

JONATHAN D. WEISS

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SUMMARY

My recent work and interest is in 3D computer-aided design (CAD) and device prototyping towards building motion control systems. I have developed various 3D bioprinter technologies and use them to fabricate soft-material structures, including silicone elastomers, photocurable hydrogels, and engineered tissues. The biological applications of my work include the printing of custom-geometry heart valves and small-scale cardiac and stem cell tissue models that I have used to study function, growth, and maturation. **I am looking for a research position beginning in fall 2025** that blends these engineering disciplines to develop impactful technologies with applications in the life-sciences or beyond.

SKILLS

- Software: SolidWorks/Onshape /AutoCAD; Inkscape/Illustrator; DaVinci Resolve/Premiere Pro; MATLAB/Python; ImageJ/FIJI; GraphPad Prism
- *Technical:* 3D printing of plastics, resins, and soft materials (FDM, SLA, bioprinting); 3D printer hardware, firmware design (Arduino); stem cell culture, differentiation; PDMS microfluidics; cardiomyocyte isolation

EDUCATION

STANFORD UNIVERSITY, Stanford, CA

Ph.D., Bioengineering, *Low-Cost and High-Throughput Bioprinting*

In Progress

2022

M.S., Bioengineering

- NSF Graduate Research Fellowship Program (GRFP) Fellowship.
- Stanford Bio-X Honorary Graduate Student Fellowship.
- Enhancing Diversity in Graduate Education (EDGE) Fellowship.
- Bioengineering TA award for outstanding efforts in supporting students and community.
- Bio-X Star Mentor Award, Undergrad Summer Research Program.

YALE UNIVERSITY, New Haven, CT

B.S., Biomedical Engineering, *magna cum laude*

2020

- Tau Beta Pi Engineering Honor Society Corresponding Secretary.

EXPERIENCE

STANFORD UNIVERSITY, Stanford, CA

Ph.D. Candidate, Mark Skylar-Scott Lab

2020-Present

- Developed a low-cost (\$250) 3D printer capable of multi-material, multi-nozzle embedded 3D bioprinting and fabricated engineered heart tissues to study growth and maturation.
- Engineered human induced pluripotent stem cell lines to scale proliferation and differentiation.
- Monitored 5-liter bioreactors for culturing 10 billion human induced pluripotent stem cells per week.

YALE UNIVERSITY, New Haven, CT

Undergraduate Research Assistant, Stuart Campbell Lab

2018-2020

- Designed a microfluidic device and conducted high-throughput drug studies on isolated cardiomyocytes.

CORTEVA AGRISCIENCE, Johnston, IA

Intern, Genome Editing Lab

2019

- Delivered CRISPR/CAS systems to maize explants to reduce costs of genomic transformation up to 10-fold.

PUBLICATIONS

- JD Weiss*, A Mermin-Bunnell*, et al. **A low-cost, open-source 3D printer for multimaterial and high-throughput direct ink writing of soft and living materials.** Under Review; doi: 10.1101/2024.10.01.615991.
- DLL Ho, S Lee, J Du, JD Weiss, et al. **Large-Scale Production of Wholly-Cellular Bioinks via the Optimization of Human Induced Pluripotent Stem Cell Aggregate Culture in Automated Bioreactors.** *Advanced Healthcare Materials* 2201138. 2022.
- KJ Wolf*, JD Weiss*, et al. **Biomanufacturing human tissues via organ building blocks.** *Cell Stem Cell* 29, 667–677. 2022.
- JA Clark, JD Weiss, and SG Campbell. **A Microwell Cell Capture Device Reveals Variable Response to Dobutamine in Isolated Cardiomyocytes.** *Biophysical Journal* 117:1258–1268. 2019.