

# Matthew Krenik

mkenik.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>Senior Embedded Engineer and Project Lead</b> <i>Clerk Retail (formerly Popspots)</i> <ul style="list-style-type: none"><li>Wrote a new provisioning system that decreased install times by 80% and increased display reliability 30%</li><li>Designed issue detection and visualization for hardware in the field to help resolve system bugs</li><li>Project lead for legacy hardware, incl. validating changes to firmware, PCBA, CPU, and other components</li><li>Project lead for next-gen hardware, incl. industrial design, elec./mech./FW validation, and embedded SW architecture</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 virtual IR boundaries on next generation robots</li><li>Developed robot navigation test and maintained sensor calibration and test software for the assembly line</li><li>Volunteer work developing software for educational robot and invasive lion fish capture robot</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 – 2019 Garland, TX, USA

## Publications, Honors, and Awards

<b>Nine granted patents</b> (see CV for full listing) <b>Goldwater Scholar:</b> prestigious undergraduate award for excellence in academic research <b>McDermott Scholar:</b> tuition, housing, books, and stipend for undergraduate studies <b>3x recipient of the NSF Research Experience for Undergraduates Grant</b> <ul style="list-style-type: none"><li>2012: EE Research Asst. at Univ. Maine: built a harmonic radar system to track migration of juvenile wood frogs</li><li>2011: Chemistry Research Asst. at Univ. São Paulo: studied electrochemistry of ionic liquids for use in batteries</li><li>2010: Materials Sci. Research Asst. at Carnegie Mellon Univ.: studied surfactants for drug delivery in cystic fibrosis patients</li></ul>
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## Select Projects and Experiences

<b>Automated Sleep Support Design and Analysis (thesis)</b> 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 <b>Feedback for real-walking VR systems (semester project):</b> developed a model to predict user behavior and implemented visual, audio, and haptic feedback mechanisms to prevent undesired behavior <b>Product ambassador at JetBrains:</b> hosted events and taught students how to use developer tools <b>Software development intern at ABB:</b> built VR interfaces to explore use cases for industrial workstations
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## Technical Skills, Languages, and Interests

<b>Programming (proficient):</b> C, C++ <b>Programming (familiarity):</b> Java, Javascript, HTML, CSS, MATLAB, assembly, Python, C# <b>Developer Tools:</b> LaTeX, Git, Linux, Markdown, Vim, Agile development <b>Other Technical Skills:</b> Android, MbedOS, embedded Linux, MCUs, circuit design, PCBA layout, EE lab and technician equipment <b>Interests:</b> 20+ years playing the piano, cycle touring, climbing, environmentalism, spanish fluency
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