

### **Industrial Advisory Board** Lake Superior State University School of Engineering & Technology April 26, 2013

### **Chair's Report** Nathan Callaghan

### **Chair's Report:** April 2013

- Snyder IAB Scholarship Update
- New Candidate
- Chairman / Secretary Elections

### Charles H. (Charlie) Snyder Industrial "Advisory Board Engineering & Technology Scholarship

- Name: The name of this endowment shall be the *Charles H. (Charlie) Snyder Industrial Advisory Board Engineering and Technology Scholarship.*
- **Purpose**: Established to provide financial assistance and recognition to students entering LSSU in engineering and technology majors, this endowment is named in memory of Charlie Snyder of Delco Electronics. Charlie's years of leadership on the Industrial Advisory Board (IAB) and unsurpassed contributions to LSSU engineering and technology and its students left an indelible mark. Charlie had an infectious enthusiasm and brought skill, experience and understanding to LSSU senior project students.
- **Donor**: This named endowment was established through the efforts of the LSSU School of Engineering and Technology faculty, students and IAB. Representatives for the endowment are the **College Dean and members of the IAB.**
- **Amount:** This named scholarship shall be established with an initial gift of \$25,000. The principal of this endowment shall be held intact in perpetuity and only the income shall be used each year for the purpose of the endowment. Additional gifts to the endowment principal may be made at any time. Estate gifts will be encouraged.
- Value: The number and value of the scholarship(s) will be based upon the number of qualified candidates and the current LSSU Foundation spending policy for investments.

#### Custody

of Funds: Funds in this special account may be commingled with other funds for investment purposes. Investments shall be made to bring a good return, consistent with sound and safe investment procedures. The LSSU Foundation, as trustee of this account, shall keep records of all activities in this named account and shall make periodic reports to the donor. The *Charles H. (Charlie) Snyder Industrial Advisory Board Engineering and Technology Scholarship* shall be part of the annual audit of the LSSU Foundation.

Eligibility: A successful candidate:

- Must be an incoming freshman or transfer student enrolled at LSSU by April 1 of the current academic year
- Must be majoring in engineering or engineering technology
- Must have a high school or transfer GPA of 3.0 or higher
- Incoming freshman must also have a high school ACT score of 22 or higher
- This scholarship is non-renewable

#### Selection

- Committee: The Engineering faculty will recommend recipients based on scholarship selection criteria, developed in conjunction with the School of Engineering and Technology Dean and faculty and the representative(s) of the IAB. The selection committee will submit their recommendation to the Financial Aid Office for final approval.
- **Publicity**: Publicity is approved and encouraged in regards to this endowment and to all future gifts. Publicity is also encouraged upon allocation of funds from the income on this named endowment.
- **Changes:** If, in any given year, the scholarship is not awarded, the interest will revert to the endowment for awarding the following year. If changes at the University make the purpose as designated no longer applicable, the LSSU Foundation, in cooperation with representatives of the School of Engineering and Technology and the IAB may make any revisions to the endowment to meet the intent of the endowment, the intent of the law and the highest priority needs of Lake Superior State University.

Tony McLain, LSSU President Second Vice Chair – LSSU Foundation Date

David R. Finley, Dean College of Business and Engineering Date

Nathan Callaghan, Chair Industrial Advisory Board Date

### New IAB Candidate Paul Blackford

### New Candidate for the IAB

- Name: Paul Blackford
- Company: N/A
- Address: Brighton, MI
- E-mail: p.blackford@yahoo.com
- Phone: Home (810) 229-6757 Cell (734) 660-9747
- Title: Retired
- Professional Memberships: See attached
- Work Experience: See attached

#### Paul S. Blackford

#### **Highlights of Qualifications**

- Experienced in use of PUMA, Mitsubitshi, SCARA robots and programming with specific languages (VAL, code sequences) in simulated manufacturing environment.
- Twelve years experience in setting up laboratories and organizing programs and equipment for robotics/automation applications training.
- Installation of a variety of sensors (fiber optics, photo-electrics, proximity switches, limit switches, relays, hall effects) for robotics work cells in many applications to produce product or a process for integration.
- Create interlock systems for robots and PLCs for communication and safety devices.

