

# Applied Science Project

## CT612058

Robotic Survey and  
Mapping of Mines

# Task 6 – System Readiness Test

## April 5, 2007

Perform a comprehensive test to verify the readiness of the robot and software at the NIOSH mine prior to the final demonstration project

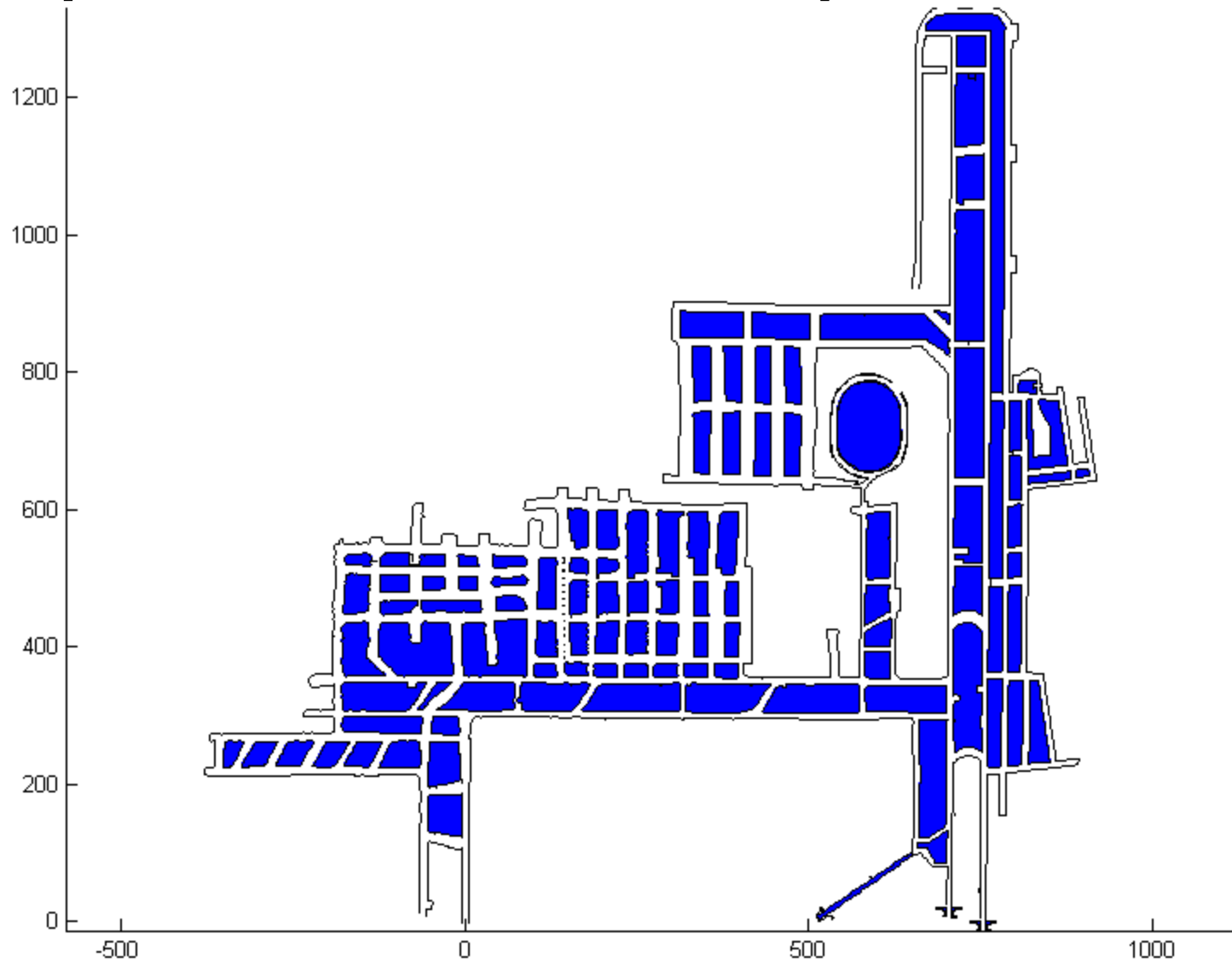
# Test Plan Schedule

- Existing Mine Map
- Robot Overview
- Topographic Autonomy
- Photograph and Laser Scan
- Survey Locked Model
- Radar Curtain Test
- Radar Data Loop
- Data Review

