Jake Markus

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EDUCATION

Dartmouth College, Hanover, NH, GPA 3.8/4.0 **2022-26**
- Double Major: B.E. Computer Engineering (ABET), B.A. Engineering mod. Computer Science
- President (‘24-26) Dartmouth Quizbowl Team: Academic Trivia. ‘24, ‘25, IQBT Nationals
- Teaching Assistant, Upper Level Database Course, Thayer School of Engineering

Lakeside School, Seattle WA, GPA 3.9/4.0 **2018-22**

AWARDS

National Merit Scholarship Award
Dartmouth Neukom Scholar Research Award
Dartmouth Undergrad Research & Development Grant
Dartmouth J. Firestone ‘92 Memorial, Department Award

WORK EXPERIENCE

Halter Lab, Dr. Michael Kokko, Hanover, NH **Sept ‘24-Current**
- Med-Tech Research Fellow, Dartmouth Hitchcock Medical Center
- Developing software in a surgical robotics lab using Intuitive’s da Vinci system
- Awarded full-time role in Arpa-H effort, currently part-time via N.I.H. R21 funding
- SPIE Conference Publication: Yi Zheng, Ehsan Nasiri, Jacob R. Markus, Haley E. Stoner, Michael A. Kokko, Xiaoyao Fan, Ryan J. Halter, and Keith D. Paulsen. *Endoscope tracking in surgical navigation: preliminary comparison of da Vinci Xi kinematics and optical tracking*. SPIE Medical Imaging Conf. Feb 15-19, 2026.
- Co-inventor on IP disclosure *in process*; Honors thesis study for medical residents *in process* via N.I.H. Grant
- Lead operating room experiments (non-patient), scrub into live operating room procedures
- My code integrates endoscopic video feeds, Kronos video card, ADA6000 GPU, Medtronic IR tracker, and the surgeon’s console display to render and overlay 3D models on target anatomy in real time.

Andromeda Surgical, Taylor Boyle, San Francisco, CA **June-Aug ‘25**
- Engineering and Software Intern, Vinyard Product Development Team
- Constructed first three Beacon HoLEP surgical robots, gave CAD feedback, prepared for patient/cadaver trials
- Wrote camera calibration software, integrated IMU sensor with ROS2 system, conducted ISO quality tests

Medical Assistant, Westside Dermatology **June-Aug ‘22**
- Charted, prepared procedural instruments, and assisted with patient care & procedures in a clinical setting

PROJECTS

Senior Engineering Capstone, Dr. Mattison, Hood Museum **2025-26**
- Designing virtual displays for fractured medieval rose window alongside structural team’s installation
- Lead on 3D scanning, modeling, color 3D Printing, virtual display of all 55 stones
- Creating cloud-based data cataloging website for curators and educational site for viewers

Product Development for Habitat for Aviation (Vermont non-profit class sponsor) **2024**
- Designed, laser-cut, welded, and wired a motorized steel dolly to efficiently transport light aircraft
- Chassis and two electric motors to lift and move 34 in. airplane wheel bearing 600 lbs with 360° ROM
- Pitched product to the company after 8 weeks of design, fabrication, and testing with partner

CAD/CGI Work
- Solidworks and Blender projects: precise modeling and visualization. Portfolio upon request
- Ray-traced images/videos engineering projects & personal art
- Designed STL/G-code for custom parts produced with 3D printers and laser/plasma cutting machines

Programming/Electrical Engineering Projects
- AM radio receiver, C search engine/crawler, fractal renderer, FPGA calculator, unity games, etc.

SKILLS

Programming Languages:	C++, Matlab, Java/C#, Python,VHDL, Bash, HTML/CSS/Javascript
Software Fluency:	Linux, Solidworks, LTspice, AWS, Git, Blender, Visual Studio, MS OfficE
Technical Skills:	Soldering, basic welding, aluminum casting, woodworking, 3D printing

OTHER INTERESTS

Dartmouth Golfing, Wheelock Society, Kappa Pi Kappa, Cascadia Competition Bagpipe Band