Automated Characterization Supporting Precision Printing of Nanoinks

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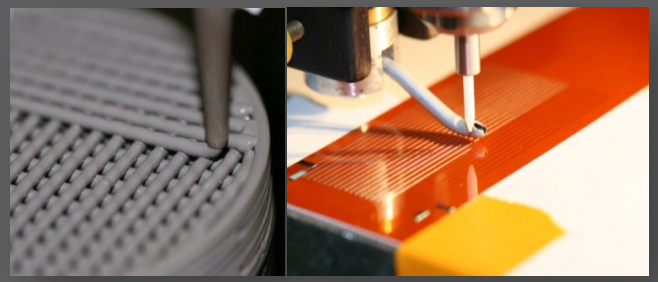
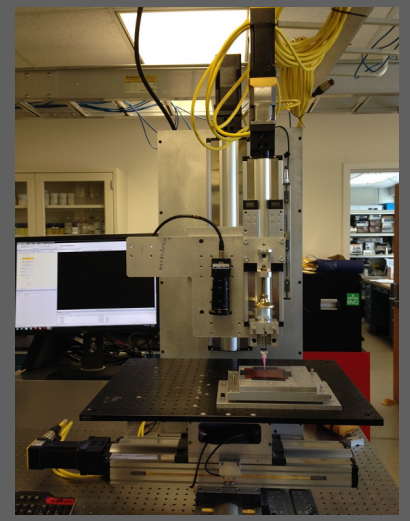
Background

- Many different digital printing techniques
- Direct write digital printing allows for high quality, low quantity jobs
- Ink deposition from these printers pose problems
- Need for automated inspection to characterize these ink/ substrate interactions using a machine vision system



Results

- Implemented the machine vision system into the direct write digital printer
- Wrote a program in the machine vision system software to detect any misprinted features in the printed material



Procedure

- Built a direct write digital printer from scratch
- Used the machine vision system software to search for inconsistencies in printed materials
- Based this detection on what we characterized as a digital twin

Future Work

- Find a way for real time analysis of the printing
- Experiment with different lighting for optimum inspection
- Set a communication signal from the machine vision system to the printer