

1145-VF-1897      **Xiaotong Gui\*** (alex.gui@pomona.edu), 170 E 6th St, Claremont, CA 91711, and **Xinru Liu, Qi Tian** and **Weihong Guo**. *Multimodal Data Fusion in 3D Printing Quality Prediction*.

This paper presents a data-driven approach to predict the quality of 3D printing objects using multiple measurement data sources. Three kinds of data sources with different accuracy and measurement efficiency are considered. Dimension reduction techniques are employed for extracting features from measurement data, and quality metrics are defined. The final result is a two-level classification model trained with printing input parameters and measurement data from the two sensors respectively at each step to predict quality. The proposed model uses a preliminary classifier for the initial inspection, followed by a more refined classifier trained by high resolution measurements to further classify the samples predicted as uncertain in the previous round. Such method could guarantee time efficiency while maintaining high accuracy. The result shows feature extraction from high-dimensional image data as a promising technique for efficient and automated quality inspection. (Received September 24, 2018)