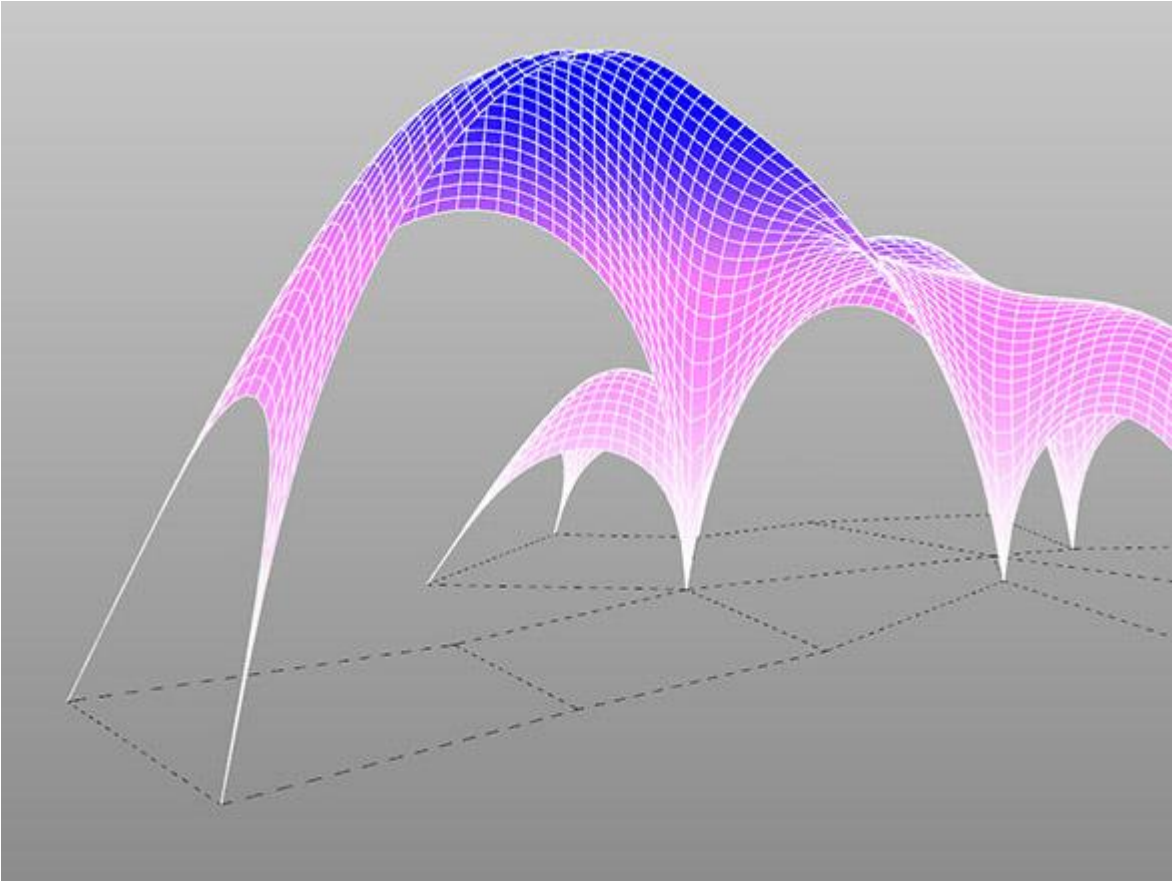# DESIGN MACHINE

CourseNo: ARCHA4753_001_2015_1
Meeting Time: T 07:00P-09:00P **Meeting Location:** BUELL HALL 200

Instructor Information:
Joshua William Hugo Draper

Design Machine explores light and time through the medium of fabric-formed concrete.

SIMULATION:

Connecting solar angles through sun simulations in [DIVA](#) to [Kangaroo](#) funicular simulations, students will develop a rigorous digital workflow, designing a wall-as-sundial of fabric formed CMUs - an astronomical piece of art/architecture that measures time through precise siting and incorporated geometries.

VISUALIZATION:

Working with shadow/light studies both as renderings and timelapse animations we explore Time as Ornament, striving for precision and visual power. The design that is voted most provocative and precise wins and becomes realized.

FABRICATION:

The material challenge will lie in the face off between the self-organizing behaivors of concrete and fabric and the supposed sureties of its simulation. A digitally fabricated formwork, the *Design Machine*, becomes the negotiator, incorporating hard-earned material logics with the precision of astronomical measurements. We will make a series of castings in concrete in fabric forms. Building on 3 previous semesters of research in fabric formwork simulation we will continue to correlate material performance to simulation, placing them on equal footing and mindful of material's tendency to outstrip computation and computation's ability to organize material.

The *Design Machine* embodies the indespensible linkages of material to its simulation and visualization. By deeply designing the fabrication process, we enlarge the possible for design itself.

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Design Machine is an advanced fabrication class. While no prerequisites are required, it is recommended for students with skills in Grasshopper, CNC milling and making. Students will work in groups and then together as a class. While some class materials will be provided, students will purchase their own materials. This class is Session A only.

Previous class work can be seen on:

Alliance Research - allianceresearch.net

Formworks Spring 2013 - http://formworksspr13.blogspot.com/