#### **Relevant Work Experience**

- Consulted for junior colleges on how to improve course work and the physical plant for a robotics and automation program
- Taught mathematics, electronics, and robotics courses at area junior colleges.
- Designed and built an industrial robot work cell from concept to completion for a degree from W.C.C.; including a PLC, Staubli PUMA robot, pneumatics, jigs and fixtures, and sensors
- Established industry advisory council and networks for support and donations of equipment to the robotics program, ultimately developing it into the best in the Midwest; upgrading and implementation of new technology because of continual communication with leaders in the manufacturing sector.
- Excellent understanding of all aspects of safety in electricity, robotics and general plant production; knowledge of the various safety devices in use today from the anti-tiedown in a PLC to the light curtains and safety mats.
- Experienced in budget handling, inventory control of parts, sensors, pneumatics devices and lab layout for safety and training.
- Promoted the principles of team building and pride in work for the competition at the national level and the need for constant improvement with commitment and dedication to the team

- Taught 10-week classes in Livingston County for 10 different industries in electricity, instruments, PLCs and robotics; participants received a maintenance certificate upon completion, e.g., Ogihara, International Paper, Magna-Brighton Interiors, MascoTech, Mohr Engineering, and Key Plastics.
- Visited numerous manufacturing plants that are involved in robotics or have design contracts for new applications of robotics and automation e.g., Detroit Center Tool, Owen Machine Tool, Ford Motor Company Transmission plant, and Pico Industries.

#### Work History

- Instructor, Robotics and Automation, Pinckney High School, 1986-present
- Instructor, Pinckney High School, Electricity/Electronics, Mathematics (Algebra), Drafting, 1980-1985
- Instructor, Cabinetmaking and Electricity/Electronics, Pinckney High School, 1970-1980
- Head Coach, Boys Varsity Soccer, Girls Soccer, 1988-1993
- Assistant Wrestling Coach, Pinckney High School, 1972-1975
- Residential wiring for various contractors, 1984-1993
- Residential additions, finished carpentry, 1975-1993

#### **Education and Training**

- M.S., Masters of Applied Technology, Eastern Michigan University, 1974
- B.S., Industrial Arts (Electronics Major), Eastern Michigan University, 1970
- Mathematics minor, Eastern Michigan University, 1978
- Associates Degree, Washtenaw Community College (included robotics automation, digital electronics, fluid power, PLCs), 1987
- New training on Mitsubishi robots and vision system, 2000
- Adept SCARA robot with VAL II language, 1999

#### Awards and Recognition

- The standards set in the Pinckney robotics program receives an articulation agreement for 18 credit hours for incoming freshman for the WCC robotics and automation program (since 1990)
- Letters of recognition from President Bill Clinton, former Governor Blanchard, Governor Engler, Senator Mike Rogers, and Representative Susan Muncel (1986-present)
- Top Ten Can Doer's Award in the state of Michigan through the University of Michigan Technology Council, 1989
- SME Chairman's Award for contributions in robotics, 1992
- Meritorious Award from the Livingston County Chamber of Commerce, 1997
- Best of Show, National Championship Robotics competition sponsored by Society for Manufacturing Engineers, 1989, 1992, 1995, 1996
- Published in professional journals and newspapers for the advanced quality of the robotics program

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#### **Personal Strengths**

- Ability to organize;
- Consistent in policy and procedures;
- Energetic in new areas and day to day job tasks;
- Problem solver;
- Leadership capabilities;
- Budget management of a \$500,000 robotics lab facility;
- ▶ Willing to learn and change to the needs of the environment.