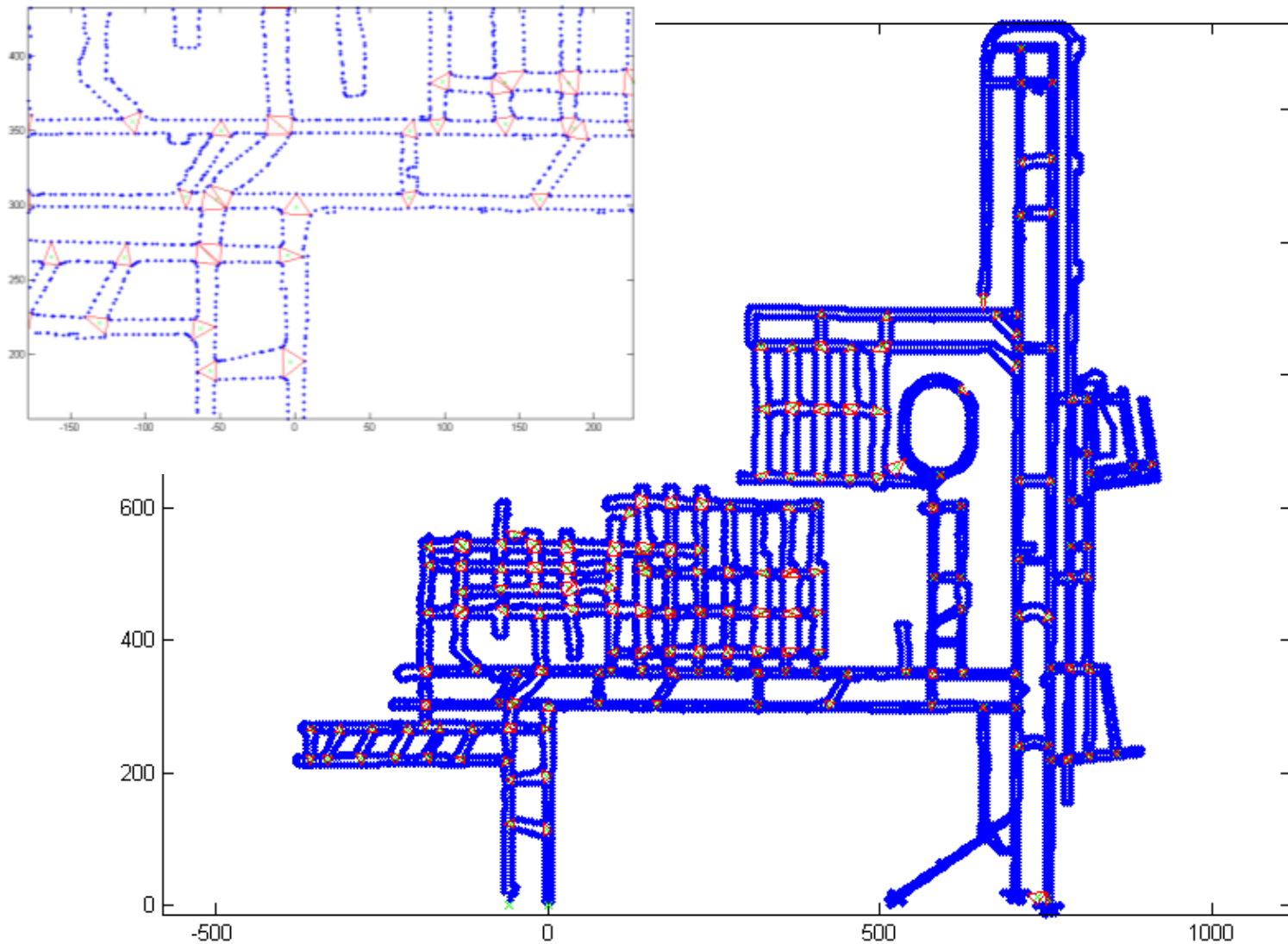




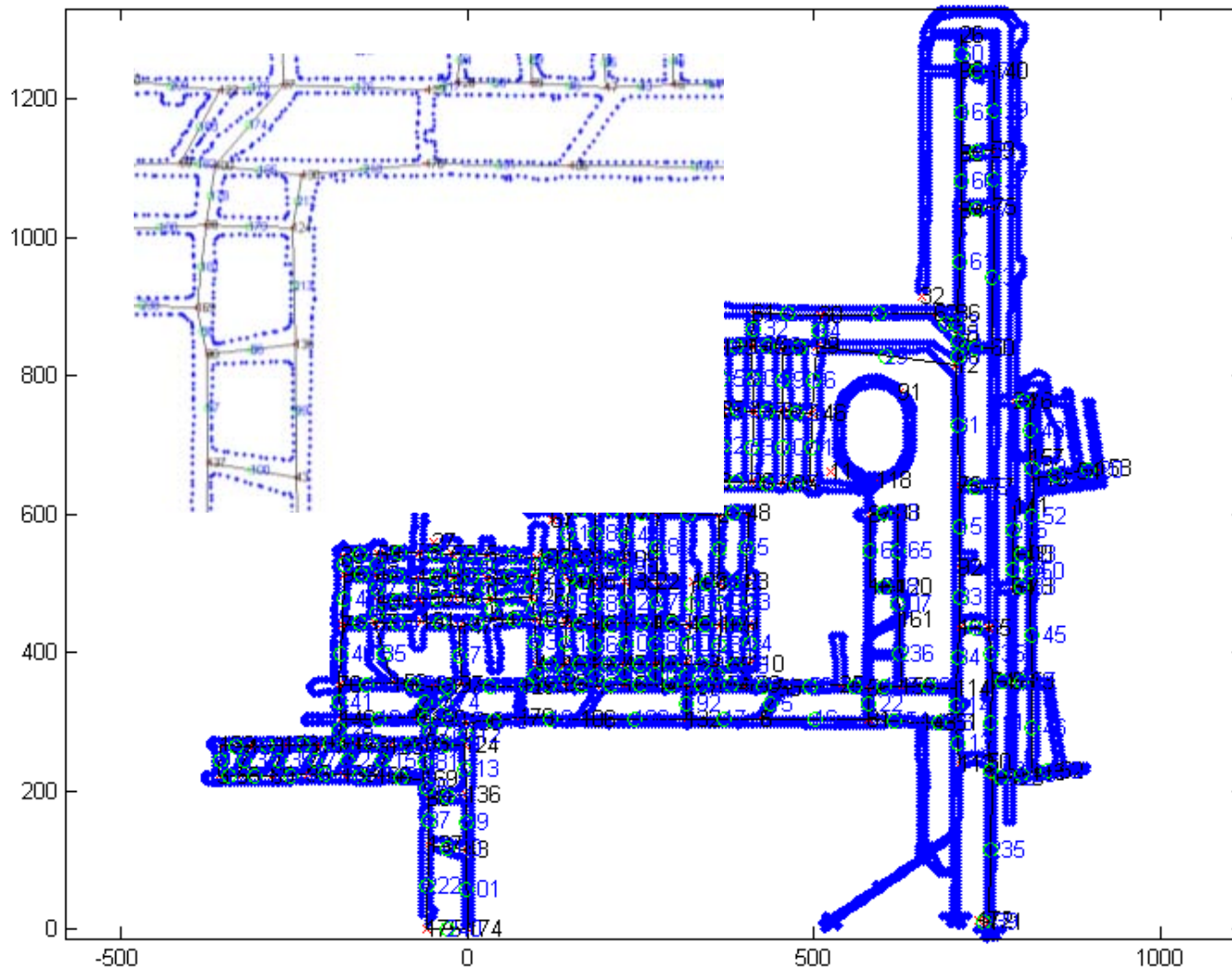
# Import AutoCad Map



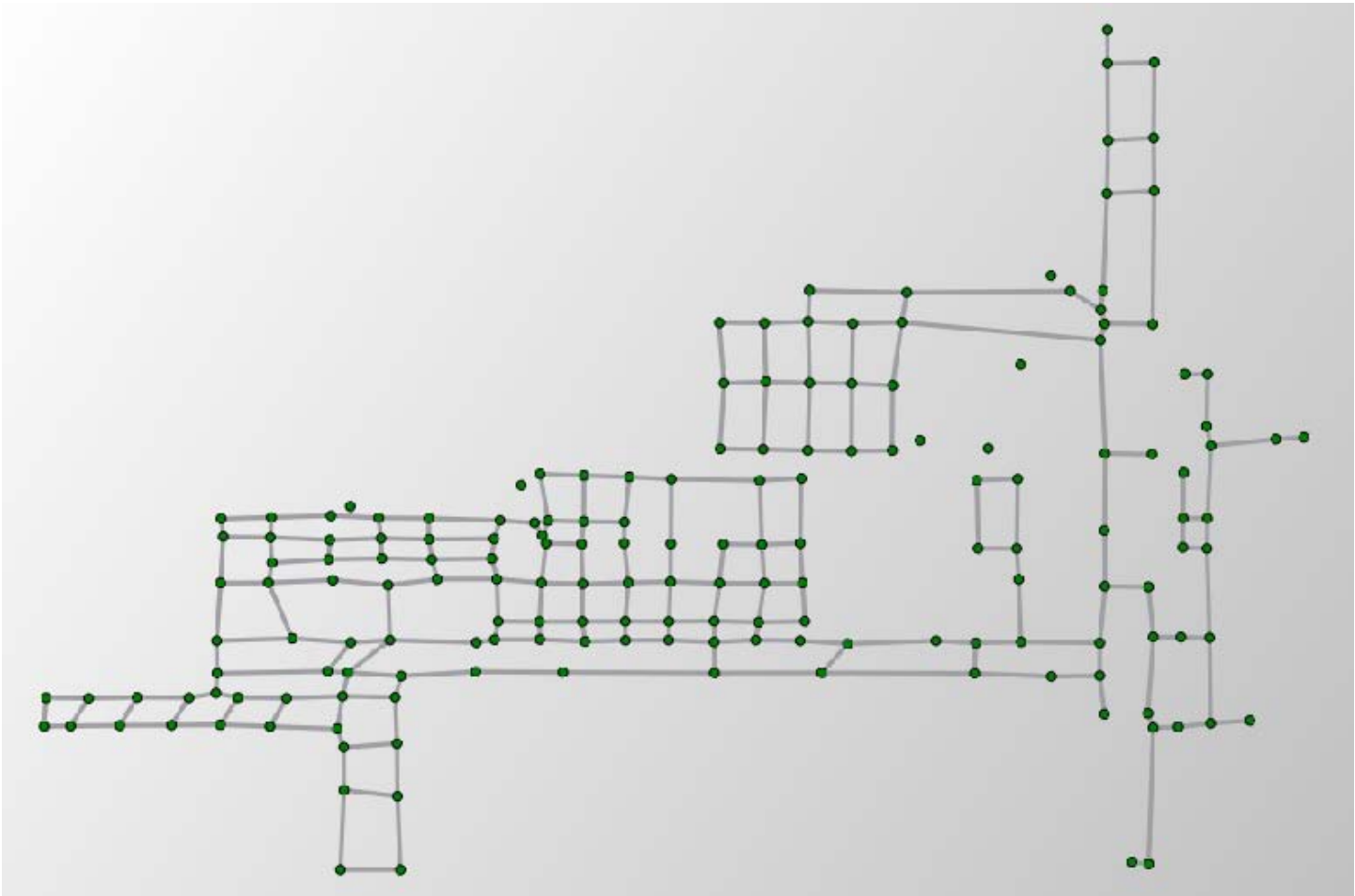
# Define Intersections Using Delaunay Triangulation



