Parsons School of Design
ART, MEDIA & TECHNOLOGY
PSAM 3274 B Digital Dev: Creative ML CRN: 15896
Fall 2023 Monday 7:00pm-9.40pm

Faculty: Sam Heckle
sam.heckle@newschool.edu
Available for consultation by appointment, book here or by email

Course Description
Creative Machine Learning is an elective 3-hr/week combination studio and technical class to offer students a basic understanding of machine learning through creative applications. The class will cover topics such as data collection/processing and machine learning algorithms, with a focus on critical engagement with enterprise, consumer, and experimental AI tools. The class will also introduce a range of current artists leveraging machine learning. By the end of the course, students will have gained an understanding of the possibilities and limitations of machine learning as a tool for creative expression, and will be equipped with the technical and creative skills needed to continue exploring this exciting and rapidly-evolving field. Previous knowledge of code will allow students to do more advanced work, and completion of at least one programming class is recommended.

Learning Outcomes

By the successful completion of this course, students will be able to:
1. Critically engage with machine learning discourse
2. Incorporate machine learning into their art practice
3. Manipulating data using Python
4. Understanding of open source vs. proprietary software

Assessable Tasks

DUE DATE	ASSIGNMENT	DETAILS
9/11	Readings, Discussion Post	Read: ● ChatGPT Blurry JPEG of the Web (15 min) ● On the Dangers of Stochastic Parrots (30 min) ● AI and Hollywood (40 min) Respond: ● Write a 3 paragraph response to the three articles. ● Ask ChatGPT to write a response to one of them. ● Respond to ChatGPT's response.
9/18	Exercise #1	Using the tools we have learned so far (variables and string manipulation), create song lyrics or poetry that tells a short story from childhood. Some useful datasets: https://www.gutenberg.org/
9/25	Readings, Discussion Post	Read: ● Age of Average (10 min) ● GPT Is Getting Worse (10 min) ● Virtual Muse Chapter *Prose* (30 min) Respond: ● Write a 2 paragraph response to the readings. ● Optional: what does ChatGPT say?

10/2	Exercise #2	Incorporating lists, create a piece of generative literature with a corpus of a favorite tv show, book, film, screenplay.
10/9	Project #1 (Midterm) Check-In	Prepare a slide deck outlining your design and process for project 3.
10/16	Project #1 (Midterm)	Using NLP, transformers, and classifications, create a piece of literature (short story, longer poem, song lyrics).
10/23	Discussion Post	Find an online tool to generate images and post your image and prompt in the discussion board.
10/30	Readings, Discussion Post	Watch: ● Hito Stereyl's talk "Mean Images" (55 min) Respond: ● Write a 3 paragraph response.
11/6	Exercise #3	Create an image using your dataset and any StyleGAN version and upload the image to the discussion board.
11/13	Exercise #4	Create an image using your dataset and any Diffusion version and upload the image to the discussion board.
11/20	Project #2 (Final) Check-In	Prepare a Miro board about your outline for the final project to be discussed in small groups.
11/27		Continue work on the final project.
12/4	Project #2 (Final) Check-In #2	Prepare a slide deck outlining your design and process for project 4 to be presented in front of class.
12/11	Project #2 (Final)	Using the tools from the class (both text and images), create a compelling story. Ideas for inspiration: ● Picturebook ● Gallery Exhibition ● Forum Post (think r/AITA, Twitter thread)

Evaluation and Final Grade Calculation

Active Participation / Attendance	15%
Discussion Posts	15%
Exercises	20%
Project 1 (Midterm)	20%
Project 2 (Final)	30%
TOTAL	100%

