

Arthur W. Matteson

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- Education**
B.S. Electrical Engineering obtained May 2006 (3.76 GPA)
M.S. Electrical Engineering anticipated March/April 2008 (Plan A, thesis)
Michigan State University, East Lansing, Michigan
- Employment**
- Fall 2006
to present
Design Consultant
Developing a motor controller and valve servo controller for Dr. Mueller, ME department, MSU. Also providing misc. motor-related support.
- Summer 2006
to Fall 2006
Graduate Research Assistant
ECE Department, MSU, under Dr. Peng. Worked on a bidirectional Z-source inverter for fuel cell and hybrid vehicle motor drives. Required considerable expertise in power electronic design and testing.
- Spring 2005
to Spring 2006
Undergraduate Research Assistant
ECE Department, MSU, under Dr. Shanblatt. With a grant from Texas Instruments, developed a sensorless BLDC motor controller for home appliances. Circuit design and PCB layout was done with Cadence tools, and the uC program was in assembly language. A 50-page TI application note was written for the project. Presented results at the TI Developer Conference in Dallas, Texas.
- Spring 2005
to Fall 2005
Design Consultant
Consulted to design an electric conveyor for the food processing and semiconductor industries. Worked with a group in Dayton, Ohio on this project, which involved putting code into TI digital signal processors that interfaced with power printed circuit boards.
- Summer 2003
to present
Custom Auto Electronics
Self-owned DBA, parts/labor for aftermarket automobile audio/lighting. Electric vehicle research and development (hobby). Electronics consulting/projects.
- Spring 2003
to Fall 2004
Circuit / FPGA Design
ECE Department, MSU. Built a data acquisition system for use with field-oriented control of three-phase motors. Learned a great deal about interacting with a purchasing department and co-workers.

Summer 1999

Parts Inventory

Prestolite Electric, Inc. R&D building, Ann Arbor, Michigan. Sorted electronic parts by type/value, and designed a Microsoft Excel database/inventory system.

Honors

2002-2006

MSU College of Engineering Dean's List, most semesters

2005

Yates Memorial Engineering Scholarship; Ford Motor Company Scholarship; \$40,000 personal 'Sea of Ideas' grant from Texas Instruments (first large TI grant to Michigan State University)

2004

Yates Memorial Engineering Scholarship; Walker Memorial Scholarship

2002

AP Scholar; Michigan Merit Award (MEAP)

Skills / Experience

Great amount of experience with embedded processors (assembly/C code) and power electronics design. Assembly language programming on Microchip's PIC16F/18F/30F, Atmel's ATtiny, TI's MSP430 and TMS320, Zilog's Z80, and Motorola's M68K (former and latter on TI graphing calculators). Also, C programming on Analog Devices' Blackfin running Linux and PBASIC on Parallax's Basic Stamp. Designing using International Rectifier's MOSFETs and gate drivers for inverters and converters. Ability to use lathes and mills of any size, also CNC mills.

Fall 2002
to present

President of MSU's Solar Car Team since 2007, Electrical Captain prior to that. Built prototype maximum powerpoint trackers for solar cells, helped with body/frame construction, lead meetings. Currently upgrading the drive bay electronics inside MSU's GM EV₁ to a totally unique multilevel inverter for a Master's thesis.

Fall 2002
to present

Building a 60HP AC induction motor controller for an electric vehicle. Many iterations and topologies have been designed and constructed. Car moved under power in 2006. Conversion from a DC EV required machining skills for modifications. All parts built with no plans from scratch; designs displayed on website. Removed clutch in 2007. Master's thesis results (on multilevel inverter) may be implemented.

Spring 2002

Built a 750W class-D audio amplifier. Included a TI DSP programmed in assembly language and a digital filter. Upgraded in 2005 and 2007.

Computer Skills

Microsoft Office, OpenOffice.org, AutoCAD, Cadence OrCAD and ICFB circuit tools, Xilinx ISE, MPLAB, MATLAB and Simulink, C/C++, Trolltech Qt SDK, and Visual BASIC. Linux, open-source software, and programming in general. Detailed knowledge of USB peripheral design.