

## **ARCH 702 Robotic Engagement Robotic Additive Manufacturing**

Th 8:30-11:30 Winter 2021

MS Studio or FABLab

Wes Mcgee, Rm 1248A

Office Hours, W 1-3, online by appointment

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The MS Robotic Engagement seminar provides an opportunity for students to explore cutting edge computational techniques and fabrication technologies in a seminar/supervised lab format. Projects will build upon the basic skills introduced in the practicum semester, with the intention of developing an advanced understanding of robotic and material fabrication skills which will feed into projects during the capstone semester.

For the Winter 2021 semester, this course will work in combination with the Material Engagement seminar to explore large scale additive manufacturing processes related to concrete formwork production. By utilizing large scale 3D printing, concrete formwork can be tailored to minimize material usage and while expanding the possibilities for complex geometric forms. The course will introduce the use of the offline programming software *SuperMatterTools* to develop integrated design to fabrication workflows in Rhino and Grasshopper. In particular, the course will utilize computational design approaches to explore novel toolpathing strategies which leverage the unique capabilities of robotic FDM printing.

This course will be taught in a hybrid format, with virtual/in-person software tutorials and in-person Lab demonstrations throughout the semester. The overall goal of the course will be to develop highly refined, full scale prototypes.

