Critical Data Studies: A Practicum

Course Overview

This course interrogates data as a cultural and political artifact rather than a neutral scientific commodity. We read classical texts—ranging from Euclid's *Elements* to Derrida's deconstruction—and modern critical works such as Wendy Hui Kyong Chun's *Discriminating Data*, Ruha Benjamin's *Race After Technology*, and indigenous records like the Inca khipus. Alongside these texts, students acquire front-end development skills (HTML, CSS, SVG, and JavaScript) to create interactive data projects that question and reframe the biases embedded in our digital infrastructures.

Learning Outcomes

- **Critical & Deconstructive Reading:**
  - Analyze foundational texts (e.g., Euclid's *Elements*) as cultural artifacts.
  - Apply Derridean and other critical theories to reveal hidden assumptions in data systems.
- **Technical Proficiency & Data Visualization:**
  - Develop and refine front-end skills (HTML/CSS/SVG/JS) to craft interactive data visualizations.
  - Create projects that critique and reimagine data through a socio-political lens.
- **Cross-Cultural Epistemologies:**
  - Compare Western data paradigms with indigenous and alternative systems (e.g., khipus).
  - Reflect on how diverse knowledge traditions challenge mainstream definitions of "data."
- **Ethics & Social Good:**
  - Integrate data justice frameworks into project work.
  - Design projects that address real-world inequities through informed technical practice.

Weekly Schedule

Week 1 – Introduction: Foundations of Critical Data

- **Topics:**
  - Overview of course themes and objectives.
  - Reading data as a cultural text: positioning Euclid's *Elements* as a foundational document.
  - Introduction to core theories (Derrida, Chun, Benjamin) and indigenous data practices.
- **Readings:**

    - Selected passages from Euclid's *Elements* (Book I).
    - Brief introductory essay on critical approaches (e.g., an excerpt from e-flux).
- **Lab:**
    - Setting up a personal project site using HTML/CSS.
    - Installation of essential tools (code editor, local dev environment).
- **Discussion:**
    - How can geometry be read as a rhetorical and political text?

Week 2 – Reimagining Foundations: Euclid & Derrida

- **Topics:**
    - Deep dive into Euclid's structure and its underlying assumptions.
    - Introduction to Derrida's deconstruction: trace, supplement, and difference.
- **Readings:**
    - Excerpts from Derrida's *Of Grammatology* or *Archive Fever*.
    - Commentaries linking Euclidean axioms to historical power dynamics.
- **Lab:**
    - SVG basics: constructing and animating geometric proofs.
- **Discussion:**
    - How do axioms function as both logical statements and ideological constructs?

Week 3 – Modern Critiques: Discriminating Data

- **Topics:**
    - Analysis of Chun's *Discriminating Data* and its examination of algorithmic bias.
    - Parallels between classical logic and modern data discrimination.
- **Readings:**
    - Selected chapters from *Discriminating Data*.
    - Optional short commentary on data-driven inequities.
- **Lab:**
    - JavaScript fundamentals for data manipulation; creating interactive scatter plots with SVG.
- **Discussion:**
    - In what ways do modern algorithms universalize specific worldviews?

Week 4 – Digital Aesthetics: Hito Steyerl & the Poor Image

- **Topics:**
    - Exploring Steyerl's critique of digital media quality and distribution.
    - Visual culture's role in challenging notions of data "purity."
- **Readings:**
    - *In Defense of the Poor Image* (e-flux journal).
    - A revisit to Euclidean ideals in the context of digital imperfections.
- **Lab:**
    - JS animation techniques (using requestAnimationFrame or p5.js) to simulate digital degradation.

    - Initiation of midterm project ideation.
- **Discussion:**
    - Can the aesthetics of low resolution become a form of resistance?

Week 5 – Indigenous Epistemologies: Data Beyond Text

- **Topics:**
    - Examination of Inca khipus as non-Western data systems.
    - Rethinking "proof" and "logic" through indigenous lenses.
- **Readings:**
    - Scholarship on khipus (e.g., Gary Urton) and a brief piece on indigenous data sovereignty.
- **Lab:**
    - Experimental SVG representations mimicking khipu systems.
    - CSS transitions to visualize the tying and untying of data "knots."
- **Discussion:**
    - How do indigenous data practices challenge conventional data paradigms?

