

Nolan Hergert

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Mission I have a strong background in hardware, software, and signal processing, and my interests include machine learning and pattern recognition. I am seeking a full time position starting in 2012.

Education **Carnegie Mellon University** May 2012
B.S. in Electrical and Computer Engineering Pittsburgh, PA
3.10 GPA
Coursework: Pattern Recognition, Computer Vision, Digital Signal Processing

Experience **BodyTrack Project at the CREATE Lab, Research Assistant** Feb. 2009—Present
Pittsburgh, PA
I am currently working on developing signal processing algorithms that will extract notable features from our sensor data (such as coughing, EKG arrhythmias, and sleeping orientation) and display them on our interactive website, bodytrack.org. I also wrote AVR XMeta interface code for SPI and I2C devices and ANT+ chest straps.

Portland State University, Research Assistant Summer 2009
Portland, OR
I researched the intricacies of cellular automata and self-organizing systems and created simple but realistic models for the self-assembly of novel 3D computing architectures from nanowire growth in MATLAB. This resulted in a Network-on-Chip architecture conference paper in December 2009.

Projects **Remote Photoplethysmography:**
For Pattern Recognition, I implemented an algorithm to track heart vital signs (like pulse, HRV) from video of exposed skin. Future plans are to improve robustness with Lucas-Kanade point tracking.

Virtual Reality:
I created a virtual reality game using USB orientation sensors, a head-mounted display, and open-source first-person-shooter software in Ubuntu. Future revisions will enable augmented reality gaming and utilize SLAM vision algorithms for real-time environment tracking and Unity software for cross-platform compatibility.

More information at wiki.nolanhergert.com

Skills **Product Design:** PCB Layout, Parts Selection & Population, AVR XMeta Programming, User Interaction

Software: MATLAB, C, Java, HTML5, Web Audio API, Javascript

Signals: Time & Frequency Domain Filtering, Pattern Recognition, Machine Learning, Computer Vision

Recognition Hillsboro Elks Most Valuable Student Award
Robert C. Byrd National Honors Scholarship
Oregon Technology Student of the Year Award Runner-Up