

# ISE NEWSLETTER

WHAT'S BEEN HAPPENING IN INDUSTRIAL & SYSTEMS ENGINEERING?

Fall 2019



## CHAIR'S MESSAGE

### INSIDE THIS ISSUE:

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**New!**

**AI and Analytics MS ISE  
Emphasis Area**



See Page 7

### Recent Grants and Contracts Awarded

**2019 Nathan-Roberts, et al.** Transit Insecurity, Mineta Transportation Institute (\$5,000 planning grant).

**2018 Nathan-Roberts** Broad Agency Announcement, Training Decay Selection for Medical Product Usability Validation Testing, Food and Drug Administration, (\$402,090),

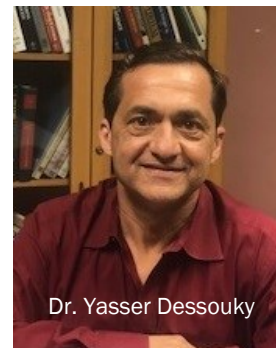
**2018 Nathan-Roberts** OB OR Layout and Design, Stanford, Lucile Packard Children's Hospital (\$27,413), .

**2019 & 2018 Liu.** Test/Research Market Clearing Systems for ISO New England, Awarded \$55,264 each year,

Our mission in the Davidson College of Engineering at San Jose State University (SJSU) is to enable our students to become socially responsible engineers and leaders in Silicon Valley and beyond through an accessible, world-class education. In fact, local technology firms employ more engineering graduates from the Charles W. Davidson College of Engineering than any other university, and the College **ranks 3<sup>rd</sup> nationally\*** among public engineering programs offering bachelor's and master's degrees, excluding the service academies.

We invite you to explore how our Industrial and Systems Engineering Department at SJSU is serving this mission from reading our newsletter. Some highlights: Dr. Dan Nathan-Roberts teaching time motion studies and assembly line balancing by having the students produce trail-mix which is later donated to San Jose State University's Food Bank, alumni giving back thru our mentoring program, development of our state-of-art wireless manufacturing and human factors labs, engagement with industry in develop-

\* US News and World Report 2019



Dr. Yasser Dessouky

ment of workshops to support their employee needs, new curricula in data analytics to meet the market demand in this area, and the numerous awards our faculty and students have recently received in recognition of their outstanding efforts. These are few of the many items that are presented in this edition, and I hope you enjoy the reading.

## FEATURE REPORT

### ISE LAB UPGRADES

Over the past year, the ISE Department has significantly upgraded the **Computer Integrated Manufacturing (CIM) Lab** (Engr. Room 194), and the **Human Factors/Ergonomics Lab** (Engr. Room 494). The CIM lab has been transformed into a completely wireless format, with the conveyor, gates, and robots all connected wirelessly with IoT devices and managed by a software tool that is easy for



students to learn and configure. Four new 3D printers have also been added to the lab, and used, as it turns out, to produce many of the items needed during

the lab upgrade. The department is grateful to Mr. Tom Pham, an ISE program graduate for designing and completing this upgrade project.

The upgraded CIM lab has been in use for ISE 115 for the past two semesters. A major new robot addition, an Automated Storage and Retrieval System (ASRS) (cont. Page 8)

## ISE Full Time and Emeritus Faculty



**Dr. Yasser Dessouky**  
Professor and Chair  
**Editor**, Computers & Industrial Engineering (Elsevier)  
**Research** Supply chain, Operations and Process Improvement, and Analytics applied to various applications



**Dr. Minnie Patel**  
Professor  
**Director, Graduate Program in Engineering Management**  
**Research** Operations Research, Supply Chain Engineering, Data Analytics



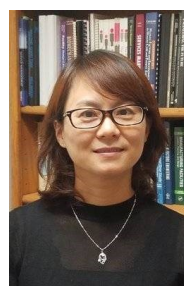
**Dr. Jacob Tsao**  
Professor  
**Director, MS ISE Graduate Program**  
Associate Dean, Extended Studies  
**Research** Reliability Theory; Operations Research; Intelligent Transportation Systems



**Dr. Anil Kumar**  
Associate Professor  
**Director, Graduate Program in Human Factors/Ergonomics**  
**Research** Product design and development (medical products and healthcare), ergonomics, human factors, work measurement and analysis, lean manufacturing, production/operations management, and safety



**Dr. Ayca Erdogan**  
Assistant Professor  
**Research** Data analytics, statistical, simulation and optimization modeling and applications on problems related to service (healthcare) and production systems



**Dr. Hongrui Liu**  
Assistant Professor  
**Research** Optimization and statistical modeling, algorithms, data analytics and their applications in supply chain and energy industry



