

What are you waiting for.....  
visit us at [www.moreheadstate.edu/iet](http://www.moreheadstate.edu/iet)

2001 Graduate Salaries  
High - \$80,000  
Low - \$50,000

64% have received a promotion since program completion

100% Agree or Strongly Agree professional competency is a result of the IET department

100% rate this program Good or Excellent

100% have FULL Time employment

A recent survey of our Alumni says:

*Did you know.....?*

The IET department had 75 graduates for the Fall 2005 and Spring 2006 terms. One of the highest in the College of Science and Technology. During the Spring 2006 Commencement, a high percentage of Master of Science Degrees conferred were MSIT or MSCTE.



Department of Industrial and Engineering Technology  
210 Lloyd Cassity Building  
Morehead State University  
Morehead, KY 40351  
[www.moreheadstate.edu/iet](http://www.moreheadstate.edu/iet)

# IET Informer



March 2007

Morehead State University

## NAIT Student Organization Robotics Team Ranks Among Top in the Nation



Robotics Team from L-R

James Higdon, Jace Green, Steve Harris (Rixan, President), Matt Slone, David Nickel, Daniel Watson and Dr. Yuqiu You, Kneeling: William Lindberg and Brandon Osborne

### Volume 8 Issue 2

#### Inside this Issue ...

- SME Scholarship Recipient Pg 2
- Patrick named Chairperson Pg 3
- Construction Student orgs Pg 3
- Mason named Chair-Elect Pg 4
- IET Students @ Fabtech Pg 4
- Clemons - Achievement Pg 4
- Faculty News Pg 5
- Tours Pg 6
- Laboratory Enhancement Pg 6
- Carter-Aiming for the Stars Pg 6
- SME S303 Endowment Pg 6
- Advisory Board Highlights Pg 7
- Mohammed invited to GSP Pg 7

#### Of Interest .....

International Technology Education Association (ITEA) Conference San Antonio, TX March 15-17, 2007

SME Chapter 154 Golf Scramble Scholarship Fundraiser Duckers Lake Frankfort, KY May 25, 2007 <http://chapters.sme.org/154>

Morehead State University's robotics team finished among the top teams at the recent collegiate Tele-Operated Robotic Manipulator Contest in Cleveland.

The MSU team earned second place honors at the contest, held in conjunction with the 2006 National Association of Industrial Technology (NAIT) Convention Nov. 15-19. A total of 14 universities participated in the event, according to Dr. Ahmad Zargari, chair of the Department of Industrial and Engineering Technology (IET).

For the contest, team members were required to design and build their own robotic manipulator without using any robotic kits or off-the-shelf robot manipulators, and also prepare a technical, detailed poster about the device. The robot was required to run an obstacle course, pick up and carry an 8-inch long piece of 1.5 inch EMT conduit and place it through a 3-inch hole at the end of the course.

In the contest, MSU competed against teams from Eastern Kentucky Univer-

sity, Western Kentucky University, North Carolina A&T State University, Iowa State University, Missouri State University, Central Connecticut University, University of North Dakota, Millersville University of Pennsylvania, Spoon River College, Ohio-Northern University, California Polytechnic State University, Indiana State University and the University of Wisconsin-Platteville.

David Nickel, Greenup senior, ranked fourth place in the IT/IQ student contest - see NAIT pg 2...

## NAIT

test out of the 59 students that participated. Three of Morehead State's IET students advanced to the semi-final round.

In addition to Nickel, the team included: **Jimmy Higdon**, Springfield junior; **Jace Green**, Shelbyville senior; **Matthew Slone**, Morehead sophomore; **Daniel Watson**, Raceland junior; **William Lindberg**, Flemingsburg senior; and **Brandon Osborne**, Virgie senior.