Highlights of Pinckney High School Robotics Program Paul Blackford, Instructor 1989-2000

# **Pinckney Advisory Committee**

- Washtenaw Community College: Robotics Department & Fluid Power Department
- Chrysler Corporation: Engine Program Management
- AEG Westinghouse: Automation Sales Engineering
- R & B Manufacturing: Masco Tech
- Ford Motor Company: Division Processes, Development, and Recycling Program
- Behr Industrial Equipment: Systems Design/Automation
- General Motors Corporation: Project Planning, Robotics/Automation
- Ford Motor Company: Quality Control, CAD Design, and Training Programs

# **Pinckney Advisory Committee**

- Kelsey-Hayes: Plant Management
- Detroit Edison
- MC2 Automation Sensors Group: Systems Engineering
- Defiance, Inc.: Laser Department
- Ogihara: Training Program
- Modicon-AEG
- Alpha Technology Corp.: Engineering
- Panasonic: Engineering
- Lumonics: Engineering

- Adil Shafi, Inc.: Adept SCARA Robot and related software
- Aer-O-Mover: Norston Hydraulic Robot, American Robot
- Allen Bradley: Programmable Controllers
- Barnum: Sensors
- Blackburn Electricity: Components
- Devilbiss Corporation: Industrial Robot, Industrial Switches
- Ford Motor Company: Plexiglas, Applications Videos
- Jackson Fluidaire: Components, Pneumatic Grippers
- Jones Cabinets: Formica Control Boards

- Kelsey Hayes: Components, Sensors, Vibratory Bowls
- Lumonics Corp: Laser
- MC<sup>2</sup>: Banner Sensors, Fiber Optics, Opto-Touch
- Modicon: Panelmate Plus
- Nachi Robotics: Opto-Couplers, Relays
- Ogihara: Air Cylinders, Proximity Limit Switches
- Omron: Touchscreen PLC

- Parke-Davis: Five IBM 386 Computers
- Philips Corporation: Lab Video Camera
- R & B Manufacturing: Steel for Gantry Robot
- Roberts Corporation: Robot Cell Videos
- Sensor Systems: Proximity and Photo-switches
- Turck: Photo Electrics, Proximity Switches
- University of Michigan Computing Center: Cables and Power Supplies
- Vickers Corp.: Hydraulic Trainer

- Adil Shafi, Inc.: Adept SCARA Robot and related software
- Aer-O-Mover: Norston Hydraulic Robot, American Robot
- Allen Bradley: Programmable Controllers
- Barnum: Sensors
- Blackburn Electricity: Components
- Devilbiss Corporation: Industrial Robot, Industrial Switches
- Ford Motor Company: Plexiglas, Applications Videos
- Jackson Fluidaire: Components, Pneumatic Grippers
- Jones Cabinets: Formica Control Boards

## **Visits to Industry**

Alpha Technologies, Howell: Robots PNP/Casting Handling Foundry Area

Devilbiss Robotics, Ann Arbor: Industrial Robots and sensor usage

Environmental Research Institute of Michigan (ERIM), Ann Arbor: Remote control of robots in space

Ford Motor Company, Wixom: Robot welding/windshield placement

General Motors, Lake Orion: Robot painting/welding/assembly

General Motors, Ypsilanti: Robot painting/welding/assembly

GM Tech Center, Detroit: Robotic simulation on CAD stations

GMF Robotics, Auburn Hills: Airbag assembly/laser welding

## **Visits to Industry**

Kawaski Robotics, Wixom: Applications and workcell design

Versa-Trim, Howell: Robot waterjet cutting/carpet/plastic doors

Ford Motor-Saline: Robot plastics trimming/deburring

Ford Motor-Livonia: Training center and robotic applications

Magna Corp./Brighton Interiors: Robotic assembly/waterjet cutting/leather

Chrysler Tech Center: Robotic lines for new production models

Ingersol Machines, Milwaukee: Robotic spray painting/CAM

Kelsey Verity, Brighton and Fenton: Robotic assembly of ABS Systems

## **Visits to Industry**

Numatics, Milford: Cylinders and Valves in Workcells

Ogihara, Howell: Kawasaki robots welding/seam sealing

Parke-Davis, Ann Arbor: Drug sampling/cleanroom/ASRS/PNP

Pico Industries, Novi: Robotics assembly lines (automotive)