**Dr. Dan Nathan-Roberts**  
Assistant Professor  
**Director, Human Factors/Ergonomics Lab**  
**Research** Human Factors in healthcare; Innovation and interdisciplinary design education; Lay-user healthcare design; Human-robot trust; Ergonomics; User-Centered Design



**Dr. Louis Freund**  
Professor Emeritus  
**Research** Human factors engineering, work measurement, process (quality) control, system simulation, and Service Engineering

## ISE Adjunct Faculty and Support Staff



Dr. Tony Andre



Dr. Abbas Moallem



Dr. Baruch Saeed



Mr. Jose Flahaux



Mr. Patrick Tam



Mr. Dan Rosenberg



Dr. Supreet Amin



Dr. Ramesh Srinivasan



Mr. Khalid Mabruk



Mr. Andrew James



Dr. Joseph Barjis

**Ms. Fabiola Arellano**  
Administrative Analyst  
Department of Industrial & Systems Engineering

Fabiola.Arellano@sjsu.edu  
408-924-3301





## DAN ROSENBERG WINS LIFETIME PRACTICE AWARD

**Mr. Dan Rosenberg**, Adjunct Professor and User Experience (UX) consultant, has received the 2019 Lifetime Practice Award from the ACM SigCHI, "the world's largest association of professionals who work in the research and practice of computer-human interaction." (<https://sigchi.org/>). Dan has



been teaching in the ISE Human Factors/Ergonomics program for the past 7 years, advising many MS projects each semester as well as designing and teaching two new UX courses. In accepting this award, Dan presented a Keynote lecture on The Business of UX Management.



## ANDRE SELECTED FOR THE 2019 ARNOLD M. SMALL DISTINGUISHED SERVICE AWARD

**Dr. Anthony Andre** (ISE) received the highest honor bestowed by the Human Factors and Ergonomics Society (HFES); the Arnold M. Small President's Distinguished Service Award. This award, established in 1985, recognizes individuals whose career-long contributions have brought honor to the profession

and the Society. Dr. Andre received his award at the opening ceremony of the HFES annual meeting this October in Seattle, WA.

Andre is a longtime Adjunct faculty member, past President of HFES, and Founder and Co-Chair of the HFES Human Factors in Health Care annual conference.



## FREUND RECEIVES 2019 ISSIP FELLOW AWARD

**Dr. Louis E. Freund**, former ISE Department Chair and HF/E Program Director, is now an ISE Professor Emeritus and Adjunct Professor. ISSIP, the International Society of Service Innovation Professionals, bestows its Fellow award on individuals who have led in the field of Service Systems Engineering and Management. He was recognized for establishing the Service Systems Engineering course, ISE 142/242 at SJSU, for his 6 years of Co-Chairing the

Human Side of Service Engineering conference of the AHFE, and for his research in service quality and metrics for T-Shaped professionals. He is the recipient of several IBM Faculty Awards to recognize and support his work and contributions to service science. A photo of the award trophy was present-

ed at the Naples Forum on Service, held on the Island of Ischia, IT in June, 2019.



Freund and his wife, Alice were present to receive the honor from Jim Spohrer, ISSIP Director and Director, Cognitive Opentech Group (COG) IBM Research.



# FACULTY/\*STUDENT PUBLICATIONS

## *Cost-Effectiveness Analysis of Lung Cancer Screening Accounting for the Effect of Indeterminate Findings*

Toumazis, I., Tsai, E. B., **Erdogan, S. A.**, Han, S. S., Wan, W., Leung, A., & Plevritis, S. K. JNCI Cancer Spectrum, 2019

## *Optimization of telemedicine appointments in rural areas*

**Erdogan, S.** Ayca, Tracey L. Krupski, and Jennifer Mason Lobo. "Service Science 10.3, 261-276, 2018

## *Cybersecurity Awareness Among Students and Faculty,*

**Moallem, A.**, CRC press, 2019

## *Human-Computer Interaction and Cybersecurity Handbook*

**Moallem, A.**, , CRC Press, 2018.

## *The Business of UX Management*

**Rosenberg, D.**, , ACM Interactions, (cover story) May-June, 2019.

## *Human Factors Usability and Validation Studies of a Glucagon Autoinjector in a Simulated Severe Hypoglycemia Rescue Situation*

Valentine, V., Newswanger, B., Prestrelski, S., **Andre, A.**, Garibaldi, M., Diabetes Technology and Therapeutics, Published Online 20 June, <https://doi.org/10.1089/dia.2019.0148>, 2019.