**David Nickel**  
4th place IT/IQ competition

rick, professor; Dr. William Gris , professor; Dr. Yuqiu Yu, assistant professor; Dr. Jaby Mohammed, assistant professor; Dr. Xiaolong Li, assistant professor; Dr. Gabriel Alungbe, associate professor; and Sam Mason, instructor.

Also attending were IET advisory board member Steve DeFazio of Cooper Standard Automotive, IET graduate assistant Priya Shekar and Robert Cooper, IET laboratories and facilities manager.

The faculty members presented 10 papers and were involved in leading NAIT boards, division and focus groups and participated in workshops.



1st place Poster Design

# Advisory Board Highlights



## Randy Norwood



Randy Norwood is Plant Manager for Emerson Power Transmission (SealMaster), a leading manufacturer of industrial market bearings, located in Morehead, Kentucky.

Randy has worked in manufacturing for 30 years, primarily in manufacturing engineering but also holds work experience in the industrial, home appliance and automotive industries.

Randy has served on the Morehead State IET Advisory Board for the past 5 years and also has served for the past 2 years on the Morehead State College of Business Advisory Board.

A native of Tennessee, Randy, re-

ceived a B.S. in Manufacturing Engineering Technology from Murray State University and an M.B.A. from Morehead State University.

Emerson Power Transmission (EPT), a division within Emerson Industrial Automation, is a major producer of mechanical power transmission drives, components and bearings.

EPT serves a wide array of machinery-intensive industries, including forestry and wood products, mining and quarrying, power generation, and heating and ventilation. With headquarters in Ithaca, N.Y., EPT consists of the Browning®, Sealmaster®, Rollway®, Morse®, US Gearmotors®,



**Randy Norwood**, Plant Manager  
Emerson Power Transmission, Sealmaster  
Morehead, KY

McGill®, and Kop-Flex® product brands. The Morehead, KY facility is 1 of 14 manufacturing and distribution facilities.

## IET Student Receives Local SME Chapter Scholarship

### 2006 Ed Wilson Memorial Scholarship

The Lexington SME Chapter 154 has had an ongoing scholarship program since the chapter's formation in 1958. Ed Wilson, whose name was given to the program in memoriam, was very active in promoting this effort through the early years of the chapter. Mr. Wilson, a University of Kentucky graduate, passed away in 1969 before completing his term as Chairman.

The scholarship objectives include promotion of SME membership and education in Student and Senior Chapters, financial rewards for students involved in SME activities, and providing assistance to a student pur-

suating careers in manufacturing or related fields.

The 2006 Ed Wilson Memorial Scholarship recipient is Mr. Daniel Watson.

Daniel (Raceland, KY) is a senior Industrial Technology /Manufacturing

Technology student at Morehead State University. His topic of research was an "Interlocking Fuel Dispensing Nozzle" which he has been designing with the original inventors of the design, Doug and Norwood Thorpe of Thortek Innovation Laboratories. The purpose of the nozzle is to act as a theft deter-

rent for gasoline fueling drive offs.

Through this project, Daniel has established a partnership with Thortek and MSU's Industrial and Engineering Technology department to produce Rapid Prototyping models of the fuel nozzle for form, function and testing components.

Daniel was presented with a \$2500 check from SME Chapter 154 for his manufacturing research, the highest award to date. In addition to his part-time employment with Thortek Innovation Laboratories and role as their webmaster, Daniel is also a full-time student and an active member of MSU's SME student chapter and NAIT Robotics team.

Scholarships are funded by the SME Chapter 154 Annual Golf Scramble and bulletin advertising. This year's Golf Scramble is May 25 at Duckers Lake Golf Club in Frankfort, KY. For more information, visit SME 154 @ <http://chapters.sme.org/154>

equipment are of great value in IET's mission to provide qualified graduates to industry.



