

# SCAN3D

## Overview

The growth of the 3D laser-scanning and modelling industry in the last 20 years has led to the need for different strategies to analyse, create and process 3D models. The Zamani Project ([www.zamaniproject.org](http://www.zamaniproject.org)) requires a tool for the creation of layouts/diagrams of sections, elevations, top views and ground plans and other generic views from 3D laser-scan heritage sites. The two projects shown here tackle feature line extraction and 3D slicing for the models.

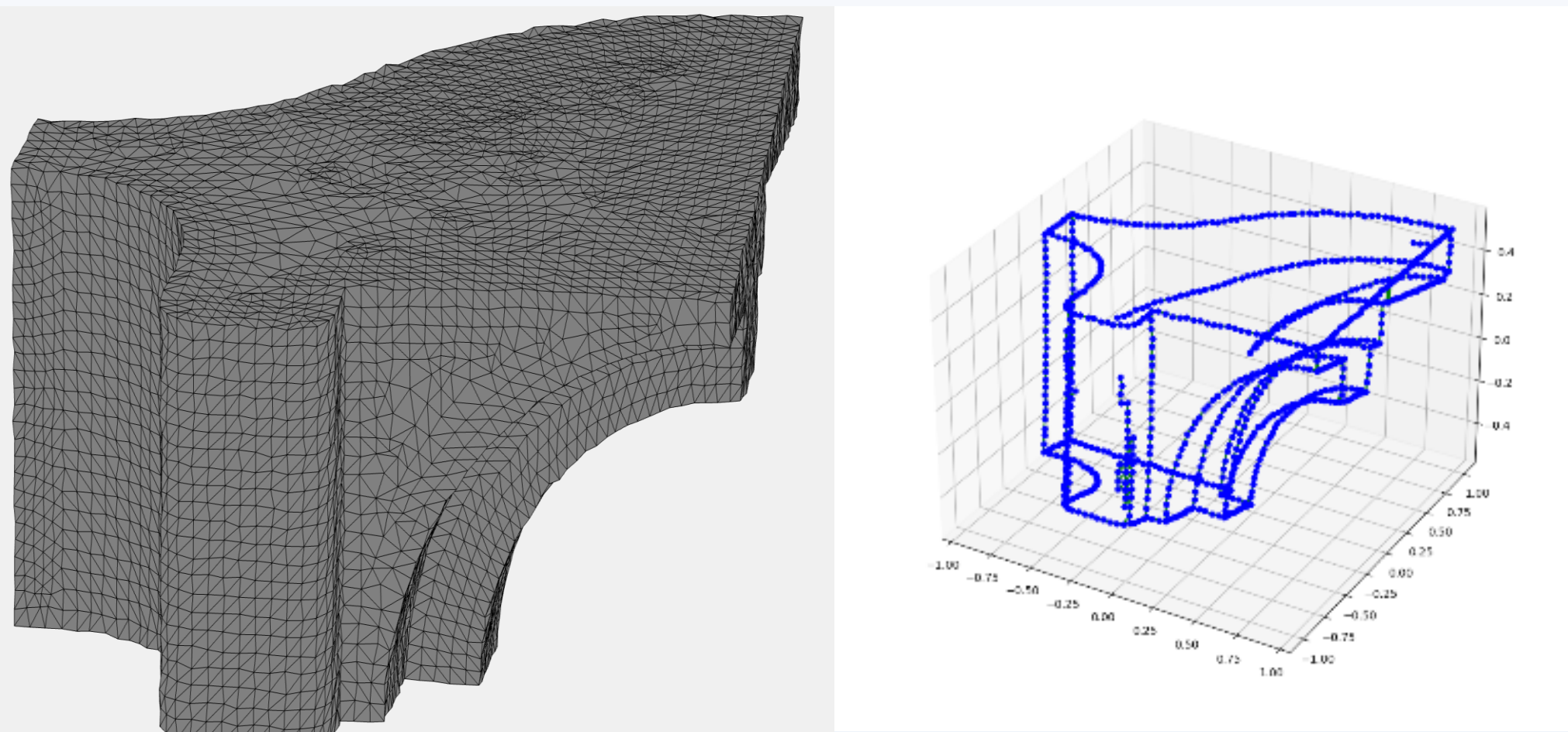


## Feature Line Extraction

### Objectives:

- Produce a tool to extract feature lines from 3D meshes in which the structure of the model can be perceived.
- The tool should be robust to noise and rough surfaces and should allow the user to control the feature lines produced.
- The user should have control on the feature lines extracted.