# Topographic Nodes



# Robot's Map

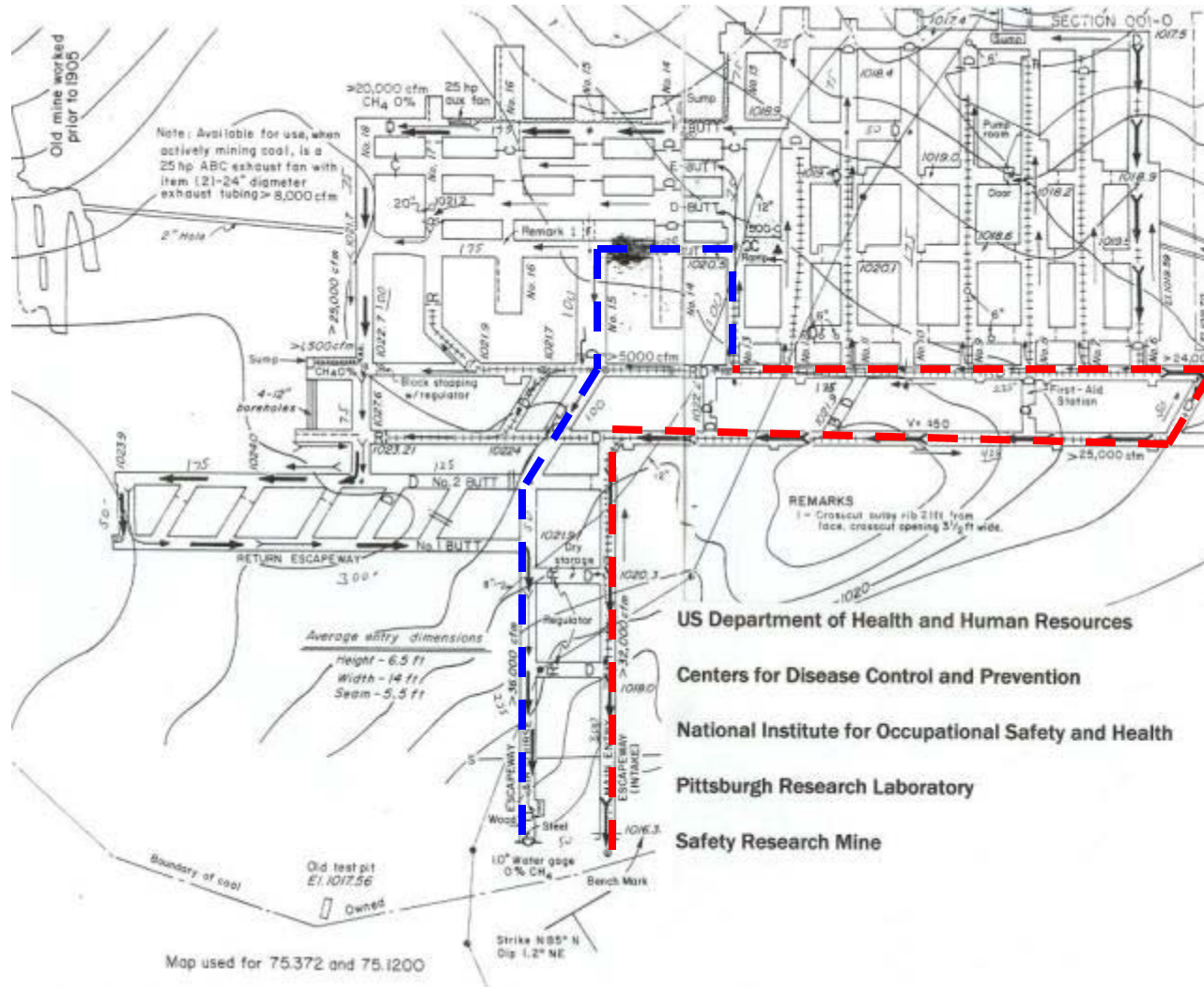




# CMU Cave Crawler Robot



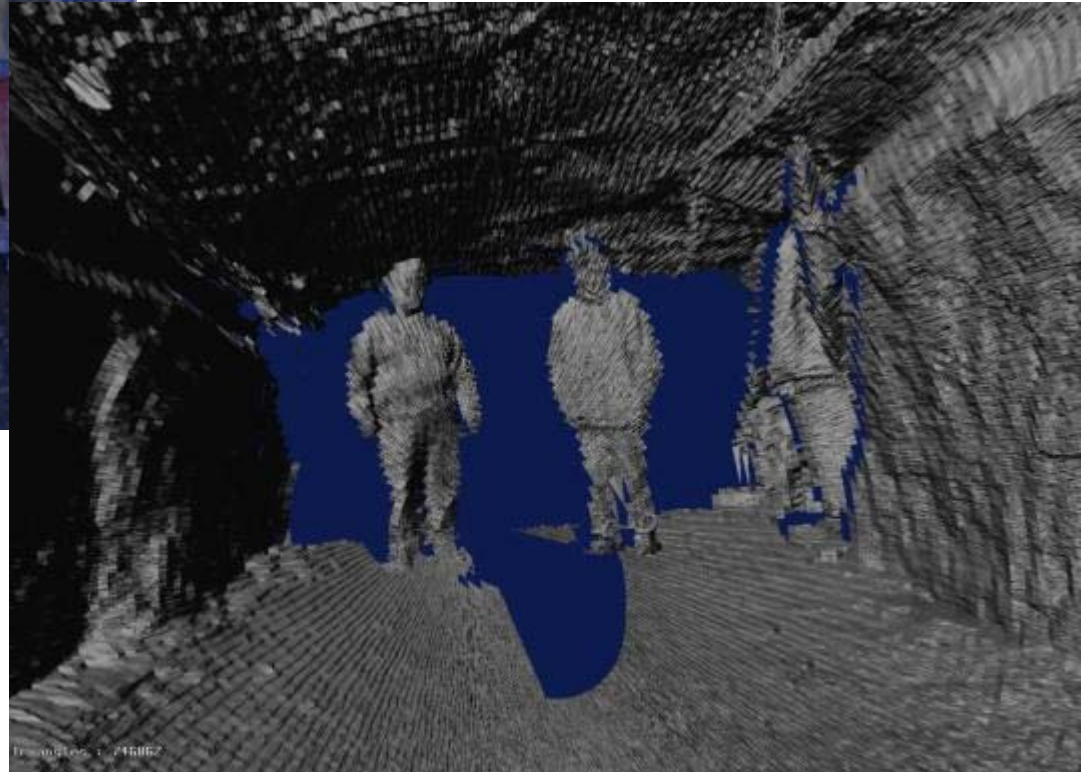
