# 3D Printing

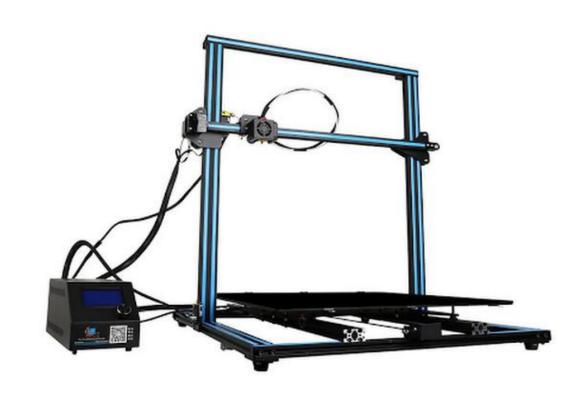
**Max Bareiss** 

# 3D Printing

 Building an object from nothing, instead of removing stuff from a chunk

- Useful for:
  - Rapid Prototyping
  - Making internal voids/passageways
  - Making really complicated things

# Fused Deposition Modeling (FDM) Printers



## Fused Deposition Modeling (FDM) Printers

- Fast
- Strong Parts
- Big Parts
- "Real" Materials
- Cheap (\$XXX)
- Low Temperature Tolerance
- Minimal Detail

## **Resin Printers**



https://formlabs.com/3d-printers/form-3/

## Resin/SLA Printers

- High Detail Parts
- Very Small Parts
- Good temperature tolerance
- Weird Resins
- Curing
- Expensive (\$X,XXX)

#### Laser Printers (not that kind)



https://www.trumpf.com/en\_US/products/machines-systems/additive-production-systems/truprint-series-1000/

#### SLS/E-Beam Printers

- High Detail
- Ultra-High Strength
- Extreme temperature tolerance
- Very Small Parts
- No printing limitations
- Enormously expensive (\$XXX,XXX)

## MELD!



# Hacksburg

- Creality CR-10
  - FDM Printer
  - "400mm" cube working area
  - 0.4mm nozzle
  - 1.75mm filament
  - Marlin Firmware
- PLA
- Controlled by Octoprint

#### OctoPrint

- Raspberry Pi Controlled Print Server
- <a href="https://printer.hacksburg.org">https://printer.hacksburg.org</a>
- Must have an account



## OctoPrint

• Set up accounts

#### Slic3r

- Slicing software
- Makes G-Code for the printer

Other slicers



# Key Settings

- Acceleration must be limited to 500 mm/s<sup>2</sup>
- Height offset must be applied
- Printer must shut off bed after printing

Download from Wiki

# Slic3r

• Open Slic3r