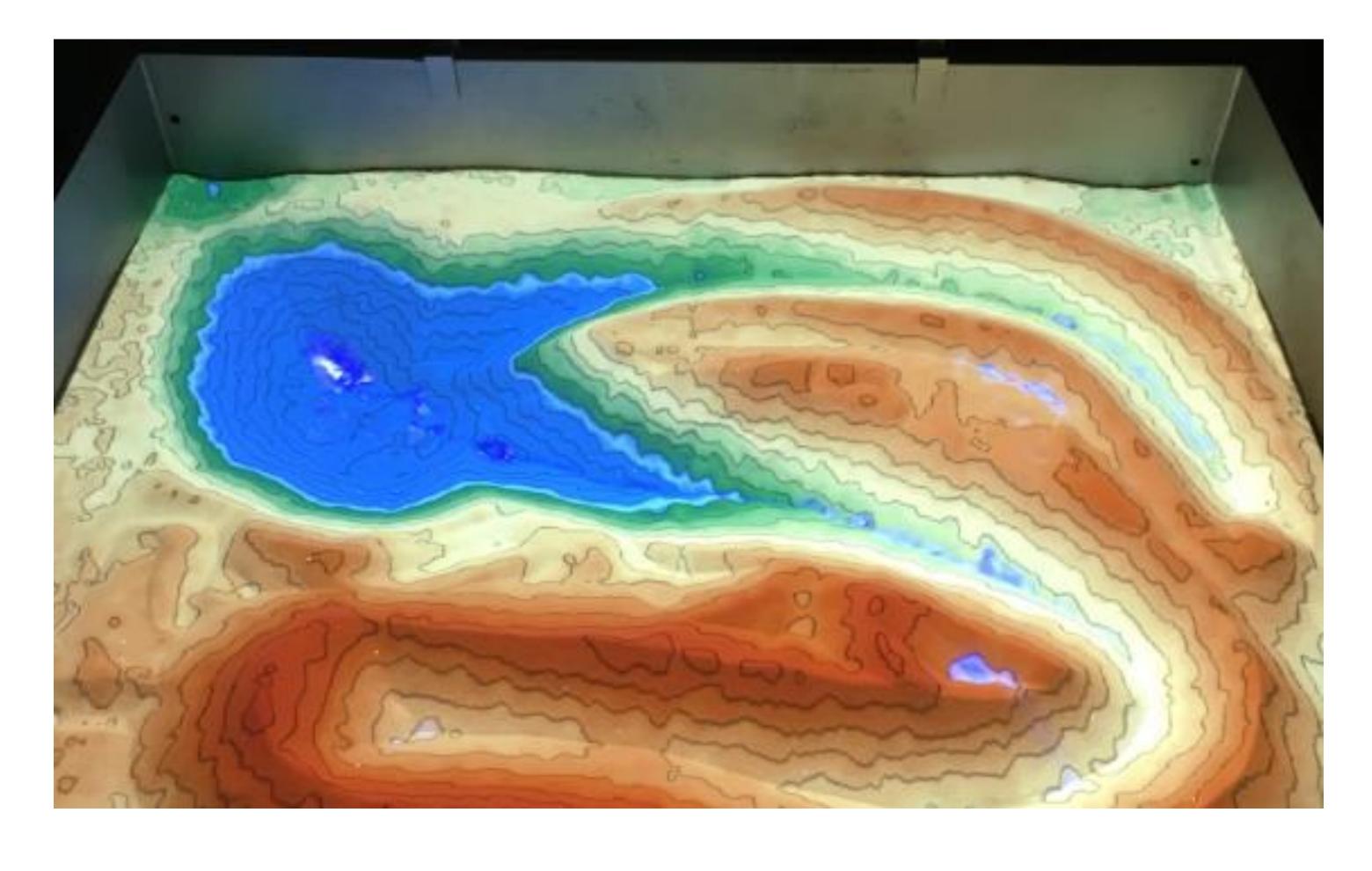
## Augmented Reality Sand Box

## Real, Visual, and Interactive Sand with Virtual Topography

- 1. Shape real sand to create topography models
- Use Microsoft Kinect 3D camera to create a Digital Elevation Model (DEM) of the sand
- 3. Overlay 2D DEM on 3D topography model using a projector (Real Time)
- 4. Results
  - Real time, interactive elevation map
  - Topographic contour lines
  - Simulated rain/water

#### Resolution of the Sand Box

- Horizontal: ± 1-2mm
- Vertical: ± 3mm



### Geomatics Engineering Senior Project

- Prototype built by Andres Sanchez as his senior project (December 2015 graduate of Geomatics Engineering, Lyles College of Engineering) under direction of Professor Scott Peterson, Assistant Professor, Geomatics Engineering Department
- A special thanks to UC Davis' WM KeckCAVES, UC Davis Tahoe Environmental Research Center, Lawrence Hall of Science, and ECHO Lake Aquarium and Science Center

# Earth Science Education Applications

- Geographic feature recognition
- Geologic feature recognition
- Hydrologic concepts
- How to read a contour map
- Meaning and interpretation of contour lines
- Meaning and Interpretation of Elevation Color Maps
- Watershed understanding and analysis
- Catchment areas
- Levee understanding and design

### **Future Applications**

Interactive therapy