# Topographic Autonomy



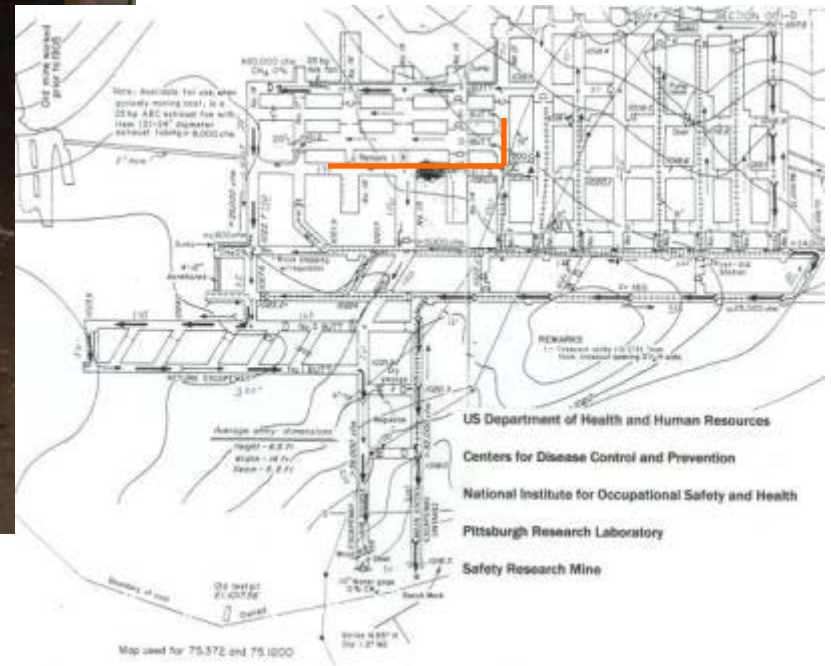
Path

Inbound - Red  
Outbound - Blue

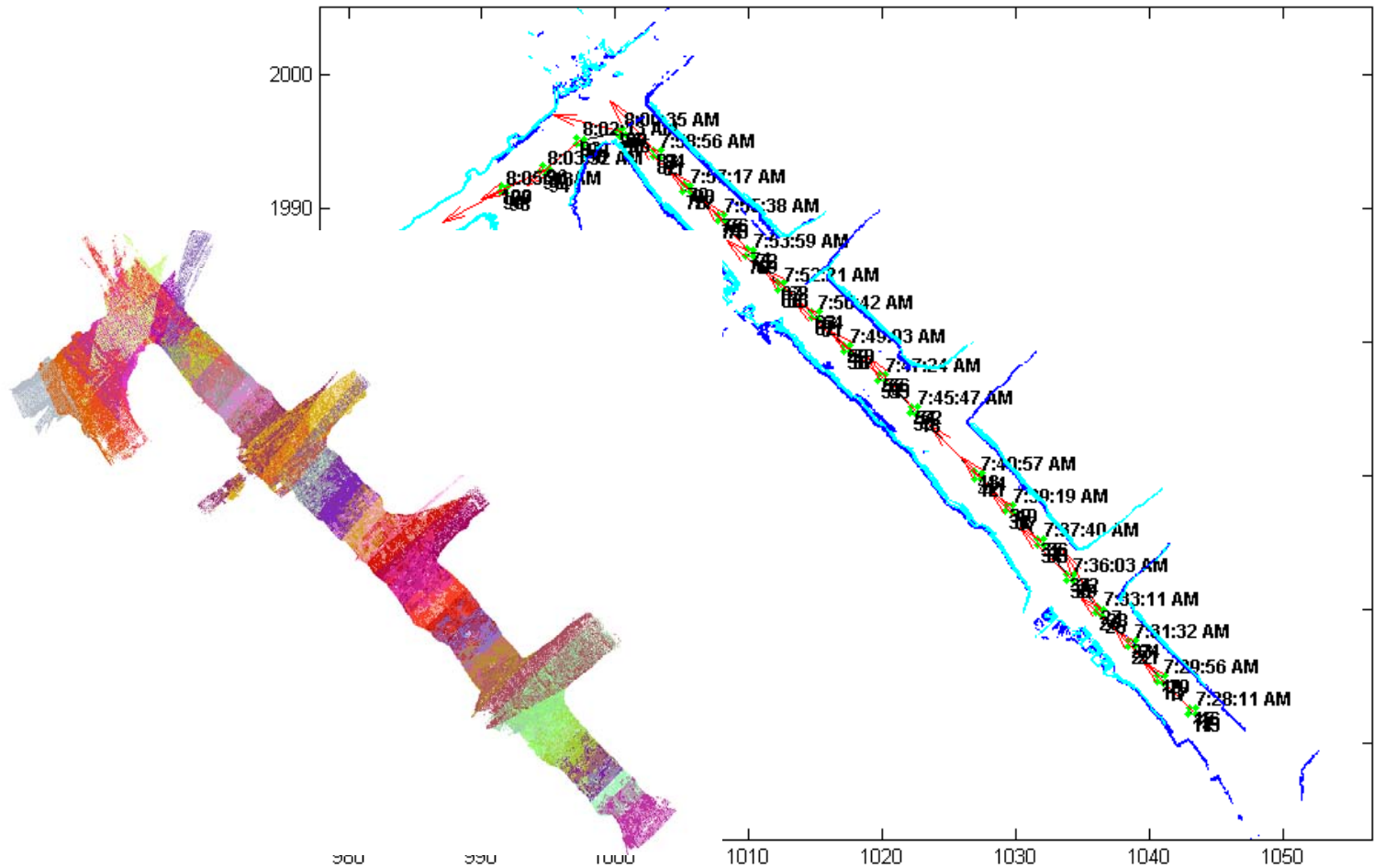
