

# Matthew Krenik

mkrenik.github.io  
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## Education

<b>ETH Zurich</b> (#8 eng. school in the world) <i>Masters in Robotics, Systems, and Controls; GPA: 5.76/6.0 (highest distinction)</i>	2014 – 2016 Zurich, Switzerland
<b>University of Texas Dallas</b> <i>Bachelors in Electrical Engineering; GPA: 3.99/4.0 (Summa Cum Laude)</i>	2011 – 2013 Richardson, TX, USA
<b>Texas Academy of Math and Science</b> <i>Advanced early college program at the University of North Texas; GPA: 4.0/4.0</i>	2009 – 2011 Denton, TX, USA

## Work Experience

<b>Robotics Software Engineer</b> <i>Apptронik</i> <ul style="list-style-type: none"><li>Wrote test controller and data pipeline for actuator build validation</li><li>Worked on tooling for robot logs, robot SW deployments, and HW state management</li><li>Setup MOCAP system for robot calibration and system functional testing</li><li>Automation tooling for electrical validation and robot bringup and calibration</li></ul>	2022 – Present Austin, TX, USA
<b>Senior Embedded Engineer and Project Lead</b> <i>Clerk Retail (formerly Popspots)</i> <ul style="list-style-type: none"><li>Project lead for next-gen HW: ID/ME/EE/FW project management and validation, wrote all embedded SW</li><li>Project lead for legacy HW: ECRs, sourcing, assembly line testing, CM relationship management</li><li>Wrote a provisioning system (decreased install times by 80%) and HW issue detection system</li></ul>	2018 – 2022 Austin, TX, USA
<b>Robotics Software Engineer</b> <i>iRobot Corporation</i> <ul style="list-style-type: none"><li>Wrote behaviors involving trap detection, virtual IR boundaries, and docking on next generation robots</li><li>Developed robot navigation test and maintained sensor calibration and test software for the assembly line</li></ul>	2016 – 2018 Bedford, MA, USA
<b>Founder</b> <i>Vertice Incorporated</i> <ul style="list-style-type: none"><li>Invented a position-aware home hair clipper to cut any hairstyle to 1mm precision</li><li>Raised \$60K+ in funding, wrote and filed eight granted patents, and had a profitable exit</li><li>Led a team of four eng. students and developed proof of concepts for the cutter and position tracking</li></ul>	2012 – 2016 Garland, TX, USA

## Publications, Honors, and Awards

**Nine granted patents**(see CV for full listing)  
**Goldwater Scholar:** prestigious undergraduate award for excellence in academic research  
**McDermott Scholar:** tuition, housing, books, and stipend for undergraduate studies  
**3x recipient of the NSF Research Experience for Undergraduates Grant**(see CV for research descriptions)

## Select Projects and Experiences

**Automated Sleep Support Design and Analysis (thesis):** Built a smart bed with sensors and actuators that move slats up and down to conform to a user's body pose; modeled the system using SIMULINK and developed optimal control strategies  
**Feedback for real-walking VR systems (semester project):** Developed a model to predict user behavior and implemented visual, audio, and haptic feedback mechanisms to prevent undesired behavior

## Technical Skills, Interests, Etc.

**Programming:** C++, Python, C, C#, MATLAB  
**Developer Tools:** Git, Linux, Docker, Agile development  
**Interests:** 20+ years playing the piano, cycle touring, spanish fluency