Gregg Jones (Chairman), Daniel Watson, Sam Mason (Chair-Elect)  
All three gentlemen present are past SME 154 scholar recipients that cover a span of 30 years. (1980's, 1990's and 2000's)

## Emerson Power Transmission Donation

The IET department would like to thank EPT (Sealmaster) and Randy Norwood for the generous donation

of a Brinell and Rockwell hardness testers and an optical/contour projector/comparator. These pieces of

## Dr. Jaby Mohammed invited to teach Engineering for GSP

The Kentucky Governor's Scholars Program, established in 1983, provides academic and personal growth through the balance of a strong liberal arts program with a full co-curricular and residential life experience.

The Governor's Scholars Program is a stimulating, five-week, residential summer program for outstanding Kentucky students completing their junior year in high school. The program strives to enhance Kentucky's next generation of civic and economic leaders and to create models of educational excellence for teachers and students.

Dr. Mohammed has received the official invitation to join the 2007 Kentucky Governor's Scholars Program

as a faculty member teaching Engineering. Dr. Ahmad Zargari, IET Department Chairman, taught for GSP during the summers of 2002 and 2004.

Dr. Mohammed has also received a grant from the Institute of Regional Analysis and Public Policy for continuing his research in laser cladding. The main objective of this research is to investigate the relationship between laser power and feed rate to the hardness of a material.

The DMD process blends five common technologies: lasers, computer aided designs (CAD), computer aided manufacturing (CAM), sensors, and powder metallurgy. DMD is used to deposit a coating material over the die casting mold to provide wear resistance coating. Hardness of the material is used as the qualitative

performance measure to evaluate the coating.

Dr. Mohammed also received a fellowship from the creative and productions committee of Morehead State University for investigating the strength behavior of ABS plastic manufactured as honey comb model via fused deposition method. This research will focus on using honeycomb structure as compared to the solid structure and evaluating the performance parameters associated with the FDM at Morehead State University.

Dr. Mohammed presented two papers during the fall of 2006; one paper was presented at the international congress for laser and electro optics (ICALEO 2006) in Scottsdale, AZ and the other paper at the 92nd annual meeting of Kentucky Academy of Science which was held at MSU.

## **IET Class tours Cooper Standard and Morehead Machine**

Last Fall, the ITMT 270-Robotics Systems Engineering class toured the facilities of Cooper Standard and Morehead Machine.

Will Powers, of Morehead Machine, gave the students a tour of the shop area and spoke of different products they custom produce for companies. The majority of their business is generated from the construction and mining industries by producing custom components that have failed in the field and need replacement.

Sam Stapleton, of Cooper Standard,

walked the students through the processes of extruded rubber products and demonstrated new automated/roboticequipment used in production and assembly throughout the plant.

Cooper Standard is a leading global automotive supplier specializing in the manufacture and marketing of systems and components for



the transportation industry. They are very active with the "Inspirations" program they initiated in the school systems of Mt. Sterling, Kentucky.

The program consists of eight workshops that are a few hours in length and are scheduled throughout the school year. They unite industrial technical personnel with teachers to develop real world applications of math and science.

## **Laboratory Enhancement: Hydrology, Surveying and Hydraulics/Fluid Power Mechanics**

Through the Carl D. Perkins Vocational and Applied Technology Education Act, the IET department has received funding to purchase laboratory equipment in order to support curriculum instruction in the academic areas of hydrology and surveying.

The hydrology equipment allows testing for various conditions of open channel flow, includes a hydraulics

bench, a five-meter open channel flume, inlet and outlet tank, manometer board, various weirs, and a Bernoulli apparatus.

The surveying equipment allows students to accurately measure angles and distances for traverse work and includes four digital theodolites and tripods, three steel tapes, and three bipods for prism shots.

The classes to be served by the equipment are Power and Fluid Mechanics (IET 160), Hydraulics and Pneumatics (IET 260), Construction Methods and Materials I (ITCM 203), Construction Codes, Contracts, and Specifications (ITCM 204), Materials Properties and Testing (ITCM 303), Hydrology (ITCM 307), and Plane Surveying (ITCM 310).

