Matthew Krenik

Engineer and Developer

US Citizen

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About me

I am a recent Master's recipient from ETH Zurich with strong experience in hardware and software development and a theoretical background in data science and control systems. I'm passionate about designing innovative products at the intersection of hardware and software. In my free time, I enjoy playing jazz piano, basketball, mountain biking, hiking, rock climbing, and skiing.

Skills

Computer:
Machine learning, Embedded systems, Computer vision, IoT, Linux development, VIM, Git, MS Office
Advanced: C, C++, MATLAB
Proficient: Java, C# (Unity3D)
Familiar: Python, Bash, HTML, CSS Javascript, LaTeX

Electrical:
MCUs, Analog and Digital circuits, Bus Protocols (I2C, SPI, UART), Power electronics, Motor control, EDA Tools (OrCAD, Altium, Eagle), DSP, Comp. Architecture, Verilog, FPGAs

Mechanical:
Rapid Prototyping, 3D modeling (Solidworks), FEM (COMSOL), MIG Welding, Wood/metal shop eqpmt.

See website and CV for more details

education

2014-2016 **ETH Zurich** (ranked #9 worldwide by Times Higher Edu. 2016)
M.Sc. in Robotics, Systems, and Controls
Summa Cum Laude - GPA: 5.76 / 6.0

2011-2013 **UT Dallas**
B.Sc. in Electrical Engineering
Summa Cum Laude - GPA: 3.99 / 4.0

2009-2011 **Texas Academy of Math and Science**
Advanced early college program at University of North Texas
GPA: 4.0 / 4.0

work experience

2017 **iRobot - Associate Software Engineer** Bedford, MA
Develop features, debug, and test firmware and software for all robots in development. Responsible for path planning algorithms, sensor calibration, internal state machines, factory builds and the robot UI

2012-2015 **Vertice Incorporated - Founder** Dallas, TX
Invented a smart, position-aware hair clipper; filed several patents; developed prototypes, recruited and led student development teams; raised over $60K; negotiated a license with a multinational corp.

publications

2011-2015 Eight U.S. patent apps. on an autonomous hair clipper design.
2014-2016 Three U.S. patent apps. on a robotic bed design
2014 IEEE IECON "Improved TOF determination algorithms for robust..."
2012 ACS NM "Effects of supercritical CO_2 activation on the structure..."

awards

2015 Dropbox Prize (HackZurich); MixRadio Prize (HackJunction Helsinki)
2013 Goldwater Fellowship (premier undergraduate research scholarship)
2011-2015 McDermott Fellowship (full tuition + stipend at UT Dallas)
2010-2012 NSF Research Experiences for Undergraduates Grant (awarded 3X)
2011 Olympiad: Internat. Sustainability Finalist / Nat. Biology Semifinalist
2010 Eagle Scout

select projects

2016 Designed/constructed bed with embedded sensors/actuators; modeled bed/body system and analyzed optimal control techniques

2015 Implemented visual, audio, and haptic feedback mechanisms on a real-walking VR system and performed a user study

other experience

2016 **Recurse Center - Software Developer** New York City, NY
Improved SW skills in C/C++ and ML through various CS projects

2015 **ABB - Software Development Intern** Ladenburg, Germany
Developed four industrial use case demos on Oculus and Leap Motion

2014-2015 **JetBrains - Product Ambassador** Zurich, Switzerland
Organized events and code challenges to promote software products

2012 **University of Maine - Research Assistant** Orono, ME
Built a low cost harmonic radar system for detecting wood frogs

2011 **Universidade de São Paulo - Research Assistant** São Paulo, Brazil
Synthesized and tested electrochemical windows of ionic liquids

2010 **Carnegie Mellon University - Research Assistant** Pittsburgh, PA
Built camera system for detecting drug delivery using Marangoni Flow