Promess Sensors, Brighton: Programming microprocessors for robotics

R & B Manufacturing, Hamburg: Robots welding tubular products

Roberts Corporation, Lansing: Motoman robots for PNP/Assembly/Deburring

### **Visitors From Industry to Pinckney**

- Livingston County School Boards
- State Board of Education Members
- Lansing Area Capitol Skills Center
- Washtenaw Community College
- Eastern Michigan University
- General Motors-Hydramatic
- FAMS (Ford Academy of Math & Science)
- Focus Hope
- Ford Motor Design Center-Dearborn
- Ford Motor Quality Control-Saline
- Modicon Controls-AEG
- Bimba Cylinders Manufacturing

### **Visitors From Industry to Pinckney**

- Cleary College Leadership
- Behr Industrial Equipment
- Micro Switch
- Devilbiss Corporation Robots
- Cars & Concepts
- ABS American Builders & Contractors
- P.C. Architects Group
- Ogihara Stamping
- AEG Westinghouse
- A.L.E. Design Resources
- Philips Corp.-Ann Arbor

### **Visitors From Industry to Pinckney**

- Technical Institute of San Paulo, Brazil
- Heinrich-Weiland Schule, Pforzheim, Germany
- Mercedes-Benz, Stuttgart, Germany
- Industrial Training Representatives, Ireland
- Minister of Technology for the State of Israel

## **Press Coverage**

- Ann Arbor News (Michigan)
- Brighton Argus (Michigan)
- Detroit Free Press (Michigan)
- GM Tech Center News (national)
- Industrial Education Magazine (national)
- Livingston County Press (Michigan)
- Michigan Industrial Technology Education Society
- Robotics World (national)
- SME Membership News (national)
- Technical Directions (national)

# **Letters of Congratulations**

Dr. Elizabeth Berman: Superintendent of Instruction Livingston County
Dr. James Rokusek: Head Business & Industrial Education, Eastern
Michigan University
Mr. Larry Stockline: President, Promess Inc.
Mr. Michael Demsky: Engineering Executive, D.T.E.
Mr. David Lubowicki: Sr. Engineer, Modicon PLCs
Mr. Edward Ferguson: Director, Vocational Technical Education
Michigan

Mr. Steven Barry: Engineer, AEG Westinghouse Factory Automation Systems

#### Student Awards and Key Awards:

**Pinckney Robotics Letter ("P")** awarded for C+ average and for a completed work cell.

**Key Awards** to individuals for special support and/or donations to the program.

## **Professional Memberships**

American Vocational Association (AVA), Member

Society of Manufacturing Engineers (SME), Member <u>(First high school instructor to serve for two years</u> <u>on the National SME Education Committee)</u>

Michigan Industrial Technology Education Society (MITES), Member

## **Conference Participation**

- Robotics-Vision Conference, 1987, 1988, 1989, 1990, 1992, 1994
- Autofact 89 Teaching Strategies for Manufacturing Engineers
- Autofact 90 CAD, CAM, CAE, CNC, CIM Strategies
- Autofact 93 CAD, CAM, CAE, CNC, CIM Strategies
- Autofact 95 CAD, CAM, CAE, CNC, CIM Strategies
- SME, 1991 Creating and Teaching CIM
- Applied Academics Seminar, 1990
- AVA National Convention, 1990, 1996
- SME- CIM Teaching Strategies, 1990
- Curriculum Study- Technology Five-Year Plan, SME
- Manufacturing Curriculum Session- Professional Development Institute, 1991