## **IET Graduate Aiming for the Stars**

Jennifer Carter, MSIT student, received first place in the Kentucky Academy of Science Physics Research Competition on November 11, 2006 at Morehead State University for a presentation titled *KySat: Coming to a Space Above You*.



Currently, she is building the VHF/UHF antenna system that will be the primary communication system for KySat. She is scheduled to give a presentation titled *Kentucky Satellite (KySat): Design, Construction and Analysis of a VHF/UHF Ground Control Station for a Small Satellite*

at the Kentucky Academy of Career and Technical Education Conference in Louisville, Kentucky in late July.

She is also involved in the Tech Prep program, overseeing Tech Prep Projects and providing training and support for teachers and students.

## **SME Student Chapter receives Endowment**

The student SME chapter, S303, received an endowment of \$1,500 from the SME 154 Chapter in Lexington, KY.



The SME Chapter 154 established an endowment to promote and improve membership recruitment/retention, activities, chapter meetings and functions of SME student chapter organizations which are

affiliated with or pursuing affiliation with Chapter 154.

The student chapter will use the funds to improve recruitment/retention of members, conduct chapter meetings, and fund activities for tours and conferences and/or competitive endeavors relating to manufacturing, engineering or other technically related subjects.

## **Newest Member to IET Family and Future MSU Student**



**Jenny Li  
February 14, 2007**

*Photo Courtesy of Dr. Xiaolong Li*

## **Dr. Charles Patrick named as JIT Board Chairperson**

Dr. Charles Patrick, Professor of Industrial and Engineering Technology, was reappointed chairperson for the Board of the Journal of Industrial Technology (JIT Board) for a three-year term through November 2009.

The Journal of Industrial Technology is a research-based, online, international journal focused on the interests of industrial technology, technology management, and closely related fields. The JIT Board provides organizational and editorial



functions for the Journal of Industrial Technology. The JIT Board operates within the National Association of Industrial Technology (NAIT) as one of three independent boards, including Accreditation and Certification.

The JIT Board was established in November 2005 by the NAIT Executive Board and Dr. Patrick was named for a one-year term as Board Chairperson.

During 2006, with Dr. Patrick as Chairperson, the JIT Board implemented significant changes in the review of articles submitted

to the JIT. This included establishing a three-member editorial panel for vetting/classifying articles and rewriting the evaluation criteria for articles. At the NAIT Annual Conference in November 2006, the NAIT Executive Board reappointed Dr. Patrick as JIT Board Chairperson for a three-year term. Since that time, the JIT Board has implemented a plan to make the submission to and review of articles in the JIT an electronic process.

Article submission is now completely electronic (as of January 2007) and the article review process will go "fully electronic" in January 2008.

## **New Student Chapters for Construction Management**

The Construction Management program in the Department of Industrial and Engineering Technology at Morehead State University is establishing a joint student chapter of Associated Builders and Contractors (ABC) and the Associated General Contractors of America (AGC).

The objective of the student chapter is "to gather, receive, and disseminate information and knowledge of construction; as well as provide inspiration, advice, and guidance to its members in the preparation for professional careers in construction."

Jason Stepp, junior in construction management (CM) is the president of the student chapter. Dr. Gabriel D. Alungbe PE, AVS, associate professor of construction management is the faculty advisor. Dr. Charles Patrick, PE, CSIT, professor of construction management is the founding faculty member of the construction management program at MSU and also a faculty advisor to the student chapter.

The construction management program at MSU is accredited by the National Association of Industrial Technology (NAIT) with approximately sixty full-time students enrolled in the construction management program.

The ABC chapter sponsoring the MSU student organization is the Kentuckiana chapter headquartered in Louisville, KY.

ABC is a national trade association headquartered at Arlington, VA. It represents 23,000 merit shop contractors, subcontractors, material suppliers and related firms in 79 chapters across the United States.