# Photograph and Laser Scan



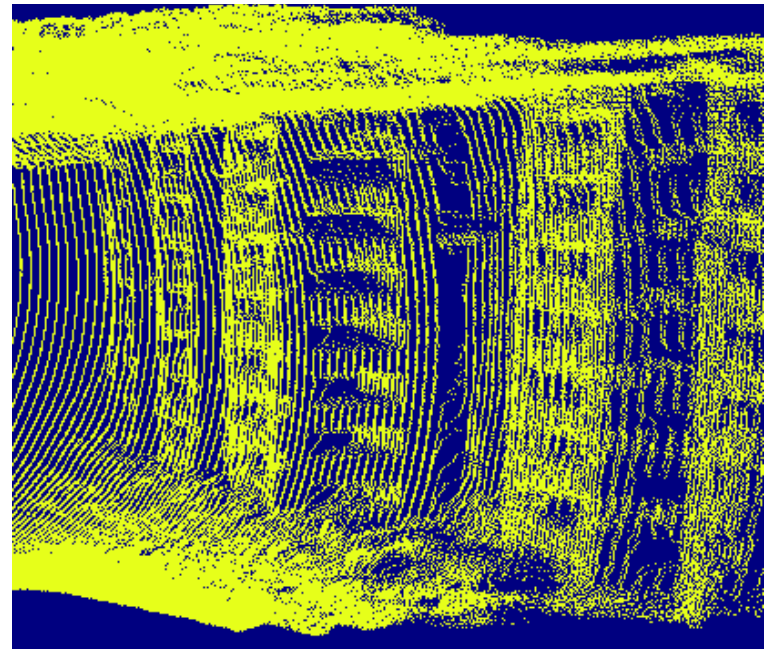
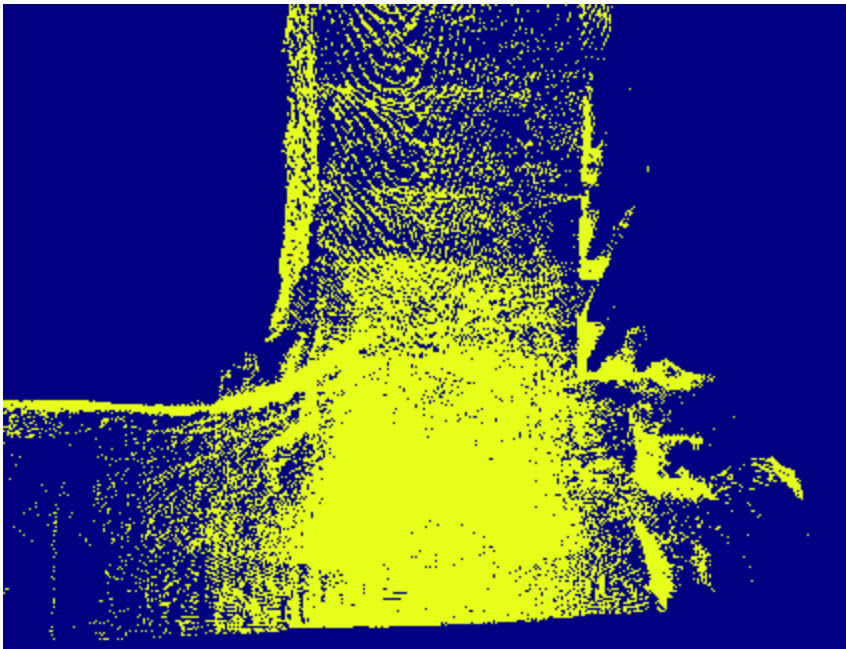
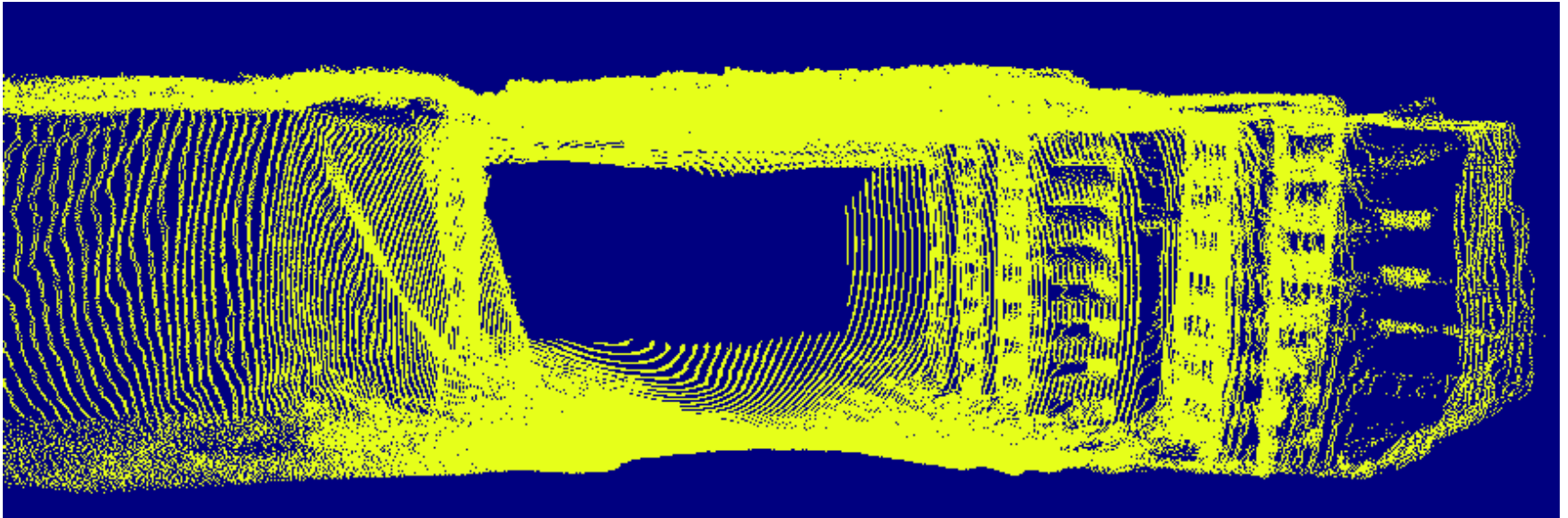
# Survey Locked Model