## *Biomechanical analysis of healthcare professionals during two common procedures for neonatal resuscitation.*

\*Yamada, N., and **Kumar, AR.**, (2019). In Human Factors and Ergonomics in Healthcare, Chicago, IL, USA, March 24-27, 2019

## *Human Factors Medical Device Consortium (HFMedic): A Partnership to Improve Health Care. In Human Factors and Ergonomics in Healthcare,*

Drews F, Cluff K., DeLucia, P.R., McLaughlin, A., and **Kumar, AR.**, (2019). Chicago, IL, USA, March 24-27, 2019

## *Rule-based Smart Contract Design in Supply Chain*

H. Alshayji\* & **H. Liu.** , Proceedings of the Institute of Industrial and Systems Engineers, Orlando, FL, May 2019

## *A Comparative Study of Traditional Forecasting Methodologies vs. Machine Learning Algorithms*

Aluko\* & **H. Liu.** , Proceedings of the Institute of Industrial and Systems Engineers, Orlando, FL, May 2019

## *A Bibliometric Analysis of Supply Chain Analytical Techniques*

Cancino, C., Amirbagheri, K., Merigó, J., and **Dessouky, Y.**, Computers and Industrial Engineering, 137, 2019

## *An Integrated Scheduling Method for AGV Routing in Automated Container Terminals*

Yang, Y., Zhong, M., **Dessouky, Y.**, and Postolache, O. Computers and Industrial Engineering, 126, 482-493, 2018

## *Simulating Performance for One-Dedicated-Lane Light Rail System – A Case Study*

**Dessouky, Y.**, Valladares, G., Valladares, C., **Tsao, J.** and **Patel, M.** Proceedings of International Joint Conference on Industrial Engineering and Operations Management, Lisbon, Portugal, 2018

## *Predictive Modeling of Post-Traumatic Stress Disorder*

**Erdogan, A.**, **Patel, M.**, **Dessouky, Y.**, Bidassie, B., and Sanchez, S., Proceedings of the 2018 IISE Annual Conference, Orlando, Florida, 2018

## *Evaluating Children's Interaction with Touchscreens From 0 to 8 Years Old*

\*Soliman, S., **Nathan-Roberts, D.**, Proceeding presented at the HFES 62nd Annual Meeting, Philadelphia, PA, 2018



COVER STORY  
**The Business of UX Management**  
 Daniel Rosenberg, San Jose State University

## FACULTY/\*STUDENT PUBLICATIONS, CONT.

### *Solving 0–1 semidefinite programs for distributionally robust allocation of surgery blocks*

Zhang, Yiling, Siqian Shen, **and S. Ayca Erdogan**. Optimization Letters 12.7, pp 1503-152, 2018

### *An optimization model for pickup and delivery of donated blood units*

\*Nader, N., **Erdogan, S.A.**, Proceedings of 48<sup>th</sup> International Conference on Computers and Industrial Engineering, Auckland, NZ, 2018

### *Socially Interactive Robots Can Teach Young Students Language Skills; a Systematic Review*

\*Hein, M., **Nathan-Roberts, D.**, Proceeding presented at the HFES 62nd Annual Meeting, Philadelphia, PA, 2018

### *A Systematic Review of Communication in Distributed Crews in High-Risk Environments.*

\*Rockwood, J., **Nathan-Roberts, D.**, Proceeding presented at the HFES 62nd Annual Meeting, Philadelphia, PA, 2018

### *Analysis of Eddy Current: What Can Be Done to Reduce the Number of False Positives and False Negatives Made by Human Operators in Nondestructive Testing?*

\*Arbab, Y., **Nathan-Roberts, D.**, Proceeding presented at the HFES 62nd Annual Meeting, Philadelphia, PA, 2018

### *Social Skill Focuses of Virtual Reality Systems for Individuals Diagnosed with Autism Spectrum Disorder; A Systematic Review*

\*Thai, E., **Nathan-Roberts, D.**, Proceeding presented at the HFES 62nd Annual Meeting, Philadelphia, PA, 2018

### *Design Considerations in Wearable Technology for Patients with Bipolar Disorder.*

\*Tran, T., **Nathan-Roberts, D.**, Proceeding presented at the HFES 62nd Annual Meeting, Philadelphia, PA, 2018

### *Real-Time Cognitive-State Neuroimaging in Applied Education.*

\*Wazny, J.H., **Nathan-Roberts, D.**, Proceeding presented at the HFES 62nd Annual Meeting, Philadelphia, PA, 2018

### *Design to Improve Player On-Boarding and Decision-Making Processes in Video Games: A Systematic Review*

\*Endresen, I., **Nathan-Roberts, D.**, Proceeding presented at the HFES 62nd Annual Meeting, Philadelphia, PA, 2018

### *How Haptic Feedback in a Mixed Reality Pool Game Affects Real-Life Pool Performance.*

Thai, E. and **Kumar, A.**, Proceedings of Human Factors and Ergonomics Society 63<sup>rd</sup> International Annual Meeting, October 28 - November 1, 2019, Seattle, Washington, USA, 2019

