ARCH 4050 // ARCH 6050 // Robots, Cyborgs, and Architecture

SPRING 2019

SoA / UNCC
Instructor: Rachel Dickey
Thursday 2:00pm-4:45pm
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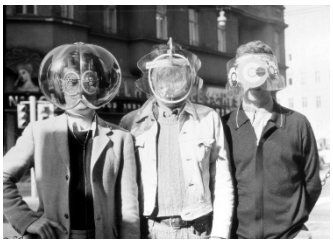
A 

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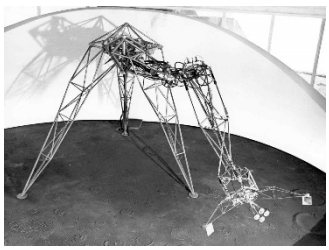
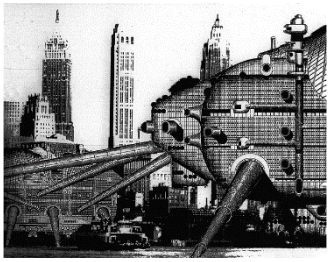
E 

F 

A. Haus Rucker Co, Environmental Transformer, 1968
B. Coop Himmelb(l)au, Heart Space-Astro Balloon, 1969
C. Diller Scofidio + Renfro, Blur: Braincoat, 2002
D. R&Sie(n) and François Roche, Olzweg, 2006
E. Edward Ihnatowicz, Senster, 1960
F. Archigram, Walking City, 1964

PREMISE. As our bodies, buildings, and cities are being retrofitted with technology to gain dynamic intelligence and contextual awareness, how might we, as designers, provide visions of new spatial typologies and new modes of practice? The purpose of this course is to explore the space between architecture and technological paradigms specifically through the lens of the robot and the cyborg. It examines way in which technology can generate novel forms of architectural experience, while also examining the role architectural thinking plays in advancing technological fields.

In the 1921 play, R.U.R (Rossum's Universal Robots), by Karel Capek, the word robot was first introduced to the public. On July 2, 1924, the British newspaper, *The Evening Standard*, quotes Capek describing his initial ideas for the play and the term:

> Robots were a result of my traveling by tram. One day I had to go to Prague by a suburban tram and it was uncomfortably full. I was astonished with how modern conditions made people unobservant of the common comforts of life. They were stuffed inside as well on as on stairs, not as sheep but as machines. I started to think about humans not as individuals but as machines and on my way home I was thinking about an expression that would refer to humans capable of work but not of thinking. This idea is expressed by a Czech word, robot. (Horakova 285)

With the advent of this play and the coining of word, the robot emerges from several overlapping dichotomies: man vs. machine, organic vs. mechanical, object vs. subject, myth vs. reality, freedom vs. restraint. The robot's birth was a homogenous response to these debates. The cyborg is also a figure born from these dichotomies; however, it emerged not homogenously, but as a hybrid. Thus, the robot and the cyborg are not contrasting figures but are one in the same, one more machine and the other more man. This course further examines this robot cyborg paradigm in relation to architecture and asks, what opportunistic approaches to design research might arise from the study of the narratives, histories, and productions associated with the robot and the cyborg? How might the man vs. machine and myth vs. reality dichotomies inform the design and production of our devices and our environments?

OBJECTIVES. This course both recognizes and critiques the fact that the current majority of architectural robotic research focuses primarily around digital fabrication and material optimization and strives to produce examples of architectural robotics translated from human generated data to form and processes, particularly as it pertains to human experience and interaction with architectural artifacts. The primary objective is to explore how computation and technology might provide us with new found intimacies with ourselves, each other, and the world around us. Another objective is for students to become better informed users and makers of digital tools, while also gaining a theoretical understanding of their context. As part of the course, students will acquire some hands on experience with robotics, programming, and interaction design.

METHOD. We will draw on a library of historical and contemporary precedents ranging from automated material manipulation to architectural prosthetics. This polemic history will inform small assignments which lead up to a design project of a qualitative instrument. The projects will look at gesture and expressions as a way to explore subjectivity and unquantifiable aspects of design and architecture. Keywords of investigation will include: caress, whisper, murmur, gaze, glance, blush, etc. Students will work in groups of two or three to design, build, and test their devices. These tools maybe standalone or may be supplemental to the SoA's robotic arm. Small machines will be prototyped using Arduino, a programmable micro-controller. Students will have access to this equipment through the SoA Fab Lab. It is expected that students will learn and engage the full use of available equipment to produce their projects.

FORMAT. Each class session will consist of theoretical and technical lectures and/or reading discussions and presentations from students.

PREREQUISITES. While it is not necessary to have prior technical expertise for this course, a patience for experimentation and interest in technical systems is necessary. Exposure to scripting is a plus.

EVALUATION will be based on presentations, preparation for in class discussions, and projects.

READINGS will either be provided via pdf format or are on reserve in the library. *RoboLog* Winter 2016 Issue 36 edited by Cynthia Davidson is the only required book for purchase available at the campus bookstore and on amazon.