2010
Research and Creative Activity
Department of Industrial Engineering
Lamar University

Victor Zaloom, Ph.D., P.E., Professor & Chair
Associate Dean of College of Engineering
Dean of Graduate Studies

Brian Craig, Ph.D., P.E., CPE, Associate Professor, Interim Chair

Ryan Underdown, Ph.D., P.E., Associate Professor
James Curry, Ph.D., Assistant Professor
Xinyu Liu, Ph.D., Assistant Professor
Alberto Marquez, Ph.D., Assistant Professor
Weihang Zhu, Ph.D., Assistant Professor
Tae Hoon Kim, Ph.D. Adjunct Professor
This report is published yearly by the Lamar University Department of Industrial Engineering to highlight the research and creative accomplishments of the faculty and students of the department. Listings are in alphabetical order.

Contact:

Department of Industrial Engineering
Lamar University Box 10032
Beaumont, Texas 77710-0032

409.880.8804 (office)
409.880.8121 (fax)
Administrative Assistant: Sandy Craigen, sandy.craigen@lamar.edu
Technician: Sal Costa, salvador.costa@lamar.edu
Publications


13. Carol Schulte, **James Curry, Victor Zaloom, Weihang Zhu**, Helen Lou, **Alberto Marquez**, Scheduling Hazardous Waste Incinerators Using a SA-LP Heuristic, Journal of
doi:10.1089/ees.2009.0380;

14. **Weihang Zhu**, Parallel Biogeography-based Optimization with GPU Acceleration for Nonlinear Optimization, ASME IDETC/CIE Conference, August 15-18, Montreal, Canada

15. **Weihang Zhu, James Curry, Anjali Mishra, Alberto Marquez, Victor Zaloom**, An Experimental Study of GPU-accelerated Ant Colony Optimization for Sequence Dependent Parallel Machine Scheduling, Industrial Engineering Research Conference, Cancun, Mexico, June 5-9, 2010

16. **James Curry, Alberto Marquez, Weihang Zhu**, Setting Gate Prices with Intermediate Actors and Transportation Costs, Industrial Engineering Research Conference, Cancun, Mexico, June 5-9, 2010


19. Yaohang Li, **Weihang Zhu**, **GPU-accelerated Multi-scoring Function Protein Loop Structure Sampling**, Ninth IEEE International Workshop on High Performance Computational Biology, Atlanta, GA, April 19, 2010, held in conjunction with International Parallel & Distributed Processing Symposium (IPDPS);

20. **Hani Almufti, Kody Duplechin, Brent Trasher, Weihang Zhu**, A Simulation Study of Medical Office Practice, IIE Regional Conference 2010, held at St. Mary's University, San Antonio, TX, Feb 26~27, 2010 (Undergraduate student paper)


**Theses and Field Studies Published**

**Doctoral Dissertations/Field Studies**

Pugalenthi Pandian, “Quantitative Justification and Illustration of Quick Response Manufacturing Principles”, Advisor: Xinyu Liu; Co-Advisor James Curry; Committee: Xinyu Liu, James Curry, Ryan Underdown, Victor Zaloom, Weihang Zhu

**Master of Engineering Science Theses**

No M.E.S.I.E graduated in 2010
Presentations


5. Ryan Underdown, “Lean Manufacturing Demonstration”, Steel Tank Institute Annual Conference, Houston, TX, Oct. 2010

6. Weihang Zhu, James Curry, Victor Zaloom, A Framework of GPU-accelerated Evolutionary Algorithms for Global Optimization, INFORMS 2010, Austin, TX (Presentation Only);

7. Weihang Zhu, GPU-enabled Metaheuristics for Optimization, University of Houston, October, 2010;

8. Tae Hoon Kim; Kuznetsov, M.; Alekseev, V.; Matsukov, "Ignition, flame Acceleration and Detonations of Methane-Air Mixtures at Different Pressures and Temperatures", 8th ISHPMIE, September 5-10-2010, Yokohama, Japan

Current Funding

1. Leading Safety Indicators and Safety Culture Audit in the Maritime Industry, American Bureau of Shipping, Houston, TX, PI: Brian Craig, Co-PI: Kumer Das, $165,000, Spring 2008 – Fall 2011


   • Safety data analysis from multiple data sources.

3. Prototype Leading Safety Indicators, American Bureau of Shipping, Houston, Texas, PI: Brian Craig, Co-PI: James Curry, Weihang Zhu, Kumar Das, $130,000, Fall 2010 – Fall 2011

4. Research Enhancement Grant, Lamar University, PI: Brian Craig, $5,000, September 2010 – August 2011.

5. Research Enhancement Grant, Lamar University, PI: Xinyu Liu, $5,000, September 2010 – August 2011.
6. Exxonmobil Bernard Harris Summer Science Camp, ExxonMobil, $80,000, PI: O. Urbine, Co-PI: **Ryan Underdown**, summer 2010

- The Exxonmobil Bernard Harris Summer Science Camp will be held for a fifth consecutive year at Lamar University in June 2011.


- Go W.E.S.T. Summer Engineering Camp will be held for a fourth consecutive year at Lamar University in July 2011.


- The research objective of this project is to perform research and prototyping work to create innovative learning materials and tools for the ‘Dynamics’ course using a 3D haptic-augmented virtual environment. We have finished 99 student experiments about using advanced multi-modal haptics-augmented human-computer interface to complement the teaching of Dynamics, a fundamental engineering course in College of Engineering. The research has resulted in a Master Thesis, three conference papers in the American Society of Mechanical Engineers (ASME) annual congress 2008, the American Society of Engineering Education (ASEE) annual conference 2009 and 2010, and a poster in the NSF-AAAS CCLI/TUES Principle Investigator Conference 2011.

11. Lamar University (PI: **Victor Zaloom** and Co-PI: **James Curry**) was awarded a contract to teach industrial engineering master’s students for the US Army (December 2009-December 2015). The program had 11 participants in 2010. The students are full time US Army Civilian employees. All 11 students earned their Masters of Engineering degree at Lamar University in one calendar year. The key benefits for Lamar University are:

- An alumni base in high profile civilian positions in the Army.
- An academically strong student population with diverse undergraduate education experiences, work experience, military experience, and diverse backgrounds that should aid to the learning experience of all students (new and existing).
- A considerable amount of revenue per year.
Panels


IE Student Papers


7. *Hani Almufti, Kody Duplechin, Brent Thrasher, Weihang Zhu*, A Simulation Study of Medical Office Practice, IIE Regional Conference 2010, held at St. Mary's University, San Antonio, TX, Feb 26–27, 2010. (Undergraduate student paper)

Session Chairs

Online Courses

In 2010, the IE department taught 19 online and distance education courses.