### *Perceived Usefulness of Multimodal Voice Assistant Technology*

Baeza, R. and **Kumar, A.**, Proceedings of Human Factors and Ergonomics Society 63<sup>rd</sup> International Annual Meeting, October 28 - November 1, 2019, Seattle, Washington, USA, 2019

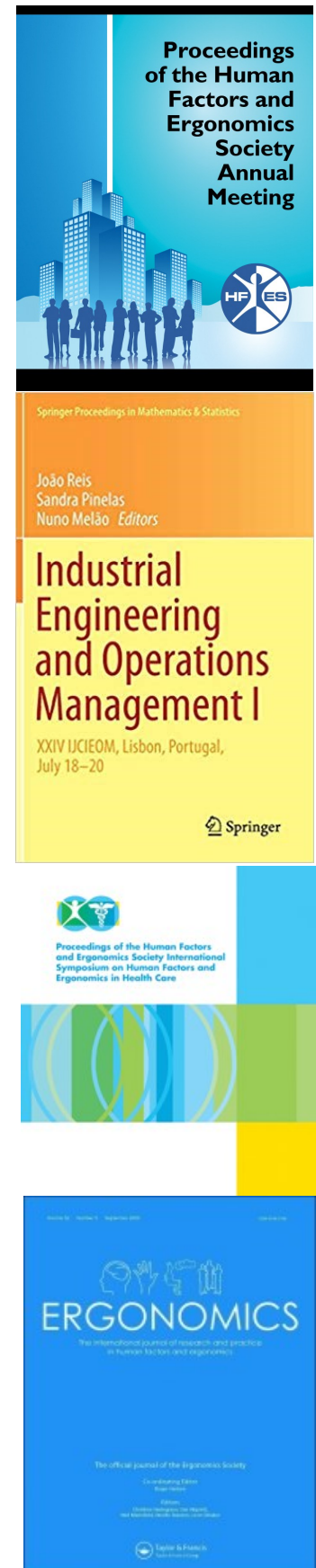
### *Interactive Tools for Safety 4.0: Virtual Ergonomics and Serious Games in Real Working Contexts*

Lanzotti A., Vanacore A., Tarallo A., **Nathan-Roberts D.**, et al, Ergonomics, DOI: [10.1080/00140139.2019.1683603](https://doi.org/10.1080/00140139.2019.1683603), 2019

### *A Spatial Optimization Model for Resource Allocation for Wildfire Suppression and Resident Evacuation*, \*Zhou, S. and **Erdogan, A.**, Computers in Industrial Engineering, 106101, 2019

### *Elaborating the Human Aspect of the NIST Framework for Cyber-Physical Systems.*

Burns, M., Manganelli, J., Wollman, D., Boring, R. L., Gilbert, S., Griffor, E., Lee, Y.C., **Nathan-Roberts, D.**, Smith-Jackson, T., Proceeding presented at the HFES 62nd Annual Meeting, Philadelphia, PA, 2018





## DEPT ADVISORY COUNCIL PROFILE

### JOSÉ FLAHAUX

**Mr. José R. Flahaux** is a retired high-tech operations executive. He has an extensive background in global supply chain and operations management in high-tech companies such as Burroughs, Unisys, Raychem, SanDisk and Corsair Components. As the SanDisk Senior Vice President of World Wide Operations, he architected, implemented and led the company's supply and fulfillment chain that supported SanDisk's revenue growth from \$200M to the \$4B level.

José has an Electrical Engineering undergraduate degree from ITPLG in Belgium, he also holds a MSE in Engineering Management from SJSU. He served as captain in the Belgian Air Force Reserve. He



has been an Executive Mentor for 11 years and operations content lead for 5 years at the Santa Clara University Miller Center for Social Entrepreneurship. He is also an adjunct professor at the department of Industrial and Systems Engineering at San Jose State University.

José has been serving on the ISE DAC for more than 10 years. His guidance and leadership with regard to the Program Educational Objectives have been important components of the Department's preparations for the previous 2 successful ABET accreditation visits.

Following completion of the Department's MS in Engineering Management, José has been teaching ISE 151, the Intro to Engineering Management, and ISE 103, Life Cycle Engineering.

## ISE MAKES THE MIX

In the Work Measurement Work Design class (ISE 120), students are given the chance to run their own experiments (known as Trail-mix manufacturing projects) where creativity and innovation start. Students design the labels of the trail-mix bags. They are given the chance to create robot prototyping to automate some of the steps in

the process. Students also design and perform 3 different phases of trail-mix projects including conducting a predetermined motion time system report (MOST Analysis) to calculate the total time and standard time of the operations.

