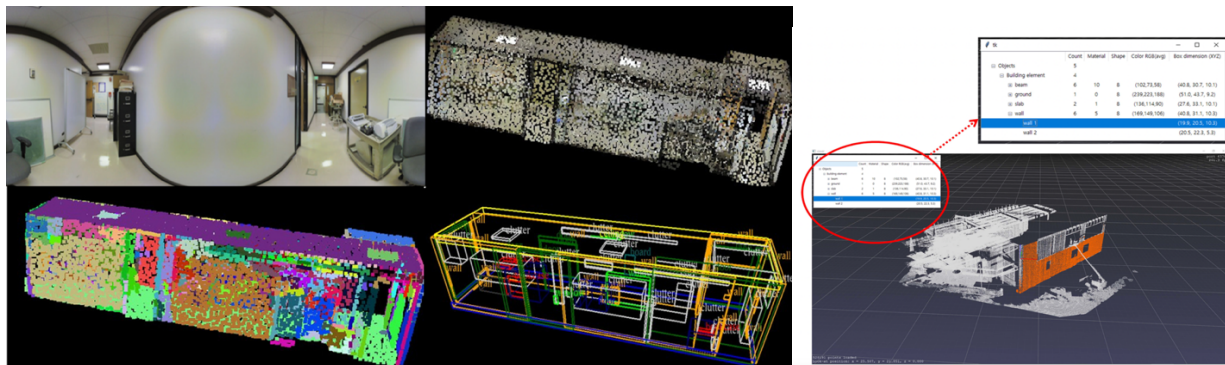# Workshop on Deep Learning Tools for Understanding and Modeling the Built Environment
i3ce 2024
Sunday, July 28, 1 - 4pm

The past few years have seen giant leaps in machine learning, deep learning, and generative AI tools pioneered by the AI community. These tools have tremendous potential to accelerate and automate current workflows in the architecture, engineering, and construction industry related to processing spatial information in scans of the built environment. The main objective of this workshop is to provide a high-level introduction to these deep learning tools along with their applications in diverse areas such as building lifecycle management, construction monitoring, energy modeling, maintenance and renovation.
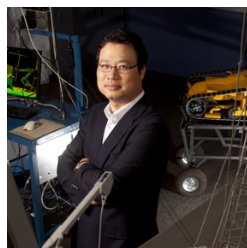
In this workshop, the participants will experience a hands-on tutorial on using open-source software tools to extract semantic information and model objects in 3D point clouds. The participants will use provided functions in CloudCompare, Python, Open3D, and PyTorch to implement tasks such as floorplan reconstruction, parametric modeling of building elements, and semantic modeling. The tutorial will provide step-by-step demos on how to implement various point clouds processing algorithms such as classification, segmentation and clustering. The workshop will end with an open-ended discussion on recent trends, application areas and future directions for this research area.
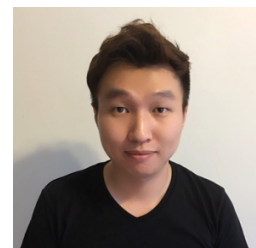

Organizers

| Jingdao Chen | Yong Cho | Seongyong Kim | Jisoo Park |
| *Mississippi State* | *Georgia Tech* | *Georgia Tech* | *Indiana State* |