ABC's membership represents all specialties within the U.S. construction industry and is comprised primarily of firms that perform work in the industrial and commercial sectors of the industry.

ABC's activities encompass government representation, legal advocacy, education, workforce development, communications, technology, employee benefits, recognition through national and chapter awards pro-

grams, and information on best practices and business development.

AGC of Kentucky located in Frankfort, KY is the local chapter sponsoring the MSU student organization of the AGC.

The AGC of America is merited as the voice of the construction industry, is an organization of qualified construction contractors and industry related

companies dedicated to skill, integrity, and responsibility.

AGC is dedicated to improving the construction industry daily by educating the industry to employ the finest skills, promoting use of the latest technology and advocating building the best quality projects for owners -- public and private. AGC is committed to three tenets of industry advancement and opportunity: Skill, Integrity, and Responsibility.



Officers L-R: Kevin Woods, Juan Melendez, and Jason Stepp

## Sam Mason named chairman-elect of SME

A Morehead State University instructor has been chosen to lead a chapter of his professional organization.

Sam Mason, instructor of manufacturing technology, was named chairman-elect for the Society of Manufacturing Engineers, Lexington chapter 154, for the 2007 term. At the end of the year, he will automatically assume the position as chairman for 2008.

Within the organization, Mason has held the position of scholarship chairman. For chapter 154, he also has served as secretary and is the first academic professional to serve as its chairman-elect.

A December 1995 MSU graduate, Mason earned a Bachelor of Science degree in industrial technology and is a certified manufacturing technologist. He began work with Arvin North American Automotive (currently Arvin-Meritor) in Columbus, Ind., in 1996 as a quality control technician. He soon was promoted to a shift su-

ervisor and eventually worked as a robotic technologist, performing many duties, including those as a quality control expert.

Mason's career took him to the Toyo Seat Company, where his responsibilities included maintenance and troubleshooting of robotic welding work cells, supporting new program and equipment installations and re-programming robots. During his time at Toyo Seat, he began work on his Master of Science in Industrial Technology (MSIT) degree at MSU, where he was hired as a technology consultant in the Office of Information Technology in May 2000.

He completed the MSIT degree in May 2002, and has worked as an instructor for MSU's Department of Industrial and Engineering Technology,



except for one semester when he did maintenance engineering training for the Mazak Corporation in Florence. Mason is pursuing a doctoral degree from the University of Kentucky in instructional systems design.

Mason is the Secretary of the Rowan County Christmas Board, Morehead Theatre Guild Board, Eastern Kentucky Technology Education Association (EKTEA), National Association of Industrial Technology (NAIT), Distance Learning and Internet Focus Group for NAIT, International Technology Education Association (ITEA), Lambda Chi Alpha, the Honor Society of Phi Kappa Phi and Epsilon Pi Tau (International Honor Society for Professions in Technology).

## IET Students Compete at SME Fabtech 2006

Five IET students traveled to Atlanta, GA to vie in the 2006 Fabtech International and AWS Welding Show sponsored by the Society of Manufacturing Engineers (SME).

Students William Lindberg, Jace Green, Brandon Osborne, David Nickel and James Higdon traveled with Dr. Ali Alavi to compete with other engineering schools in a design/build format.

The competition entailed designing and constructing a catapult-like mechanism in a three hour time span. Teams were given a trebuchet kit

package as well as extra materials to build the most effective device. The catapults were judged on overall design, distance achieved when firing, and accuracy when firing.

The MSU teams were honored to compete against several great engineering schools, one of those being the University of Kentucky. The two teams ranked 5th and 6th place.



## IET Graduate Student an element of another Winning Team

David Clemons, an IET graduate student in the MSIT program, is also a cheerleader at MSU. David and his team recently won the national championship titles sponsored by the

Universal Cheerleaders Association in January 2007. This is the 17th overall national championship for the co-ed team and their sixth consecutive. Congratulations David and the rest

of the MSU Cheering Team for your hard work and achievements.