Students also design the layout of their workstations which helps them understand how different workstation layouts can have an impact on the process. They also conduct Time study Analysis of their production line. This includes analysis of the middle 7 bags process to observe and find the performance rate, normal time, standard time, and allowance. Line Balancing Efficiency Analysis is included in the report such as repositioning time, total work content time, cycle time, service time, and line bal-



Above: **Dr. Dan Nathan-Roberts** (center) and the Spring 2019 ISE 120 Work Measurement class. Below: Class Trail Mix product at the SJSU Food Bank.

ance efficiency. In Phase 2 they improve the process based on the findings in Phase 1. Finally, they determine advantages and

disadvantages of Standardized Data Systems by comparing actual to predicted time standards.



# MS ENGINEERING MANAGEMENT PROGRAM UPDATE

The Master's Degree program in Engineering Management (MSEM) has been growing since July 2013 under the leadership of **Professor Minnie Patel**. This program was transferred from the General Engineering Program to Industrial and Systems Engineering the (ISE) Department in July 2013 as an MSISE emphasis area in engineering management, with about 30 students. In the Fall of 2015, it became new university MS degree, the MS in Engineering Management. Since transferring to ISE, the program has grown to 164 students this semester.

The MSEM program consists of ten

courses, with six core courses and 4 business and ISE technical elective courses. It is general in nature, including topics such as lean six sigma, engineering management, systems engineering, statistics, and financial methods for engineers. Depending on their interests, students may also acquire background in marketing, business analytics, law and ethics, product development, project management, managing in the global economy, and supply chain analytics.

As reflected by the strong growth trend, the MSEM program has attracted applicants from engineering, computer science, economics, and

business. While most of the students in the program are fresh graduates, about 20% of the students are local professionals who are studying to strengthen their background in engineering management topics or interested in making a career change.

About 45% of eligible MSEM students acquired internships during Spring 2018 and Spring 2019. Below is a partial list of local companies providing an internship opportunity to one or more MSEM student or graduate in the past year. For further information, check out: <http://www.sjsu.edu/ise/programs/ms-em/>

## MS Engineering Management Internship Sponsors Spring/Summer 2019

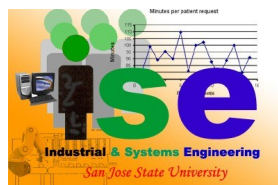
23andMe	FedEx	MediaTek	Reltio
ACCO Brands	Formation	MP Advertising	Sound United
Airesheet Metal Inc.	Genentech	New Relic	Stanford HealthCare
Applied Materials	HP	Nutanix	Tesla
Bayer U.S LLC	Infoblox	On Semiconductor	Ultragenyx
Baytech	Juniper Networks	OnDot Systems	UpBoard
Brooks Automation	LitePoint Teradyne	Pharmacyclics	Veritas Technologies
Cepheid		PM Group	Western Digital

## MS ISE PROGRAM UPDATE AI AND ANALYTICS

Data **analytics** is the analysis of data using quantitative and qualitative techniques to look for trends and patterns in the data. ISE's are increasingly relying on the analysis of so called "big data" resources of the companies and client to discover better processes, improve supply and distribution channels, and improve

the quality and reliability of services and products. In many cases, these goals are assisted by the employment of **Artificial Intelligence (AI)**. Industrial Engineers pursuing advancement in their profession will need to be knowledgeable about these newest tools and methods. To this end, the ISE

Department recently announced 5 new graduate courses in AI and Analytics (see Box). The courses are headed by Profs. Tsao, Erdogan, Liu, and Patel. Further, the MS ISE degree can now be completed with all five courses as part of your degree requirements. Contact [industrialsystems-dept@sjsu.edu](mailto:industrialsystems-dept@sjsu.edu) for further details.



ISE 201: Math Foundations for Decision and Data Sciences (Dr. Tsao)  
 ISE 244: AI Tools for Practice and Systems Engr (Dr. Tsao)  
 ISE 240: Analytics and Systems Engr (Dr. Erdogan)  
 ISE 243: Advanced Supply Chain Analytics (Dr. Liu)  
 ISE 233: Operational Data Analysis (Dr. Patel)