Course Outline

WEEK 1	8/28	Syllabus Overview & Class Expectations Lecture: Machine Learning in Art Practice, Ethics in ML Tutorial: Install Anaconda	Assignment: Readings, Discussion Post Reading: Ethics in ML Due: 9/11
WEEK 2	9/11	Reading Discussion Tutorial: Python & Text: String Manipulation **Last Day Add Drop*	Assignment: Exercise #1 Due: 9/18
WEEK 3	9/18	Exercise #1 Critique & Presentation Tutorial: Python & Text: Lists	Assignment: Readings, Discussion Post Reading: Generative Poetry & Text Due: 9/25
WEEK 4	9/25	Reading Discussion Tutorial: Python & Text: Natural Language Processing	Assignment: Exercise #2 Due: 10/2
WEEK 5	10/2	Exercise #2 Critique & Presentation Tutorial: Python & Text: Transformers	Assignment: Project #1 (Midterm) Check-In Due: 10/9
WEEK 6	10/9	Project #1 Check-In Tutorial: Python & Text: Classifications	Assignment: Project #1 (Midterm) Due: 10/16
WEEK 7	10/16	Project #1 Critique & Presentations	Assignment: Discussion Post Due: 10/23
WEEK 8	10/23	Lecture: Intro to Pixels & History of Image Gen Tutorial: Image Gen: Intro to Colab & Prompting, Online	Assignment: Readings, Discussion Post Reading: Machine Learning and Images Due: 10/30
WEEK 9	10/30	Reading Discussion Lecture: What Are GANs? Tutorial: Image Gen: StyleGAN	Assignment: Exercise #3 Due: 11/6
WEEK 10	11/6	Review Discussion Lecture: Diffusions! Tutorial: Image Gen: Stable and Disco Diffusion	Assignment: Exercise #4 Due: 11/13
WEEK 11	11/13	Review Discussion Lecture: Using Images to Create Images Tutorial: Image Gen: pix2pix, img2img	Assignment: Project #2 (Final) Check-In Due: 11/20
WEEK 12	11/20	Project #2 Check-In #1 Lecture: Guest Speaker **Thanksgiving Week*	Assignment: Project #2 (Final) Check-In #2 Due: 12/4
WEEK 13	11/27	Lecture: Combining Text and Images Tutorial: Image Gen: Using Images to Generate Text	Assignment: Project #2 (Final) Check-In #2 Due: 12/4
WEEK 14	12/4	Project #2 Check-In #2 Lecture: Review & Intro to Generated Music & Video Tutorial: Other Useful Online Tools **Course Evaluations*	Assignment: Project #2 (Final) Due: 12/11
WEEK 15	12/11	Project #2 Critique & Presentations **Last Class*	

Course Readings, Materials, and Technology Requirements
Readings
The required style guide for all Parsons classes is the Chicago Manual of Style ([online manual](#)).

Chiang, Ted. "ChatGPT Is a Blurry JPEG of the Web." *New Yorker*, Feb 9, 2023. https://www.newyorker.com/tech/annals-of-technology/chatgpt-is-a-blurry-jpeg-of-the-web.

Bender, Emily M., Timnit Gebru, Angelina McMillan-Major, and Shmargaret Shmitchell. "On the Dangers of Stochastic Parrots." *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*, 2021. https://doi.org/10.1145/3442188.3445922.

Murrell, Alex. "Age Of Average." Web log. *Alex Murrell* (blog), March 20, 2023. https://www.alexmurrell.co.uk/articles/the-age-of-average.

Sanders, Sam. "Hollywood's AI Future Is Now." Vulture, August 8, 2023. https://www.vulture.com/2023/08/the-hollywood-strikes-bring-ai-front-and-center.html.

Lantz, Frank. "GPT Is Getting Worse." Web log. *Donkey Space* (blog), April 7, 2023. https://franklantz.substack.com/p/gpt-is-getting-worse.

Hartman, Charles O. "Prose." Essay. In *Virtual Muse: Experiments in Computer Poetry*, 73–87. Wesleyan/Univerisyt Press of New England, 1996.

Stereyl, Hito. "Mean Images." *AI + The Lens*. Lecture, n.d. https://youtu.be/LYF891n223w?si=z2oLAo2cr3vuLDxn&t=716.

Materials and Supplies
List of required tools:
1) Access to a working computer, ideally a laptop to bring to class. Many classes will have follow along tutorials.

2) Anaconda – enclosed environment for local Python development
https://www.anaconda.com/download
- Free and open source

3) Google Colab – online environment using a virtual machine for Python development
https://colab.research.google.com/
- This is a tool that will be used during the second half of the semester. This is a completely free tool, but it can cost a max of $30 if you would like to use it for all the image generation components. We will go over the benefits of this during the second half.

Sensitive Topics
Throughout this course we will be talking about effective art critique that is related to student work. Depending on the provided works, each student will need to provide content warnings for the class.