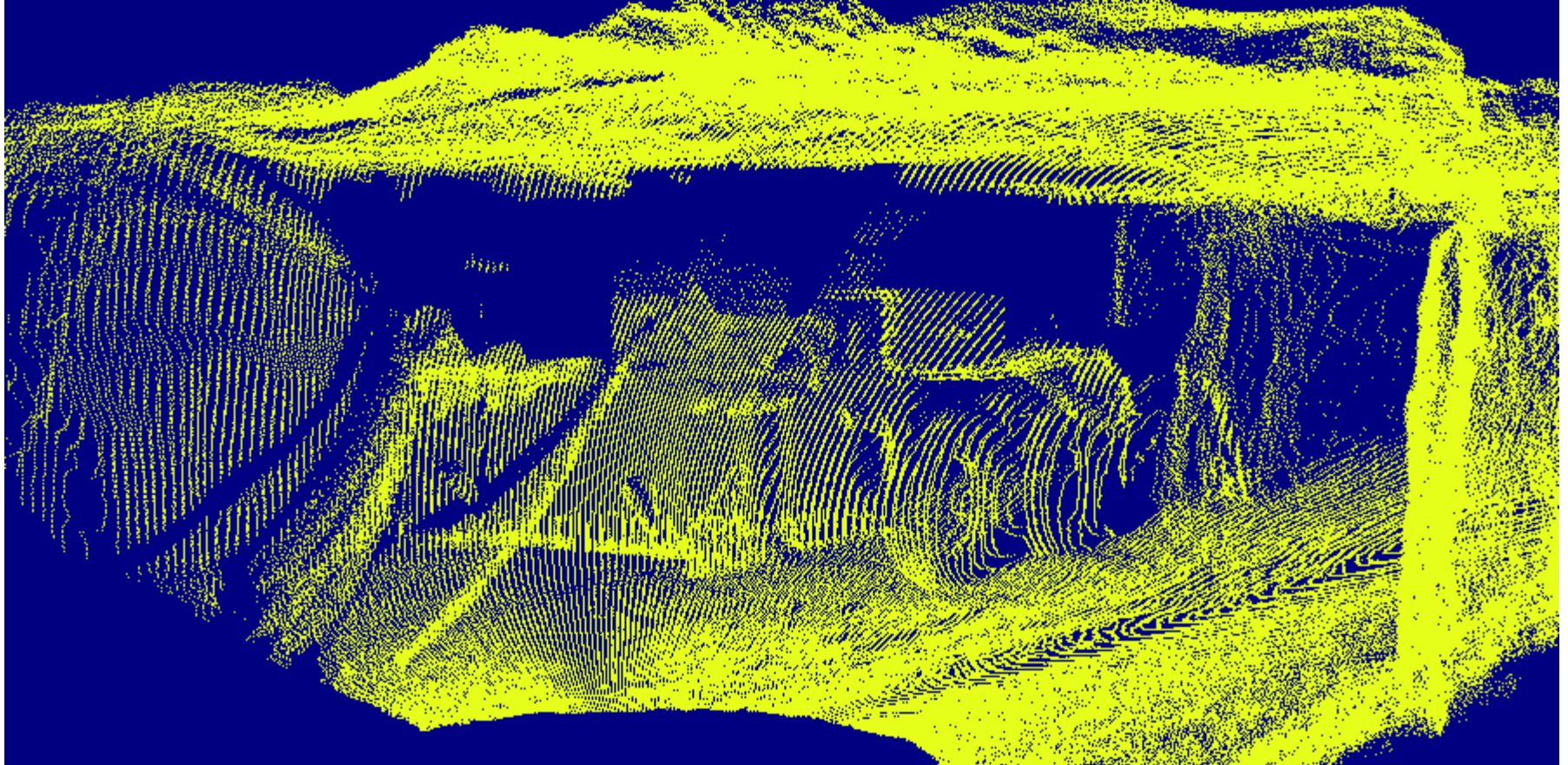
# Survey Points on 2-D Map and Color 3-D model of Scans



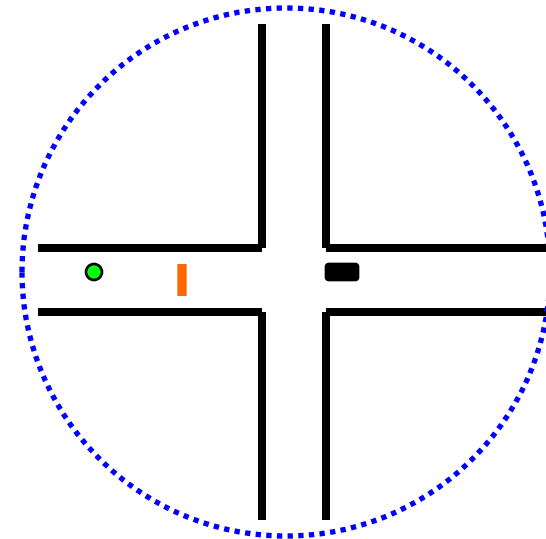
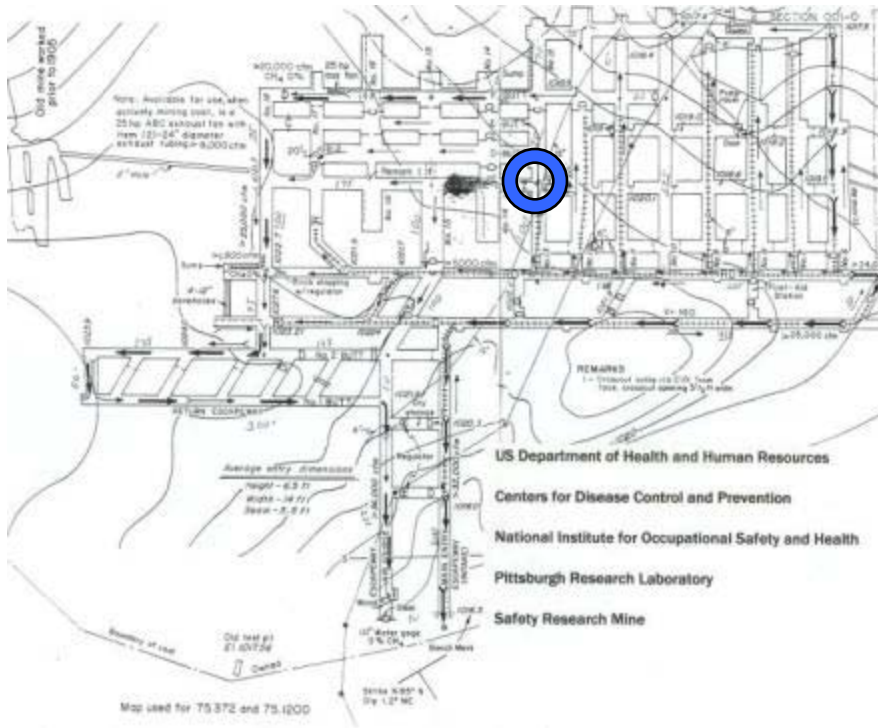
# Views extracted from 1 laser scan