## **Instructional Duties**

- <u>Consultant</u> for Schoolcraft Community College Robotics/Automation Department
- Served on <u>Advisory Board</u> for Henry Ford Community College
- Instructor for Washtenaw Community College
- <u>Instructor</u> for Livingston County Maintenance Training Program for electricity/programmable controllers and robotics
- <u>SME Student Competition in Robotics</u>, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997

### **Instructional Duties**

- Contacts with <u>Dr. Tamala from Michigan State University</u> to use our robotics CIM cell for pictures/video to be used in his Manufacturing program for the university. His aim was to parallel our robotics/automation program.
- Contract work for <u>Intellitec Corp</u>. to write and design 12 lab/work cells to be built and sold to various training centers throughout the country. These were very successful.
- Help and advise <u>Henry Ford Museum staff</u> for a robotics automation display at Green Field Village.
- <u>Pinckney Robotics curriculum</u> and full equipment list have been sent to <u>50+</u> technical programs across the country at all levels upon the programs' requests.
- <u>Visions Unlimited</u> (Dennis McElhone), advice for robotics assistance for handicapped persons, in liaison with Arizona State University's Dr. Lyn Bellamy, also robotics assistance for handicapped persons, after having visited Pinckney Robotics.

# Training

- Washtenaw Community College, 4 courses in robotics (including work cell construction), digital, and fluid power
- VersaCAD Training, 1991
- Eshed CIM Training, 1993
- Emco Maier CNC Operations Mill/Lathe
- Teksoft for CAD/CAM
- Modicon and Allen-Bradley PLCs

## **Awards and Recognition**

- The standards set in the Pinckney robotics program receives an articulation agreement for 16 credit hours for incoming freshman for the Washtenaw Community College robotics and automation program (since 1990).
- Letters of recognition from <u>President Bill Clinton</u>, former <u>Governor</u> <u>Blanchard</u>, <u>Governor Engler</u>, <u>Senator Mike Rogers</u>, and <u>Representative</u> <u>Susan Muncel</u>.
- <u>Top Ten Can Doer's Award</u> (Michigan Science and Technology Quest) in the State of Michigan through the University of Michigan Technology Council, 1989.
- <u>SME Chairman's Award</u> for contributions in robotics, 1992.

## **Awards and Recognition**

- <u>Meritorious Award</u> from the Livingston County Chamber of Commerce, 1997
- <u>Best of Show, National Championship Robotics</u> competition sponsored by Society for Manufacturing Engineers, 1989, 1992, 1995, 1996 out of 8 years of SME contests
- <u>Published</u> in professional journals and newspapers for the advanced quality of the robotics program
- <u>VICA</u> (Vocation Industrial Clubs America) Gold medal, PLC programming non servo robot





#### FORD MOTOR MANUFACTURING ENGINEER RESPONSIBILITIES ON LAUNCH TEAM

#### Problem Analysis, Creativity, and Decision Making

Clearly identify objectives along with potential problems and effectively follow up to completion. Initiate new manufacturing solutions; stimulate others to develop new ideas; involve coworkers individually or as team in identifying and solving manufacturing problems before making a decision. Very reliable in following instructions and procedures and keeping supervisors informed of work progress.

#### **Quality & Safety**

Improved and tested verification of repair standards for subassemblies; achieved 100% error proofing, safety welds, and weld tear-down. 100% compliance in safety, ergonomics, and robot safety for underbody, front structure, and full-body framer systems. Verified tool quality of pen-and-clamp points with drill-pin study on all subassemblies.

#### Teamwork

Strong, positive force in work group morale; provides appropriate assistance and support to others, even in times of high work pressure; can be counted on to maintain a positive working relationship. Skilled in handling difficult labor and floor work issues and able to establish positive relationships with body shop personnel and launch team members.

#### **Oral & Written Communications**

Exceptionally clear, convincing and logical in all verbal situations. Writing is organized, succinct, complete, and can adapt style depending on objectives and intended readers.

