

# matt aldrich

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## EDUCATION

### **Bachelor of Science in Electrical Engineering**

Yale University  
2000-2004 :: New Haven, CT

## OBJECTIVE

To pursue a degree in media arts and sciences with an emphasis on embedded design.

## INTERESTS

Portable, networked, low power systems; sensors and instrumentation for multimedia design; gestural control; haptic interfaces; machine musicianship; computer music and synthesis; vision; colorimetry; embedded design (hw+firmware); design and typography

## SKILLS / TOOLS

### **Continous and Discrete**

Proven design capability with linear voltage controlled current sources, precision instrumentation amplifiers, continous and discrete filter design, large scale synchronous state machines, discrete logic design, 8 bit and 16 bit microcontrollers, low noise A/D and D/A, external memory, LCD displays, RGB color sensors, capacitive touch sensors, signal drivers for communication and portable, micro power systems

### **Protocols**

Designed and implemented: RS-232, RS-485, MIDI, DMX, Bluetooth, 802.15 (zigbee), SPI, I2C

### **Prototyping / Development**

Professional lab experience; extensive debug capability; refined electrical and mechanical prototyping skills; proven 2, 4, 8 layer PCB design

### **Code**

C, C for embedded targets (PIC16, PIC18, AVR) MATLAB, Processing, Max/MSP/Jitter, Pure Data, LabView, Spice

## ACTIVITIES

Swimming, electronic music composition and performance, electronics and code, playing the drums, congas, and bongos, writing

## RECENT WORKS

### **zjam**

Low power wireless platform for gestural musical control and improvisation in a networked environment.  
June 2007 – present

### **lsynth**

Interactive control of tempo synchronized visuals and effects for lighting systems.  
April 2007- June 2007

## PROFESSIONAL EXPERIENCE

### **Electrical Engineer**

Renaissance Lighting  
August 2005 – present :: Reston, VA

Currently design, research, and invent solid state lighting products at a small start up. Inventor of calibration, uniformity and closed loop algorithms for lighting products. Co-developer of industry first linear drive LED system that rivals PWM accuracy and consistency. Developer of company's LED control portfolio including wired, wireless, and networked designs.

### **Electrical Engineer**

Rockwell Collins: NLX Corporation  
June 2004 – July 2005 :: Reston, VA

Designed 30W, 4 channel analog deflection amplifier for vector graphics display. Designed, simulated, and fabricated a VME based radio control board for synchronization of radio data with flight simulator.

## PATENTS

#20060237636 "Integrating chamber LED lighting with pulse amplitude modulation to set color and/or intensity of output"

## SELECTED UNDERGRADUATE PROJECTS

### **Analog Subthreshold CMOS Probability Gates**

Characterization of subthreshold CMOS soft logic gates, including large signal and small signal analysis as well as transistor sizing and layout. Senior project advisor: Dr. Richard Lethin

### **Sorbotic Videomation: Video Driven Sound Synthesis**

An interactive human computer composition utilizing video, color, and sound to mimic the effects of synesthesia. Advisor: Dr. Matthew Suttor

### **Analog Beat Tracking and AGC Design**

Developed, modeled, and tested analog circuits that efficiently detect the tempo of an incoming audio signal. Advisor: Dr. Peter Kindlmann