# STAR FELLOWS PROGRAM BEGINS IN ISE

The STAR (Student Talent Accelerator) Program has been designed to significantly improve student success for top undergraduate students. The program offers two tracks: A) the "road to Ph.D." graduate education preparation track, or B) the industry mentoring track. Four pillars form the foundation of the STAR program: 1) one-on-one mentoring, 2) professional development, 3) financial support, and 4) social support. The STAR Academic Fellows application process mirrors the College of Engineering Davidson Scholars program application process. The proposed budget included funds for eight student-faculty pairs, but the program received nine qualified applicants during the application cycle in the fall of 2018 and all nine were accepted. Dr. Anil Kumar supervised four students, Dr. Hongrui Liu supervised two students, and Drs. Ayca Erdogan, Alessandro Bellofiore, and Dan Nathan-Roberts each supervised one stu-

dent. Although the program is ramping up, the STAR Academic Fellows are already targeting graduate schools and conducting impressive research. One student, Siqiong Zhou, will be starting in a funded position in Arizona State University's Ph.D. program (see P.9), another, Shuai Liu

started his masters degree at the University of California at Berkeley in Fall 2019, and a third, Haya Alshayji, has been accepted by Penn State into their Ph.D. program starting January 2020. The nine academic fellows have also been active in their research; publishing four peer-reviewed confer-

ence proceedings (in IISE, INFORMS, HFES, and the Healthcare Human Factors Annual Symposium), and co-leading a two-day training workshop on IE concepts in design. The fellows are now preparing two additional journal manuscripts and one peer reviewed conference proceeding for submission. In addition, a STAR fellow was recently featured in a Davidson College of Engineering news article about their contribution to a grant held by Dr. Nathan-Roberts. Clearly, the program is generating major visibility for the ISE program, while making a substantial difference in the lives of the awardees. Congratulations to all involved, faculty and students!

*Haya Alshayji  
Liu Shuai  
Siqiong Zhou  
Sayan Roy Chowdhury  
Kelli Sum  
Rianna Baeza  
Jackeline Mendoza-Navarro  
Jarnet Wazny  
Elaine Thai*

## COLLABORATION WITH LAM RESEARCH

In October 2018, Lam Research expressed interest to partner with ISE at SJSU to create a program that would provide their employees world class Systems Engineering capability essential to ensure fast delivery of high quality solutions. Drs. Dessouky and Kumar responded, and collaborated with Lam Re-

search to develop a series of Systems Engineering Fundamentals training workshops for its employees. This collaboration is an example of a symbiotic relationship which demonstrates how the ISE department can serve the local community, while at the same time, help faculty keep abreast with current



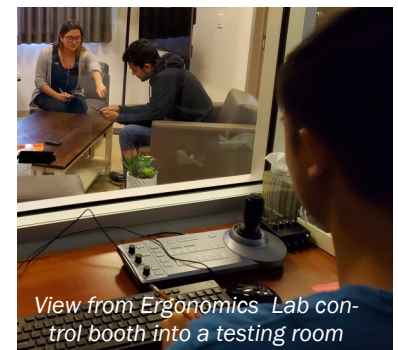
industry practices and trends. Truly, a win-win situation. The first workshop was offered in January 2019 and till date, workshops have been conducted for locations in the US, Austria and India. Dr. Kumar is the program director and leads the implementation of the program at the corporate location.

## FEATURE REPORT—ISE LAB UPGRADES CONTINUED FROM PAGE 1

has been built and added to the lab to expand the student experience. Tom is now teaching ISE 115 and the 115 lab sections.

The **Human Factors/Ergonomics Lab** was developed last year in Room 494 under the direction of Dr. Nathan-Roberts. It

features an experiment control booth with two session rooms, and a large space for group project work. The lab has state of the art digital recording capability and experiments can be viewed in progress by persons off site. For further information or lab rental inquiries contact lab Director at [Dan.Nathan-Roberts@sjsu.edu](mailto:Dan.Nathan-Roberts@sjsu.edu).





## MSISE GRAD WINNER OF MULTIPLE AWARDS—CONTIUNES TOWARD PH.D.

Ms. Siqiong Zhou graduated from SJSU Master of Science in Industrial and Systems Engineering program in Spring 2019. During her time at SJSU as a graduate student, she demonstrated exceptional performance. She has received several awards from SJSU including The Donald Beall-Rockwell Student Award for Engineering Accomplishment, Davidson Student Scholar Award for research support, and STAR Fellows Award to recog-



nize her excellent performance in coursework, research and to support her development in becoming a PhD student.

In her MS Thesis, Siqiong worked on building a model to optimize the resource allocation for resident evacuation and fire suppression during wildland-urban wild-fires. She is continuing her graduate study as a PhD student At Arizona State University .