Resources
The university provides many resources to help students achieve academic and artistic excellence. These resources include:

- **The University (and associated) Libraries**
  The New School Libraries provide access to a vast array of print and electronic resources as well as personal research consultations, classroom instruction, and spaces for study and collaboration.
- **Archives & Special Collections** and **Digital Collections**
  The New School Archives and Special Collections holds a wide array of collections in many different formats that may be useful in your academic, artistic, and personal projects, including paper and digital records, audiovisual material, artist's books, zines, and records related to the histories of all divisions of the University. Archivists are available to help with your research and to offer guidance for locating resources specific to your topic. Contact archivist@newschool.edu to get started.
- **The University Learning Center**
  For assistance with coursework during the semester, I encourage you to schedule free tutoring sessions at the University Learning Center (ULC). Individual appointments in Writing, Software, Computer Programming, Oral Presentations, Math, Time Management and ADHD Coaching are available from 7am-midnight Monday-Friday and 12-5pm on Saturdays. Online appointments are scheduled via WCONLINE and in person sessions or last minute virtual walk-ins can be requested by emailing learningcenter@newschool.edu. In person sessions are held at 66 W. 12th St. on the 6th floor. The ULC also offers weekly and biweekly sessions. For a complete list of services and general information, please visit the ULEC webpage.
- **Student Disabilities Services**
  If you are a student with a disability/disabled student, or believe you might have a disability that requires accommodations, please head to the SDS website, and complete the Self ID form. Then, head to Starfish and find a time to meet with Nick Faranda, at a time of mutual convenience. If you have any questions or concerns, please contact the Student Disability Services (SDS) at studentdisability@newschool.edu, or 212-229-5626.

  Accommodations for assignments in this course require official SDS documentation, so please ensure I receive that information. If you have not contacted SDS yet, please follow the outlined procedure; or if you are unsure if you are eligible for accommodation, let me know, and I can refer you to SDS to set up a meeting to find out.
- **Making Center**
  The Making Center is a constellation of shops, labs, and open workspaces that are situated across the New School to help students express their ideas in a variety of materials and methods. We have resources to help support woodworking, metalworking, ceramics and pottery work, photography and film, textiles, printmaking, 3D printing, manual and CNC machining, and more. A staff of technicians and student workers provide expertise and maintain the different shops and labs. Safety is a primary concern, so each area has policies for access, training, and etiquette with which students and faculty should be familiar. Many areas require specific orientations or trainings before access is granted.
- **The New School Food Assistance** includes food assistance and additional resources for New School students.
- **Health and Wellness** includes additional services and support available to New School students.

Grading Standards

Undergraduate

Letter Grade	Grade Points (on a 4.0 scale)	Description
A	4.0	Work of exceptional quality, which often goes beyond the stated goals of the course (95-100%)
A-	3.7	Work of very high quality (90% - <95%)
B+	3.3	Work of high quality that indicates higher than average abilities (87% - <90%)
B	3.0	Very good work that satisfies the goals of the course (83% - <87%)
B-	2.7	Good work (80% - <83%)
C+	2.3	Above-average work (77% - <80%)
C	2.0	Average work that indicates an understanding of the course material; passable (73% - <77%); *Satisfactory completion of a course is considered to be a grade of C or higher.*
C-	1.7	Passing work but below good academic standing (70% - <73%)
D	1.0	Below-average work that indicates a student does not fully understand the assignments (60% - <70%); Probation level though passing for credit
F	0.0	Failure, no credit (0% - <60%)

Grade of W

The grade of W will be issued by the Office of the Registrar to a student who officially withdraws from a course within the applicable deadline. There is no academic penalty, but the grade will appear on the student transcript.

Grades of Incomplete

The grade of I, or temporary incomplete, may be granted to a student under unusual and extenuating circumstances, such as when the student's academic life is interrupted by a medical or personal emergency. This mark is not given automatically but only upon the student's request and at the discretion of the instructor. A grade of incomplete can be temporarily granted at the discretion of the instructor upon request from the student. The time allowed for completion of the work and removal of the "I" mark will be set by the instructor with the following limitations:

Undergraduate students: Work must be completed no later than the seventh week of the following fall semester for spring or summer term incompletes and no later than the seventh week of the following spring semester for fall term incompletes. Grades of "I" not revised in the prescribed time will automatically convert into a grade of "F" by the Registrar's Office.

Missing Grade
If a grade is not submitted to the Registrar's Office by the appropriate deadline, a grade of "GM" (Missing Grade) will be recorded on the student's record. GMs convert to F's (for undergraduate students) and N's (for graduate students) if not resolved by the instructor by the dates designated by the Registrar's Office at the end of the term.

College, School, Program and Class Policies
A comprehensive overview of policy may be found under **Policies: A to Z**. Students are also encouraged to consult the **Academic Catalog**.

