

Jacob D Collums

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Career Objective

Receive an internship during summer 2008 that presents strong technical challenges and diverse team working opportunities. Then continue my education by pursuing a graduate degree in Mechanical Engineering.

Education

Bachelor of Science in Mechanical Engineering December 2008
Concentration: Robotics with a special interest in controls
GPA 3.5, University of Florida, Gainesville, FL

Associate of Arts in Pre-Engineering
GPA 3.7, Valencia Community College, Orlando, FL May 2005

Project Experience

- **Team Subjugator**

Project Co-leader/Mechanical team leader (2007); Mechanical team member (2006)
Won 2 consecutive international championships (2006 and 2007) AUVSI Autonomous Underwater Vehicle Competition

Supervised 5 person team, Oversaw all mechanical design work and fabrication, Created detailed CAD model to aid distributed design responsibilities and planning, led team in material selection including aluminum, plastics and composites (carbon fiber).

- **IEEE Southeast Conference Hardware Competition**

2007 Project leader

Designed, fabricated, tested and debugged complete robotics system; designed hardware and software for feedback control system implemented in high speed application; designed embedded multi-microcontroller system; selected and integrated both analog and digital sensors.

- **MATLAB based controls project**

Selected as part of two member team to write final project for future undergraduate controls lab at University of Florida; implemented MATLAB to control autonomous air hockey goalie based on video feedback; integrated C functions into MATLAB; performed basic image processing and first principles controller tuning for PID controlled system.

Research

- **REU-Research Experience for Undergraduates**
Summer 2006 and 2007 Participant - Machine Intelligence Lab, University of Florida, Under A.A. Arroyo and E.M. Schwartz
- **Gnuman Project**
2005-2006 Project leader; Designed and fabricated robust omni directional mobile platform for future research in anthropomorphic robotics; gave conference presentation on current and future work for project – Florida Conference on Recent Advancements in Robotics 2006.

Leadership Experience

- **Volunteer/Teacher**, Taught informal introduction to robotics course in Machine Intelligence Lab for two semesters, Covered topics such as: familiarization with IDE, C programming for ATmega microcontrollers, interrupts, basic sensor integration.
- **Founder/President**, Valencia Robotics Club, Valencia Community College, Orlando, FL 2004-2005
- **Design mentor/Coach**, F.I.R.S.T. Robotics team [Robotics organization for high school students], Osceola/Teco High School, Kissimmee, FL 2004/2005
- **Vice President/Co-founder**, Valencia Math Club, Valencia Community College 2004-2005

Technical Skills

- Pro/E, Altium - PCB design, Mastercam, Visual Studio, Eclipse, Microsoft Office Suites, Labview, Adobe Premier Pro
- C, FANUC CNC, MATLAB/Simulink – Received Certifications in: MATLAB Fundamentals and Programming Techniques, and Integrating Code with Simulink
- CNC operation and tooling, Manual machining, Carbon fiber fabrication
- C Programming for Atmel ARM7 and ATmega microcontrollers

Honors and Awards

- Design and Manufacturing Lab - 1st place in design and build competition
- Exxon Mobil Scholarship - University of Florida Mechanical and Aerospace department
- General Engineering Scholarship - University of Florida College of Engineering
- Florida Academic Scholars Award (Bright Futures 100% tuition)
- President's Award Scholarship, Valencia Honors Program, (full two-year tuition)
- Pi Tau Sigma Mechanical Engineering Honor Society, Member 2006 - Present
- Phi Theta Kappa International Honor Society, Member 2003 - Present