# Laser scan of a mine scoop



# Radar Mine Curtain Test



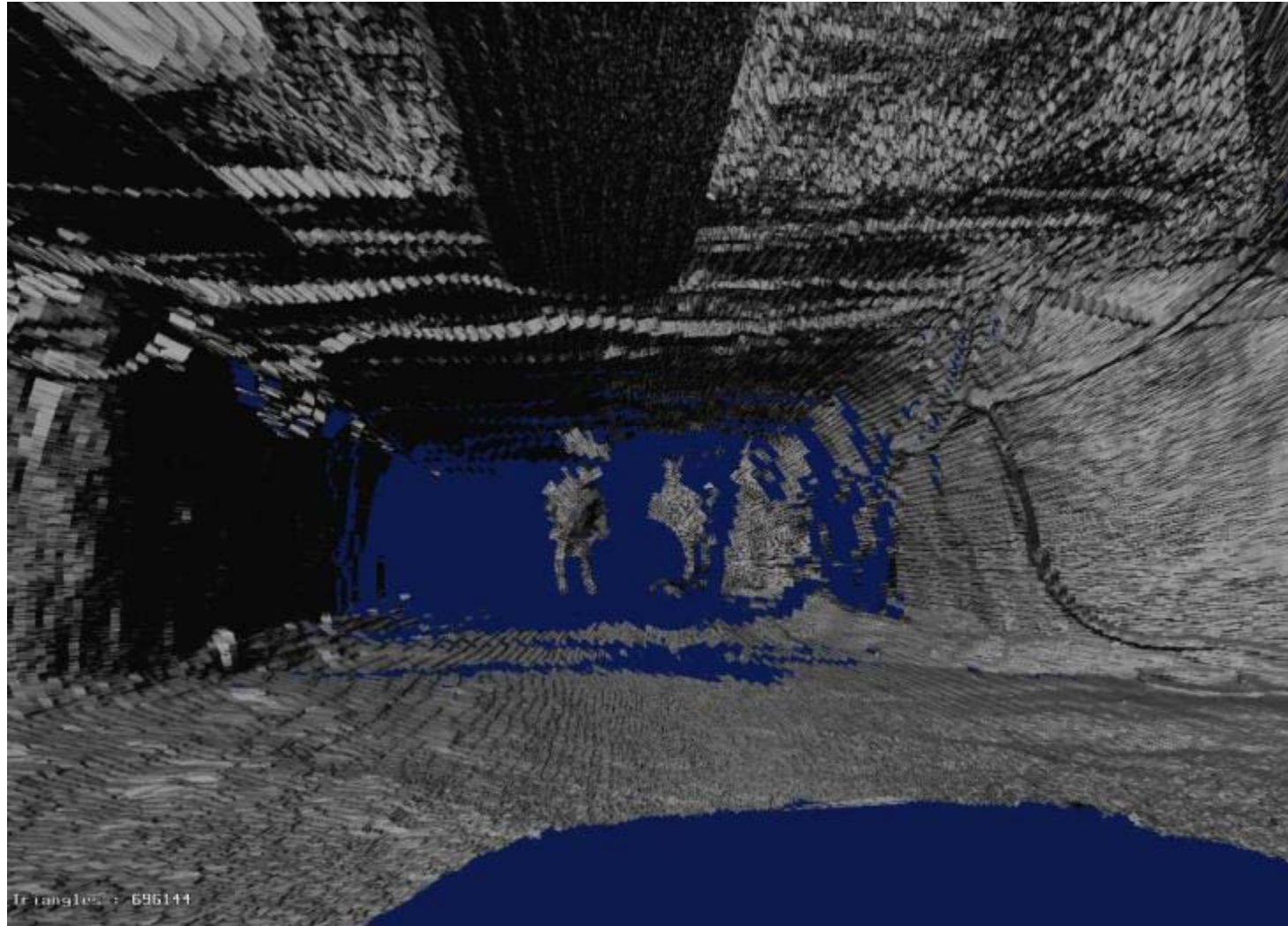
Robot with radar – Black  
Mine Curtain – Orange  
Miner - Green



