

# MARK PATRICK MCCRATE

## Permanent Address

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## EDUCATION

### University of Cincinnati

Cincinnati, OH; Expected Dec 2006

### Bachelor of Science in Mechanical Engineering

University Honors Scholar Student.  
GPA: 3.5/4.0 Dean's List: 5 of 10 quarters.

## WORK EXPERIENCE

### Naval Research Laboratory – Naval Center for Space Technology

Washington, DC; March 2005 – Sept 2005

#### *Spacecraft Mechanisms Student Trainee*

Vision – to conceive, develop, and demonstrate space and aerospace systems and technology to meet Navy, DoD, and National needs.

- Responsible for designing, building, testing and installing a clean/Electrostatic Discharge compatible piece of Mechanical Aerospace Ground Equipment (MAGE) to be used at NASA - Kennedy Space Center in support of Lockheed Martin and Boeing operations. Designed a scissors jack mechanism to deploy and stow flat panel displays in combat 'humvees.'
- Trained and guided a four person team who helped prototype and proof test the MAGE hardware.
- Created an automatic spring characterization machine, also setup a secure DoD website - with help.
- Provided colleagues with specs/quotes/etc. on LCD screens, composite flywheels, sound and vibration software, stress-strain devices, general purpose data acquisition systems, etc. gathered from 200+ universities and companies.
- Supported SUMO Space Tug in addition to other major aerospace company efforts. Attended a Satellite Design course, several LabView training courses and a thermal-blanket sewing class. Planned algorithms for and analyzed data from one type of destructive pullout test.

### Lexmark International Inc.

Lexington, KY; Jan 2003 – Sept 2004

#### *Research and Development: Hardware Engineering Co-op*

Develop architecture, design, and then test consumer inkjet and laser printers.

- Designed a power supply test fixture plus a test algorithm and users manual for it, iterations on a duplex module, gear trains, edge guides and a media sensor housing.
- HR consultant and coordinator of an effort to relocate ~40 summer interns/co-ops; resulted in tremendous cost savings for Lexmark and more efficient commute for students. Worked closely with HR/PR to plan lunches and other events for students and the community.
- Studied rapid prototyping and other manufacturing/machining techniques, sensors and sensing arrays (specifically load cells), star-wheel geometry/assemblies, automatic document feeder features vs system cost and other competitive analysis.
- Maintained IDEAS' models. Gained a more global understanding of technology at Lexmark, gained familiarity with the closed-loop design process, researched business ethics, assisted in numerous reworks, part inspection, print quality inspection and generated print samples.
- Introduced to finite element, acoustical, tolerance and electromagnetic interference analysis as well as the patenting process (one patent disclosure, one under review).

## SKILLS

*Computer:* Windows XP/et al. and some UNIX/Linux/Apple Operating Systems. Microsoft Office and add-ons. Matlab, LabView, Mathematica, PASCAL, Visual C++, HTML, Java software languages. Solid Edge, NX and IDEAS CAD packages.

## ACTIVITIES

President of UC Robotics team. Circle K Intl. service club and Students for Life webmeister. American Society of Mechanical Engineers, Society of Automotive Engineers Formula race team, Amateur Radio Club and Engineering Tribunal Big Brother/Sister member. Cincinnati Scholarship competition assessor and Science Expo judge. Play intramural soccer/volleyball and participate in triathlons and mini-marathons. Past member of dorm governing board, Mountaineering and Water Ski Clubs.

*Community:* Service trip to Saltillo, Coahuila, Mexico during Spring Break 2006. Build houses with Habitat for Humanity - 80 hrs and volunteer at Goodwill - 8 hrs. Tutored 1<sup>st</sup> – 3<sup>rd</sup> graders in English at Schiel Elementary - 75 hrs, dormitory Hall Opening Team - 24 hrs (earned Most Spirited and Most Helpful awards), and helped present Lexmark Inkjet technology to aspiring engineers during Engineering Day at the University of Kentucky - 8 hrs.

**INTERESTS**

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Bicycling, swimming, water and snow skiing, rock sports, Español, playing the recorder, wood and metal work, making toys, restoring automobiles, rebuilding engines, repairing/designing electronic equipment, reading, studying diversity, volunteering ~50 hrs/yr, R&D, GPS, computer hard/software, the internet, Amateur/HAM Radio (licensed operator).

**AWARDS**

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University of Cincinnati Cincinnati Century and Clair Hulley Scholarships. Awarded \$8,000 in research funding in response to a proposal written to the University Funding Board; over \$10,500 in total funding since 2004. Invited to join Golden Key International, Theta Tau and Pi Tau Sigma Honour Societies.