Canvas
Use of Canvas may be an important resource for this class. Students should check it for announcements before coming to class each week.

Electronic Devices
The use of electronic devices (phones, tablets, laptops, cameras, etc.) is permitted when the device is being used in relation to the course's work. All other uses are prohibited in the classroom and devices should be turned off before class starts.

Responsibility
Students are responsible for all assignments, even if they are absent. Late assignments, failure to complete the assignments for class discussion and/or critique, and lack of preparedness for in-class discussions, presentations and/or critiques will significantly impact successful completion of this course.

Meaningful Participation and Attendance
Class participation is an essential part of class and includes: keeping up with reading, assignments, projects, contributing meaningfully to class discussions, active participation in group work, and attending sessions regularly and on time.

Parsons' attendance guidelines were developed to encourage students' success in all aspects of their academic programs. Full participation is essential to the successful completion of coursework and enhances the quality of the educational experience for all, particularly in courses where group work is integral. Thus, Parsons promotes high levels of attendance. Students are expected to attend classes regularly and promptly and in compliance with the standards stated in this course syllabus.

While attendance is just one aspect of meaningful participation, absence from a significant portion of class time may prevent the successful attainment of course objectives. A significant portion of class time is generally defined as the equivalent of three weeks, or 20%, of class time. Lateness or early departure from class may be recorded as one full absence. Students may be asked to withdraw from a course if habitual absence or tardiness has a negative impact on the class environment.

I will assess each student's performance according to all of the assessment criteria specified in this syllabus in determining your final grade. Two tardies will count as an absence, and two absences will result in a 10% drop of your grade. If you miss more than 4 classes, I will have to reach out to your advisor about potentially dropping the class.

Recording Synchronous Sessions
Technical tutorials will be recorded and posted online in Canvas after the class is complete. If you have issues or are concerned about recording, please let me know.

If you are sick and unable to attend class, please stay home. If you would like to attend virtually, let me know no later than 24-hours in advance. You cannot email me the day of class for a zoom link.

Academic Honesty and Integrity
Compromising your academic integrity may lead to serious consequences, including (but not limited to) one or more of the following: failure of the assignment, failure of the course, academic warning, disciplinary probation, suspension from the university, or dismissal from the university.

Students are responsible for understanding the University's policy on academic honesty and integrity and must make use of proper citations of sources for writing papers, creating, presenting, and performing their work, taking examinations, and doing research. It is the responsibility of students to learn the procedures specific to their discipline for correctly and appropriately differentiating their own work from that of others. The full text of the policy, including adjudication procedures, is found on the university website under **Policies: A to Z**. Resources regarding what plagiarism is and how to avoid it can be found on the **Learning Center's website**.

The New School views "academic honesty and integrity" as the duty of every member of an academic community to claim authorship for his or her own work and only for that work, and to recognize the contributions of others accurately and completely. This obligation is fundamental to the integrity of intellectual debate, and creative and academic pursuits. Academic honesty and integrity includes accurate use of quotations, as well as appropriate and explicit citation of sources in instances of paraphrasing and describing ideas, or reporting on research findings or any aspect of the work of others (including that of faculty members and other students). Academic dishonesty results from infractions of this "accurate use". The standards of academic honesty and integrity, and citation of sources, apply to all forms of academic work, including submissions of drafts of final papers or projects. All members of the University community are expected to conduct themselves in accord with the standards of academic honesty and integrity.

Intellectual Property Rights
The New School (the "university") seeks to encourage creativity and invention among its faculty members and students. In doing so, the University affirms its traditional commitment to the personal ownership by its faculty members and students of Intellectual Property Rights in works they create. The complete policy governing Intellectual Property Rights may be seen on the **university website, under University Policies A - Z.**

Student Course Ratings (Course Evaluations)
During the last two weeks of the semester, students are asked to provide feedback for each of their courses through an online survey. They cannot view grades until providing feedback or officially declining to do so. Course evaluations are a vital space where students can speak about the learning experience. It is an important process which provides valuable data about the successful delivery and support of a

course or topic to both the faculty and administrators. Instructors rely on course rating surveys for feedback on the course and teaching methods, so they can understand what aspects of the class are most successful in teaching students, and what aspects might be improved or changed in future. Without this information, it can be difficult for an instructor to reflect upon and improve teaching methods and course design. In addition, program/department chairs and other administrators review course surveys. Instructions are available online **here.**