### Output Sample



### Conclusion

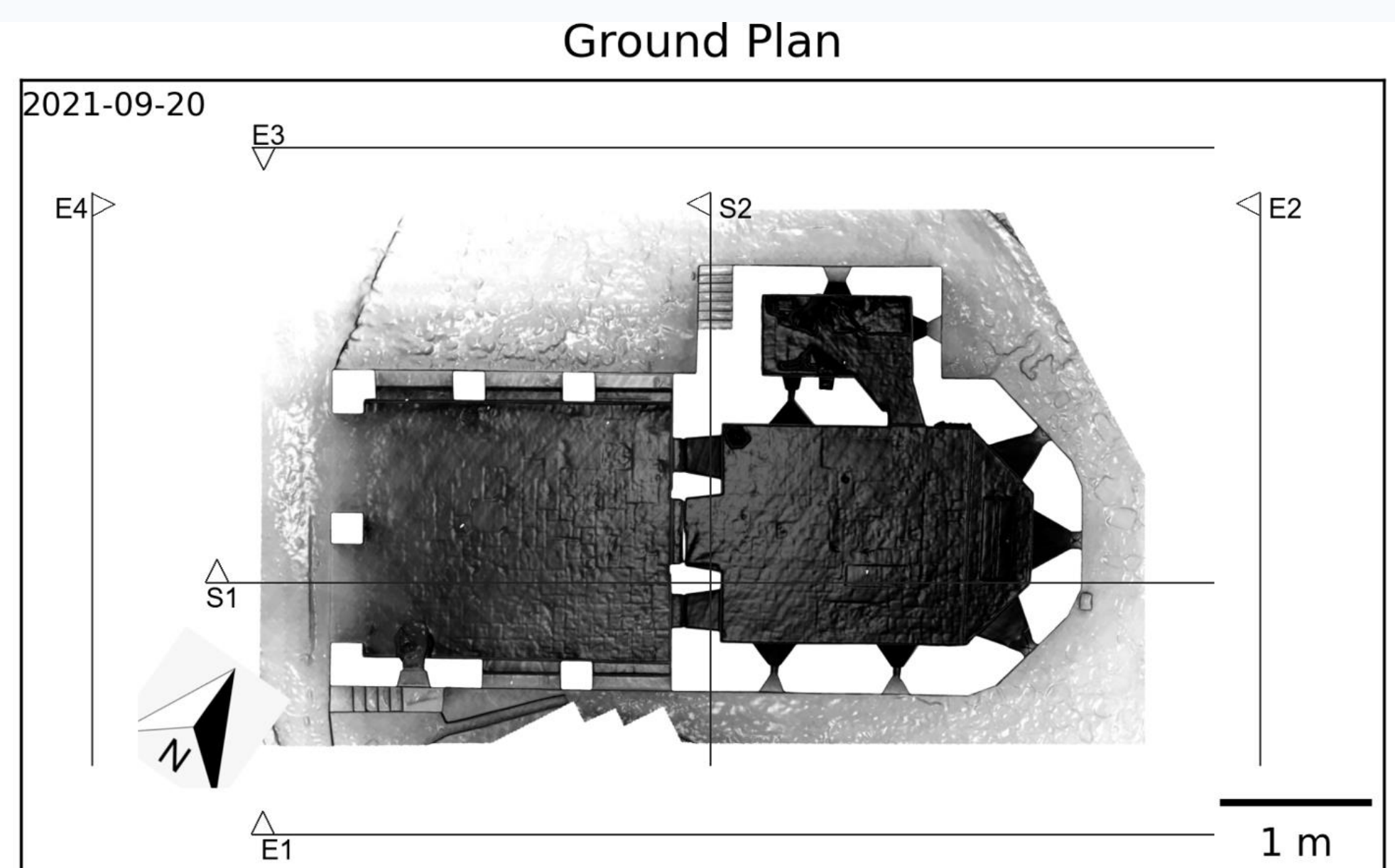
- The tensor voting algorithm was implemented and tested.
- Feature lines as shown above were generated in which the shape of the model could be perceived.
- The algorithm proved to be robust and accurate on various models.

## 3D Slicing

### Objectives:

- Produce a tool/system that has a semi-autonomous way of producing these kind of 2D images from very detailed 3D meshes which have millions of faces which in a reasonable amount of time.
- The tool should be able to take 3D models and produce its output as 2D images.
- Additionally, it should include the produced images to have scale bar or grid, legend, date, a North arrow (if the information is provided) and a label/description.

### Output Sample



### Conclusions

- The tool utilises clipping planes to generate the images which work better than traditional slicing methods.
- The more detailed the model, the better the images produced.