#### Navigator/Expedition 2003:

-Wrote process sheets for underbody, front structure, and framing systems

-Created visual aids for delta welds, sealer paths, error proofing, and Perceptron data

-Improved front structure cycle time from 68 JPH to 72 JPH

-Exceeded cycle time design 57.5 JPH (before kitting 66.3 JPH; after kitting 67.7 JPH) for entire system

-Achieved 100% dimensional validation builds for new sheet metal parts

#### Escape 2004:

-Designed Visual Factory simulation to support plant capacity for body shop using cycle times -Provided idle stations for future backups for new product changes in the framer line/main respot

-Designed tools/robot stations; buy-off book completed

-Completed Tables/Racks/Carts conveyance systems, Wilcox conveyors obtained for framing. -Installed Perceptron cameras for extra data to track 2nd row seats nuts—high visibility. -Use CMM data to verify check fixtures for parts and subassemblies.

#### **Budget Responsibilities**

Navigator/Expedition/Escape Budget: Initial \$8.6M; all vendors paid with \$286K remaining. -Savings with refurbishment of robots, Wilcox conveyors, carts & racks, and man-fans -New front end cell, reduced 3 heads by removal of cross truck beam that was product driven -Reusability money given to plant for underbody system refurbishment to prevent downtime

# **Chairman Election**

Need the membership to vote for a Chairman to serve the IAB for the next two years

#### IAB Officer Responsibilities and Term Limits

#### **TERM LIMITS**

The term of each office shall be two calendar years.

The terms of Chairman and Secretary shall expire on alternate years.

No more than 2 consecutive terms are allowed.

There is no limit to the number of non-consecutive terms.

Election shall be by a majority of the members present at the spring meeting.

The term shall pass to the successors at the end of the spring meeting.

Communication of all necessary information is the responsibility of the exiting officer.

#### **COMMENTS:**

The smooth operation of this small organization will depend on communication.

Forms of correspondence: Phone, Fax, E-mail, Letters, etc..

To facilitate hand-offs, a format should be consented upon for electronic applications.

# IAB Chairman's Responsibilities

- It is the Chairman's responsibility to oversee all of the activities of the IAB, including coordinating committees.
- As the need arises, the Chairman shall appoint committee chairpersons.
- The Chairman is an ex-officio member of all committees and is eventually responsible for the completion of all committee business. He/She shall keep in touch with all committee chairs, facilitate the completion of their task, and if necessary, remove inactive committee chairs / members and appoint successors.
- The Chairman is directly responsible for the IAB meetings.
- Meeting Responsibilities include:
- Establish meeting dates, locations and times (coordinate with Dean of Engineering)
- Arrange meeting facility
- Finalizing meeting agendas
- Presiding over meeting

**Industrial Advisory Board** 

### **Chairman Election Spring 2013**

#### **Nomination Process:**

- Any existing IAB members are eligible
- •Self nominations are acceptable
- •If you are nominating another member, please be sure that they are willing to participate
- •All nominations will be accepted and presented at the spring IAB meeting
- •Any questions please contact one of the existing IAB officers

The Nominees Are: •Steven Kars



•Need the membership to vote for a Secretary to serve the IAB for the next year Lake Superior State University School of Engineering and Technology Industrial Advisory Board

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### **IAB Secretary Responsibilities**

It is the responsibility of the secretary to maintain all of the IAB's records. The ords are to include:

Newsletter Newsletter Supplements Press Releases Publicity Phone lists E-mail lists Meeting minutes Historical information

A copy of all records shall be housed at the Engineering office (CASET 202, on at LSSU) with production assistance from the LSSU School of Engineering and Technology secretary and administrative assistant.

If the Chairman is unable to run a meeting, the secretary will officiate the eting.

**Industrial Advisory Board** 

#### Secretary Election Spring 2013

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The Nominees Are: •Lynnette Eding