New Media / Image Arts
Ryerson University
Fall 2011

MPM35A
Visualization and Generative Processes

Room: RCC-359A
Tuesday 9:00-12:00 / Section 021
Tuesday 15:00-18:00 / Section 011

Instructor: David Bouchard
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Office hours: Tuesday 13:00-15:00

Class website: http://www.ryerson.ca/~d2boucha/mpm35

Description

This class will explore the role of generative algorithms and database visualization approaches in New Media art works. Processes of randomization, feedback, behaviour, mapping and emergence will be related to data and structure through the construction of interactive experiences. In particular, we will examine the social, cultural and political impact of data visualization through a discussion of contemporary and historical artworks as well as hands-on exercises. Students will deepen their understanding of presentation skills and professional practice through the development of individual works, including a final project.

Prerequisite: MPM27, MPM28

Technical skills

Some level of proficiency with programming using Processing as well as a basic knowledge of electronics and Arduino is assumed, however, some basic concepts will be reviewed during first weeks of class through some in-class exercises. While most of the in-class technical instruction for this course will be centered using Processing for accessing, mining and visualizing data, the assignments and the final project will not be constrained to using Processing. With the instructor's approval, students are welcome and encouraged to explore other mediums and technologies as they see fit, as long as the project requirements are met and with the caveat that there will not be any in-class examples for these technologies.

Course Objectives

- Survey the state of the art in the fields of data visualization and generative art
- Develop the theoretical and practical foundations to explore this creative space
- Apply these learnings through the realization of a final project

Communication

Your Ryerson email will be the main method of communication for this class. Class announcements will be made over the BlackBoard system. Weekly links and assignment information will be posted to the class website. You will also be required to maintain a personal website where you will post your responses to the assignments and your final project.

Grading & Evaluation

5 - Participation
10 - Written responses
10 - Data Portrait
30 - Midterm project
45 - Final project

Late assignments will be deducted 15% per week, and will not be accepted beyond 2 weeks late. Final projects should be ready to be submitted on the due date, **before** we begin the scheduled critique. Late final projects will NOT be accepted.

This course represents one half of your overall production mark for MPM35. Your final mark will be the average of the Fall and Winter components of this course.

Participation

Participation is expected and required. You can demonstrate participation by being on time, doing the assignments, voicing your opinions in class and helping others. Failure to sign the attendance sheet will constitute an absence; 3 absences will be an automatic 0 for participation.

Written responses

Throughout the term, you will write 2 responses on your site to either a posted reading or a recommended artist talk or exhibition. Your responses should draw connections to material covered during lectures as well as your own practice. Each response should be between 300 and 500 words in length.

Other assignments

Details on the other assignments (including the final project) will be provided as their are posted on the course website.

Class Schedule

**The instructor may deviate slightly from the class schedule if more time is required for a particular topic. An up-to-date class schedule will be maintained on the class website.*

Week 1	**Introduction** Student and teacher introductions, class overview *Assignment: Data Portrait*
Week 2	**Review: Raw Data, part 1** *Reading: Delusions of Dialogue: control and choice in interactive art*
Week 3	**Review: Raw Data, part 2** *Assignment: Midterm project, due Week 7*
Week 4	**Stories and Statistics** *Reading: Artistic Data Visualization: Beyond Visual Analytics*
Week 5	**Networks and Data Mining**
Week 6	**Time and Other Intangible Things**

Week 7	*Midterm project presentations*
Week 8	**Drawing Machines** *Reading*: *What is Generative Art? Complexity Theory as a Context for Art Theory*
Week 9	**Genetic Algorithms**
Week 10	**Emergence and Complex Systems**
Week 11	*Final project: Proposals and Idea Jam*
Week 12	*Final project: Development and How to document your work*
Week 13	*Final project: Prototype presentations*
Exam period	*Final project: Critiques*

Academic Conduct

Students are expected to follow the Student Code of Academic Conduct which can be found in the calendar or on-line at the Academic Council website: http://www.ryerson.ca/calendar/2011-2012/pg2030.html

With respect to writing programs, you are expected to be creating **original work**. Borrowing bits of source code from various on-line sources is an accepted and wide-spread practice (assuming that the license allows it). However, make sure that you provide **full references** (source URLs, original author) in your program's documentation for any borrowed code snippet.

Suggested readings

On Processing
- Processing: a programming handbook for visual designers and artists / Casey Reas and Ben Fry.
- **Getting Started With Processing** / Casey Reas and Ben Fry
- **Learning Processing** / Daniel Shiffman.

On Generative Art and Data Visualization:
- **FORM+CODE in Design and Art** / Casey Reas, Chandler McWilliams and LUST
- **Visual Complexity: Mapping Patterns of Information** / Manuel Lima
- The Information Design Handbook / Jenn and Ken Visocky O'Grady
- **The Visual Display of Quantitative Information** / Edward R. Tufte
- **Visualizing Data** / Ben Fry
- **Beautiful Data** / Toby Segaran and Jeff Hamme
- **Beautiful Visualizations** / Julie Steele and Noah Iliinsky