## HF/E TEAM WINS 1ST PLACE AT 2019 MOBILE HEALTH APPLICATION DESIGN

The SJSU HF/E team's mobile application entry "Sunnyside Up" won the "Mobile Health Applications for Consumers" Design Competition at the 2019 International Symposium on Human Factors and Ergonomics in Health Care. The objectives of this competition are to:

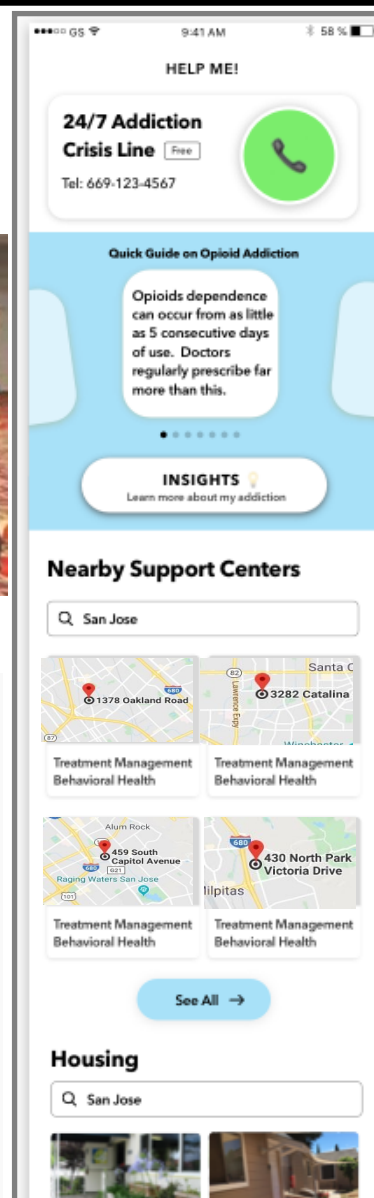
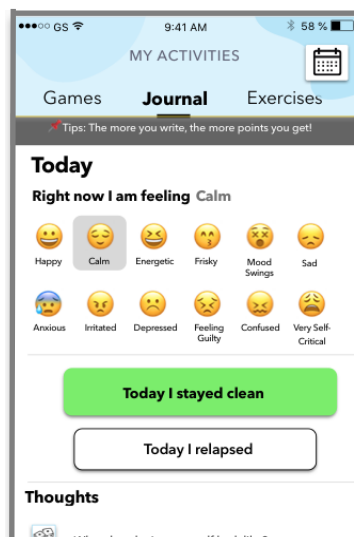
1. Showcase the application of human factors/ergonomics (HF/E) methods and design principles 2. Showcase how the HF/E approach to such an application can lead to a useful, usable, and satisfying user experience while simultaneously improving patient outcomes such as knowledge, safety, adherence, or health.

Team members Monica Espinosa, Xandra Huang, Kara Hoppis, and Yun Su presented their mobile application called "SunnySide Up" under the guidance of Dr. Tony Andre



Espinosa, Andre, Su, and Hoppis at the HFES competition  
Portions of their winning design below and at right

and Dr. Katie Tippey. Their product is designed to address the opioid epidemic by using an immersive mobile app that integrates many of the most promising rehabilitation interventions. They were awarded first place and a \$500 prize. With their winnings, they hope to see their application come to fruition by hiring a student to code the application or providing usability testing incentives for participants to further improve their design.



# ISE Senior Design Projects

Dr Saeed,  
Dr. Dessouky  
and class of  
Spring 2019



The ISE senior design projects continue to be a highlight of our students' learning experiences. This past spring semester, we had a record thirteen project teams complete their projects for a wide variety of clients. We also had kicked off another ten student teams for most of these clients plus El Camino Hospital, Lockheed Martin and TTM

Technologies, and we are busily ramping up new teams for this fall semester.

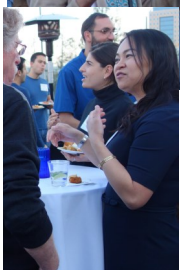
ISE is always interested in expanding our roster of sponsors and would love to see our alums become new sponsors for our two-semester senior design projects.

During a project's first semester, students map and

measure an existing process to identify performance gaps and to propose next steps. Continuing in the following semester, they formulate improvement ideas, provide detailed designs of those improvements, and validate their designs from operational and financial perspectives. Students usually work in teams of 2 -4 people, depending on project scope.

## 2019 ALUMNI REUNION SOCIAL A GREAT EVENT!

Over 100 ISE Department alums, faculty and guests attended the ISE Alumni Reunion Social on October 11, 2019 at Scotts Seafood restaurant in downtown San Jose. The event was sponsored for the second consecutive year by MaxDecisions, Inc. a company founded and owned by BSISE alums Timothy and Vy Li (2003). During the evening, guests were welcomed by Engineering Dean Sheryl Ehrman and Dr. Yasser Dessouky, ISE Department Chair. The Li's received the 2019 ISE Department Sponsorship plaque honoring their "Outstanding Support to the ISE Student Club and Department Alumni" (See *Li profile P11*). Mr. Sandeep Kannan, BSISE (2015), MSISE (2017) was presented with the 2019 award for "Outstanding Support to the ISE Alumni Program". Guests praised the venue and the selection of foods, and clearly enjoyed the opportunity to socialize with other alums and faculty. See additional event photos on the ISE Department website. And, if you couldn't be there this year, look for our October 2020 event announcement next summer.