# Miner in Entry



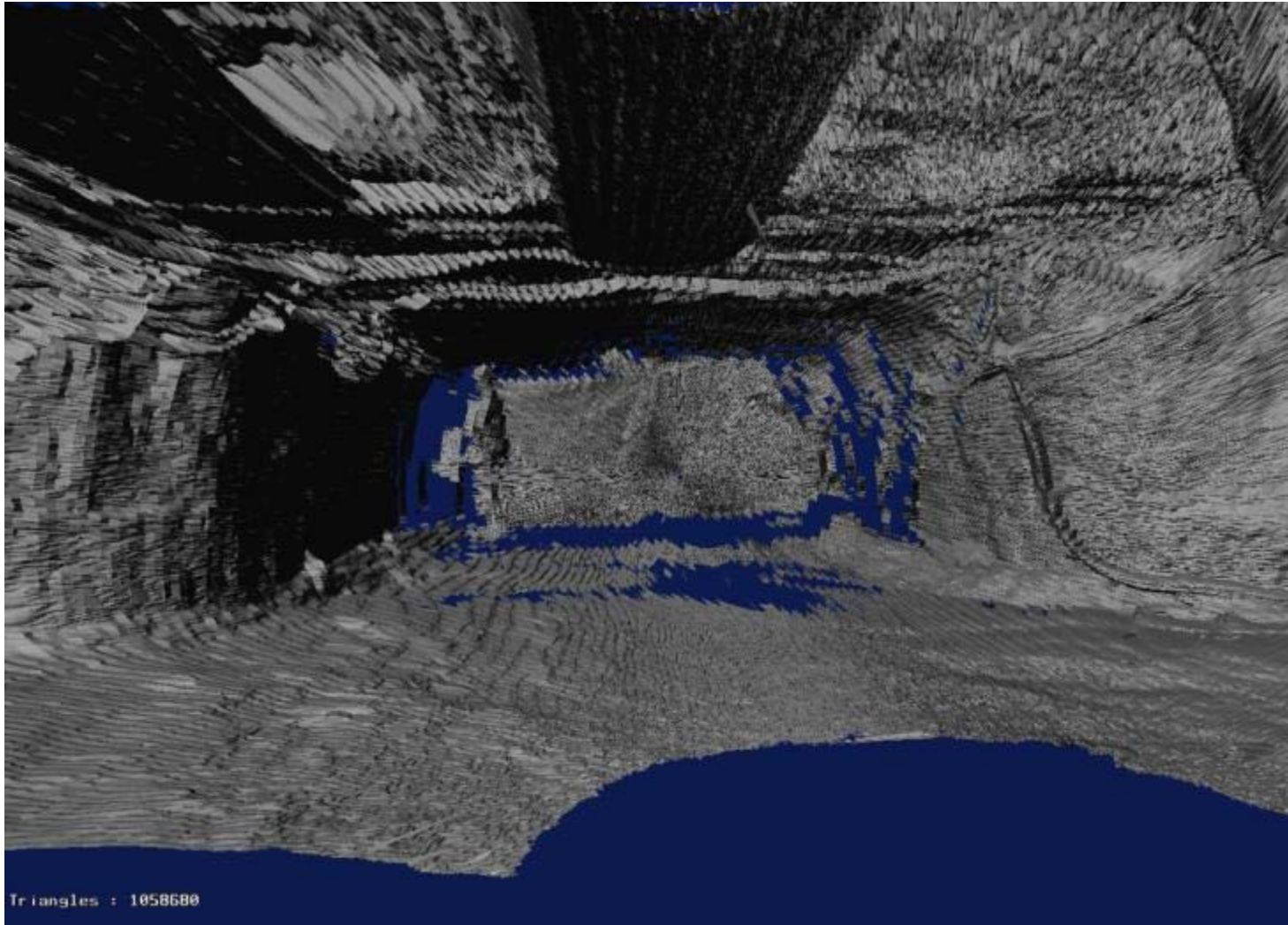
# Laser Scan of Miner



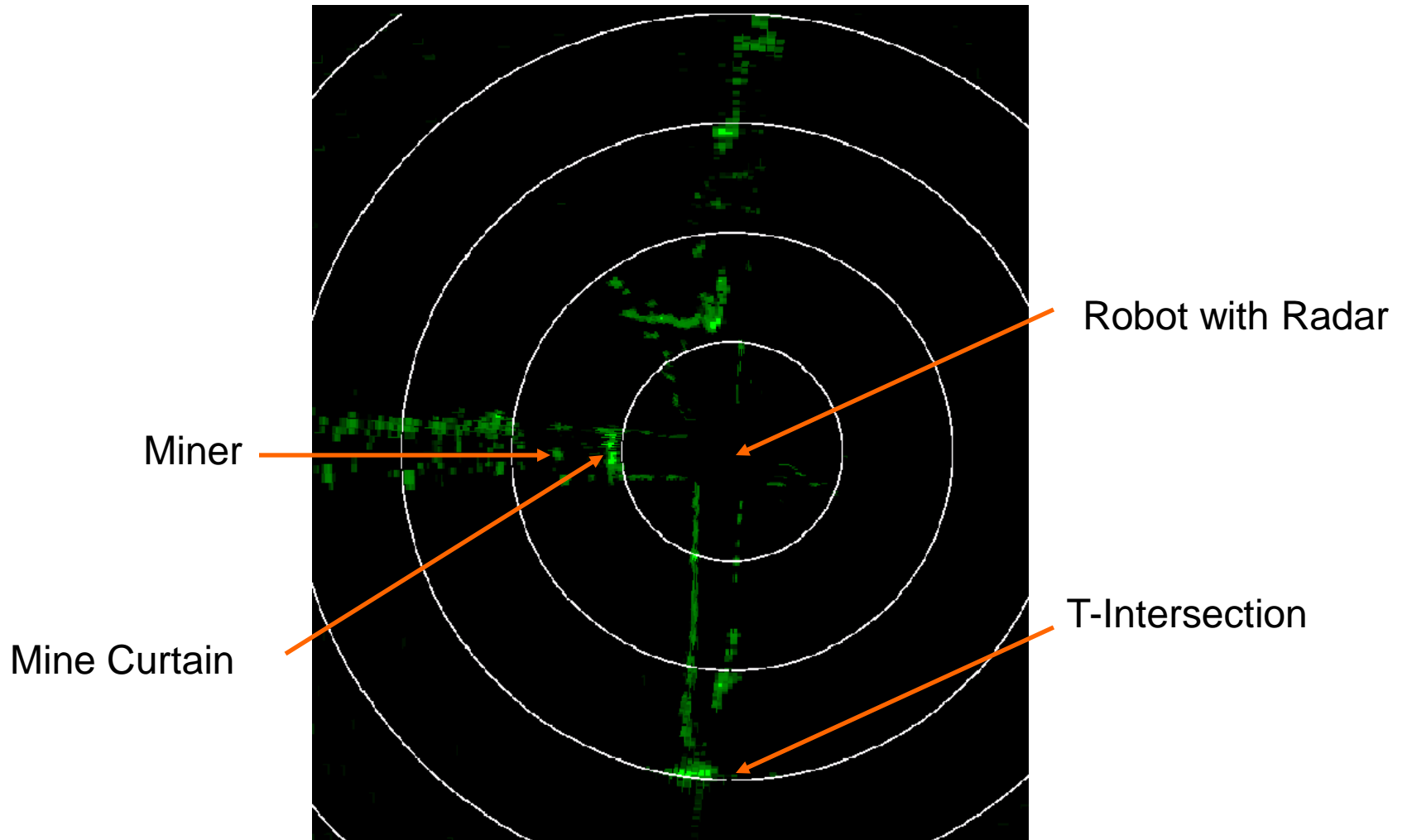
# Mine Curtain Across Entry



# Laser Scan of Mine Curtain



# Radar Scan through Curtain



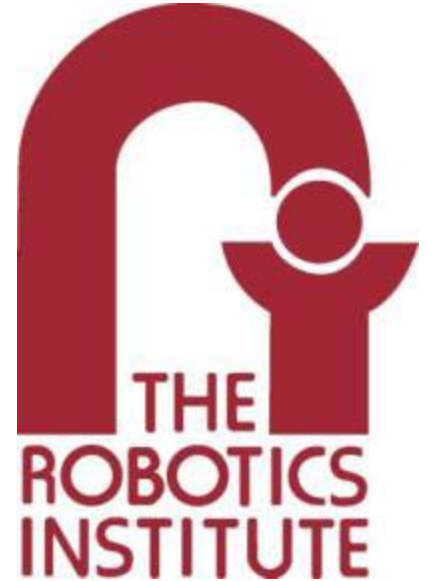


# Data Review



# Contacts

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