., Parikh, D. and Grauman, K., 2019. Fashion++: Minimal edits for outfit improvement. In *Proceedings of the IEEE/CVF International Conference on Computer Vision* (pp. 5047-5056).

Barriere, L., 2015, July. Lissajus Curves: an Experiment in Creative Coding. In *Bridges Conference Proceedings, Baltimore, Maryland, USA* (pp. 549-554).

Vasiliauskaite, V. and Evans, T.S., 2019. Social success of perfumes. *PloS one*, *14*(7), p.e0218664.

Mehra, M.R., Desai, S.S., Ruschitzka, F. and Patel, A.N., 2020. RETRACTED: Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis.

Kruse, Jan. "Designer-driven Procedural Game Content Generation using Multi-agent Evolutionary Computation." PhD diss., Auckland University of Technology, 2019.

Course Outline:

1) *Programming Embroidery*: using the Turtlestitch environment to code an embroidery pattern and embroider it through a digital embroidery machine. (FIT)
2) *Programming Visual Art:* Intro to basics of coding with Processing to generate animations. (Barnard)
3) *Programming Music*: generating music with code - play your laptop like an instrument with live coding. (Barnard)
4) *Course Project Intro:* Group work and intro to the design process
5) *Physical & Wearable Computing*: creating computational fabric that responds to an input. (FIT)
6) *NFTs and the future of digital art ownership*: ownership of data with blockchain. Potential visit to Superchief NFT gallery. (Barnard)
7) *Web Portfolio:* basics of web development. (Parsons)
8) *Code in Motion:* The intersection of Computer Science and Dance. (Barnard)
9) *Preservation of Architectural Heritage through Digitization.* (Barnard)
10) *Fashion Business Management*: discussing scientific research articles (involving fashion machine learning algorithms); using MNIST fashion data with classification algorithms. (FIT)
11) *UI/UX design*: re-designing clothing tags from design first principles (Parsons)
12) *Materials Science*: using emerging and sustainable materials for biodegradable fabrics (FIT)
13) *AI for Textiles*: Convolutional Neural Network based fabric structure classifier. (FIT)

This syllabus is subject to changes. Any changes will be reflected in an updated version of the syllabus to be posted on the course website.