### ISE By the Numbers

529 Students including

**204 BSISE**

**164 MSEM**

**69 MSHF/E**

**92 MSISE**

### Spring 2019 Project Sponsors and Topics

- **Chick-fil-A**, Center Line Throughput
- **Delta Products**, Energy Management
- **Delta Products**, Workspace Utilization
- **Happy Hollow Parks & Zoo**, Time in Park
- **Kaiser San Jose**, Workplace Safety
- **MolyWorks**, Environment, Health & Safety
- **NASA**, R&D Workflow
- **Santa Clara Valley Medical Center**, Oncology Pharmacy Throughput
- **SJSU Career Fair**, Inbound Logistics Speed & Satisfaction
- **Vistar**, Retail Order Fulfillment Throughput
- **Western Digital**, Planned Maintenance Management
- **Western Digital**, Unplanned Maintenance Management
- **Zuckerberg San Francisco General Hospital**, OR Block Utilization

If you are potentially interested in sponsoring a Sr. Design project, please contact Dr. Barry Saeed at:  
[baruch.saeed@sjsu.edu](mailto:baruch.saeed@sjsu.edu)

## GRADUATE HI LITE TIMOTHY AND VY LI—BSISES IN 2003

Timothy and Vy Li are a special story in the Department's history. They met as ISE students at SJSU. Following graduation in 2003, they married and moved to the LA area where Tim pursued a Masters in Operations Research at USC (2004).

In his early career, Tim held various executive positions in consumer and small business lending companies such as JPMorgan Chase, Quick Bridge Funding, Realty Mogul, LoanDepot and Think Finance.

Vy, meanwhile held positions in manufacturing engineering at Goodrich Aerospace and supply chain optimization at Ashland Chemicals.

Tim is a current adjunct faculty member at USC Viterbi school of engineering. Tim is also an entrepreneur who is passionate about



innovating in Financial Technology. So, in 2016, Tim founded MaxDecisions, Inc. to provide marketing analytics, fraud and credit risk management and portfolio and operational optimization to the banking, financial

services and online lending sectors [www.maxdecision.com](http://www.maxdecision.com). The company now has offices in Dallas, Salt Lake City and LA areas.

The couple has 4 kids, ages 3-11. The kids keep Tim and Vy active, creating daily opportunities for new excitement and challenges.

When Tim and Vy returned to San Jose for the ISE Alumni Banquet two years ago, they were immediately struck by the continuing feeling of "family" that the department represented to them. That feeling has resulted in generous gifts to the department to assure the production of the last two annual reunions and the ability of student leaders to participate in the annual IISE international meeting. Their generosity and support to the department are deeply appreciated and truly making a difference.



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# The ISE Circle of Friends

Strong partnerships with local companies, our alumni, and professional organizations have all contributed to the growth and successes of the ISE Department. Mentorships, student sponsorships, project and research opportunities, all empower our quest for excellence of our academically challenging programs, our labs, and curriculum content.

To discuss a donation or contribution concept, email the Department Chair at: [Yasser.Dessouky@sjsu.edu](mailto:Yasser.Dessouky@sjsu.edu), or contact the ISE Department office at 408-924-3301.

## SAN JOSÉ STATE UNIVERSITY

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### BSISE MENTORING TAKES OFF!



### ISE'S ALUMS OFFER CAREER POINTERS TO BSISE STUDENTS

There are no doubts that ISE undergraduate students have questions and concerns about finding that first job after they graduate. But there are other unknowns about the ISE's professional life after finishing school that weigh on their minds as well. Often the best answers can only come from others who have traveled the same road and



who are willing to share their experiences and advice with those following behind. Dr. Yasser Dessouky, alum Mr. Sandeep Kannan, and the officers of the IISE student club have provided the leadership for the newly created ISE industry mentorship program. The program's objectives are to promote:

1. Connecting students at every

level with experienced mentors in one-to-one relationships.

2. Creating career-oriented learning experiences.
3. Encouraging retention of ISE's students
4. Providing opportunities inspiration for students
5. Assisting students develop realistic short- and long-term goals.
6. Creating a tight network of current and former ISE SJSU students that can be relied on post graduation.

The program was inaugurated in the Fall 2018 semester with an evening meet-up event and discussion of program goals. This Fall's event focused on resumé reviews and short discussion sessions as reflected by the accompanying photos. With 12 mentors and twice as many students, the program is off to a great start!