Week 6 – Data Justice: Ruha Benjamin & Beyond

- **Topics:**
    - Ruha Benjamin's analysis of technological bias and "the new Jim Code."
    - Bridging data critique with social justice.
- **Readings:**
    - Selected chapters from *Race After Technology*.
    - Supplementary articles on data activism.
- **Lab:**
    - Data cleaning and visualization exercises (JS or Python), transforming raw CSV data into interactive charts.
    - Finalizing midterm project proposals.
- **Discussion:**
    - Where does the promise of "neutral" data break down in the face of social inequality?

Week 7 – Midterm Project Presentations

- **Activities:**
    - Student presentations of prototypes that integrate theoretical readings with technical demos.
    - Structured peer review with targeted feedback.
- **Discussion:**
    - Reflect on the integration of design, code, and critical theory.

Week 8 – Deconstructing Front-End: Aesthetic & Interface

- **Topics:**

    - How CSS and front-end design can serve as “supplements” to reveal hidden narratives.
    - Advanced UI/UX techniques in service of critical data visualization.
- **Readings:**
    - Additional Derrida excerpts on the concept of the “supplement.”
    - Optional e-flux essay on software aesthetics.
- **Lab:**
    - Advanced CSS animations (keyframes, transitions) and refined UI design.
- **Discussion:**
    - In what ways does the visual presentation alter the interpretation of data?

Weeks 9–14: Synthesis, Refinement, & Final Projects

- **Weeks 9-10:**
    - **Big Data vs. Intimate Data:** Exploration of scaling data from personal narratives to global datasets; further integration of artistic interventions.
    - **Final Project Workshop:** Group sessions to refine projects, incorporating ethical reviews and iterative feedback.
- **Week 11:**
    - **Advanced Indigenous Data & Ethical Considerations:** Deep dive into indigenous data sovereignty and CARE principles.
    - **Lab:** Prototyping projects using alternative data models.
- **Week 12:**
    - **Social Good in Practice:** Connecting project work to real-world data activism; student-led breakout sessions.
- **Week 13:**
    - **Final Debugging & Rehearsal:** Dedicated lab sessions for peer testing, debugging, and presentation coaching.
- **Week 14:**
    - **Final Presentations & Course Reflection:** Public project showcases and reflective discussions on theory, practice, and future pathways in critical data studies.

Assignments & Grading

- **Participation & Reading Responses (20%):**
    - Weekly reflective posts (approx. 300 words) engaging with readings and lab experiences.
- **Labs & Technical Exercises (25%):**
    - Completion of weekly technical assignments demonstrating iterative mastery.
- **Midterm Project (20%):**
    - Prototype integrating at least one theoretical lens with a basic interactive element.
    - 5–8 minute presentation accompanied by a short reflective essay.
- **Final Project (30%):**

    - A comprehensive interactive web-based project that weaves together:
        - A foundational text critique (e.g., Euclid or a similar text),
        - A major theoretical perspective (Derrida, Chun, Benjamin, or indigenous epistemologies),
        - Advanced front-end visualizations (CSS/SVG/JS animations),
        - An ethical dimension addressing social inequities.
    - 10-minute presentation and a 3–5 page reflective paper.
- **Peer Critiques & Workshops (5%):**
    - Constructive feedback provided during structured peer-review sessions.

Key Texts & Resources

- **Theoretical Readings:**
    - *Euclid: Elements* (selected passages), Derrida's *Of Grammatology* or *Archive Fever*, Chun's *Discriminating Data*, Benjamin's *Race After Technology*, and additional critical essays from e-flux.
- **Indigenous & Alternative Data:**
    - Scholarship on khipus (e.g., Gary Urton) and materials on indigenous data sovereignty (including CARE Principles).
- **Technical Resources:**
    - MDN Web Docs for HTML/CSS/JS, SVG tutorials, and p5.js guides.

Concluding Vision

By treating classical texts and indigenous data practices as "texts" in themselves, this course encourages students to question the neutrality of data. Merging rigorous theoretical critique with hands-on technical creation, students will leave with a nuanced understanding of data as both a tool and a cultural artifact. They will be equipped not only to craft technically sound visualizations but also to challenge the hegemonies embedded in our digital world—preparing them for careers that blend analytical rigor with creative, socially engaged inquiry.