## Faculty News and Activities

Morehead State University's Department of Industrial and Engineering Technology recently hosted the counseling staffs from Enrollment Services and Academic and Career Services.

The event was arranged by Sam Mason, instructor of manufacturing and recruitment chairman for IET.

The informational session began with brief introductions followed by lunch, a presentation and a tour of the department. The presentation included programs of study, information on new programs (technology management completer degree), an update of current projects underway in the department and presentations of student work. Each member received a packet of information that further explained topics covered in the presentation as well as the presentation itself on CD to share with students.

William Lindberg, Flemingsburg manufacturing senior, demonstrated

**Dr. Ali Alavi**, assistant professor of Industrial and Engineering Technology, successfully defended his dissertation in January to be awarded his Ph.D. in Technology Management with a specialization in Manufacturing Systems.

Ali and Dr. Jaby Mohammed have submitted two presentation proposals together for the NAIT conference which will be held in October, 2007. During the summer, Ali is planning to write an article with Dr. Mohammed for the submission in the Journal of Industrial Technology.

**Sam Mason** co-organized the Student Technology Leadership Program (STLP) regional showcase with William Cole, College of Education, to bring approximately 750 guests and participants to campus.

the tele-operated robot, designed and constructed by the MSU Robotics team that placed second nation-



ally with at the National Association of Industrial Technology Convention last fall in Cleveland. The team's first place technical poster was also on display.

David Shanklin, Flemingsburg manufacturing senior, presented a robotic storage/retrieval palletizing workcell he and group members Jace Green, Shelbyville senior, Jodie Jent, Morehead sophomore, and Gina Chase, Edmonton senior, constructed for their ITMT 270 Robotics Applica-

Sam's presentation at the Kentucky Academy of Science (KAS) this past fall was titled, "Making the Connection: Collaborative and Integrative Approach to Learning Mathematics through Technology Courses". He also presented at the 2006 NAIT conference, "An Analysis of Industrial Technology (IT) Programs Effectiveness Through the Eyes of IT Graduates: A Survey of Morehead State Graduates (2001) with Dr. Ahmad Zargari.

**Dr. Xiaolong (James) Li** received \$4,751 internal grant for his research project "Study of Algorithm and Protocol of Distributed Joint Self-localization and Synchronization for Wireless Sensor Networks" last Fall.

His paper titled *Influence of Bit Error Rate on the Performance of IEEE 802.11 MAC Protocol* was accepted

tions final project.

Doug Thorpe, Thortek Industries and IET Advisory Board member, was a guest for the informational session. He has established a partnership to work with the IET department on rapid prototyping many new product designs he is currently researching.

MSU staff members attending the IET department informational were:

From admissions/enrollment services: Holly Pollock, assistant director of admissions; Jenn Kidd, Keith Prater, Erin Hopkins, Kris Grigsby, senior enrollment services counselors; and Jen Crisp, transfer counselor.

From academic and career services: Julia Hawkins, director of career services; Dr. Mike Hopper, director of academic and career services; Alvin Madden-Grider, learning strategies coordinator; Peggy Overly, career/academic adviser; James Hodge, minority retention coordinator; Ernestine Winfield, Patty Little and Cindy Skaggs, general studies advisers; and Craig Dennis, coordinator of provisional studies.

for presentation at the IEEE Wireless Communication and Networking Conference (WCNC 2007) in Hong-Kong, China between March 11 and 15, 2007.

His paper, *Modeling and Analysis of Link Stability in Mobile Ad Hoc Networks*, was accepted for publication by the International Journal of Ad Hoc & Sensor Wireless Networks.

James has also joined the Blessing Hands Board of Directors.

**Dr. Ahmad Zargari**, Department Chair, has been approved by the National Association of Industrial Technology Accreditation Board as an official consultant. The IET department has held accreditation from the NAIT organization since 1997.