Spencer F. Russell
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Education

Columbia University — New York, NY
Fu Foundation School of Engineering and Applied Science — 2006 - 2008
Bachelor of Science, Electrical Engineering, *cum laude*, GPA 3.72

- Concentration in Signals and Systems
- Coursework: Signals and Systems, Circuits Analysis, Data Structures and Algorithms in C++, Music Signal Processing, Digital Signal Processing, Speech and Audio Processing, Operating Systems

Oberlin College — Oberlin, OH
Bachelor of Arts — 2003 - 2006

Professional Experience

Artist Technical Consultant — New York, NY
2008

- Designed and built circuits to realize artist's vision
- Provided sound design and execution for installation
- Designed CAD schematics to plan physical construction

Jazz Bassist — Davis, CA/Oberlin, OH/New York, NY
2001-present

- Studied with Peter Dominguez of the Oberlin Conservatory
- Focused on new and improvised electroacoustic music
- Toured internationally as the bassist for Capillary Action
- Performed on albums ranging from gospel and jazz to experimental metal

Camera Operator — New York, NY
Columbia Video Network — 2007-2008

- Remotely operated several cameras to capture classroom lectures
- Mixed video signals in real time to create videos for distance learning

Recording Engineer/Supervisor — Oberlin, OH
Oberlin Conservatory Audio — 2003-2006

- Recorded student, faculty, and guest performances in varying styles
- Set up and operated live sound reinforcement equipment for small and large jazz ensembles
- Updated recording archives by dubbing reel-to-reel tapes to DAT and CD
- Promoted to Supervisor in 2004
- Trained new recording engineers
- Provided technical support
- Oversaw quality control of recorded performances

Recording Studio Intern — Minneapolis, MN
Mirror Image Studios — January 2005

- Assisted the engineer and producer in two multitrack recording sessions
- Mixed multitrack sessions under the engineer's supervision
- Planned, recorded, and organized a library of drum samples
- Assisted setup and production of two local television broadcasts

Theatre Technician — Davis, CA
City of Davis — 2002-2003

- Worked closely with client groups to provide technical support with lighting, sound, and rigging
- Performed routine facility and equipment maintenance
- Enforced compliance with fire codes, safety regulations, and common sense

Projects

MEAPbira Spring-Summer 2008

Software and Signal Processing

- Wrote a custom Pure Data object in C to analyze a live music signal
- Extracted multiphonic pitch information
- Used pitch information to send signals over a serial connection to drive motors to play the music on tuned metal bars
- Installation to go up fall 2008

pdhmm Spring 2008

Independent Project

- Open-source Hidden Markov Model implementation for Pure Data
- Wrote objects in C for message-passing and signal processing
- Defined an architecture for a realtime score-following system using pdhmm

Æther Spring 2008

Hardware/Firmware Team Leader

- Programmed an ATtiny45 microcontroller to sample an ultrasonic distance sensor
- Used the AVR-USB stack to create a 1-axis HID joystick
- Worked with three other engineers to create a no-touch four-player gaming platform utilizing eight distance sensors.
- Designed an acrylic top plate using CAD software and an abrasive water jet cutting machine

Sensor-Augmented Upright Bass Summer 2007

Independent Project

- Designed an inexpensive circuit for capacitive distance sensing
- Designed and assembled a fabric sleeve to mount five sensors to an upright bass
- Created Pure Data patches to manipulate the bass's sound in realtime, controlled by body position as picked up by the sensors
- Project funded by a $5000 grant from the Columbia University Electrical Engineering department

Activities

Independent Research Interests 2003 - Present

- Microcontroller on the Atmel AVR chips
- Audio signal processing in Pure Data, C, and Matlab
- Music Information Retrieval(melody tracking, score following)

Theatre Sound Design 2003-2008

- Recorded, collected, and edited sound effects
- Selected and edited music
- Designed custom hardware and software interfaces for show operation
- Installed custom speakers and electronics
- Provided general electrical technical support
- Currently desigining a show for the NY Fringe Festival

Skills

Software: Pro Tools, Digital Performer, Pure Data, C, MATLAB, Linux, LaTeX, Word, Excel, Photoshop

Audio: Stereo Pair recording, multitrack tracking and mixing, sound reinforcement, sample editing and mixing, batch soundfile conversion and manipulation