

# ARCH 573

## Performance + Computation (AI Studio)

Technology & Performance

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### c:\ Statement\_

Computation for architecture is no longer used for 2/3D modeling and/or rendering. The recent development of building simulations is now part of the design generation process. As architects develop a design, simulation tools can constantly give feedback for decision-making. It is common practice that computation helps architects evaluate the design and support the design process.

Recently, the use of machine learning and artificial intelligence (AI) is emerging in other artistic fields and professions such as illustration. AI is not only used to represent design but also as a generative tool for visual art. Open AI tools like Giga Manga, DALL×E, and Midjourney make it possible to generate images without skillful experts. Users can simply type a text that describes the scene or desired characteristics, and the computer generates images that match the description.

These new tools are shaking not only the visual art area but could also impact the future of architecture and architects. **The once architect's undeniably domain of creativity no longer belongs to the architect. Would we as architects even remain as creators of the design?**

This studio is a **research studio** that seeks to speculate on the future use of **AI as design generators** and what the role of architects could be.

### c:\ Studio process\_

1. research on AI image generation
2. research on AI in other fields
3. define performance objective
4. use AI as tool to measure performance
5. simulate performance / optimization
6. evaluate and selection of designs

### c:\ Studio constraints\_

1. Willingness to do different design approach
2. Quality of outcome depends on skills of computation. - understanding of tools such as grasshopper, blender, google Colab, python, etc.
3. Team project of two or three
4. Focused on design methodology not buildability

### c:\ Q&A\_

1. **Do I need to know how to use grasshopper?** If you know you will have more potential for exploration. But studio will cover basics of grasshopper and other computational tools. If you like to take this studio, recommend learning tools during break.
2. **Is the studio team project?** Yes, you will choose your team member, the grading will not consider how the team is organized.
3. **Do we have to develop floor plans, site plan, or other technical drawings?** The studio is to do research not to do design, the studio will focus on how to use computation to generate design not solving technical design problems. If you are more interest on practical or technical design, I will not recommend taking this studio.