

## Fahad Ali Albalawi

---

CONTACT INFORMATION	Electrical Engineering Department University of California, Los Angeles Boelter Hall 4264, 420 Westwood Plaza Los Angeles, CA 90095	mobile: (+966) 555121376 email: eng.fahad19@gmail.com Alawali District, Building-4221. Makkah, Makkah 21955
EDUCATION	<b>KAUST</b> <i>Postdoctoral Fellow</i> Advisor: Professor Meriem Laleg	<b>January 2018-present</b>
	<b>University of California, Los Angeles</b> <i>Ph.D., Electrical Engineering (GPA: 3.74)</i> Advisor: Professor Panagiotis D. Christofides Graduation date: June 2017	<b>September 2013 - June 2017</b>
	<b>George Washington University</b> <i>M.S., Electrical Engineering (GPA: 3.91)</i> Concentration: Process Control Advisor: Professor Nicholas Kyriakopoulos	<b>August 2011 - May 2013</b>
	<b>Umm Alqura University</b> <i>B.S., Electrical Engineering (GPA: 3.86)</i> Concentration: Process Control Graduated Summa Cum Laude	<b>June 2003 - May 2008</b>
EMPLOYMENT	<b>Chemical &amp; Biomolecular Engineering Dept.,</b> University of California, Los Angeles <i>Graduate Student Researcher</i>	<b>July 2015 - June 2017</b>
	<b>Chemical &amp; Biomolecular Engineering Dept.,</b> University of California, Los Angeles <i>Teaching Assistant, Numerical Methods and Process Control Courses</i>	<b>September 2015 - September 2016,</b>
	<b>Sabic Yanpet,</b> Yanbu, Saudi Arabia <i>1) Performed tasks of developing process control to support capacity increase and safe operations within plant processes</i> <i>2) Performed tasks of designing a model for a process control system using system identification methods for nonlinear systems. I was involved in all the steps needed for system identification: data gathering, model postulate, parameter identification and model validation</i> <i>3) Participated in process safety management including HAZARD and HAZOP studies and activities.</i>	<b>August 2008 - March 2009</b>
	<b>Saudi Arabian Oil Company (Aramco),</b> Yanbu, Saudi Arabia	<b>April 2009 - August 2009</b>
	<b>Summer Training</b> <i>1<sup>st</sup> Summer training was at Saudi Electricity Company (SEC) with an evaluation of outstanding performance.</i> <i>2<sup>nd</sup> Summer training was at Saudi Aramco Research &amp; Development Center (RDC).</i>	<b>August 2006 - March 2008</b>
AWARDS/HONORS	<b>Electrical Engineering Student Association</b>	<b>2006-2007</b>

- 1) *Developed and delivered presentation about the activities of the electrical engineering department to prospective students.*
- 2) *Elected by management to participate in the first university exchange visit to the National University of Singapore.*

**Outstanding B.S. in Electrical Engineering Award**

**2008**

PROFESSIONAL	American Institute of Chemical Engineers	<b>2015 - Present</b>
	American Chemical Society	<b>2014 - Present</b>
MEMBERSHIPS	Society of Petroleum Engineers	<b>2009 - Present</b>
	International Association of Energy Economists	<b>2013 - Present</b>
	Institute of Electrical and Electronics Engineers IEEE	<b>2010 - Present</b>
JOURNAL PUBLICATIONS	<ol style="list-style-type: none"> <li>1. <b>F. Albalawi</b>, H. Durand, A. Alanqar and P. D. Christofides, "Achieving Operational Process Safety via Model Predictive Control," <i>Journal of Loss Prevention in the Process Industries</i>, in press.</li> <li>2. A. Alanqar, H. Durand, <b>F. Albalawi</b> and P. D. Christofides, "An Economic Model Predictive Control Approach to Integrated Production Management and Process Operation," <i>AIChE Journal</i>, in press.</li> <li>3. <b>F. Albalawi</b>, A. Alanqar, H. Durand and P. D. Christofides, "A Feedback Control Framework for Safe and Economically-Optimal Operation of Nonlinear Processes," <i>AIChE Journal</i>, 62, 2391-2409, 2016.</li> <li>4. <b>F. Albalawi</b>, H. Durand and P. D. Christofides, "Distributed Economic Model Predictive Control for Operation Safety of Nonlinear Processes," <i>AIChE Journal</i>, in press.</li> <li>5. <b>F. Albalawi</b>, H. Durand and P. D. Christofides, "Process Operational Safety Using Model Predictive Control Based on a Process Safeness Index," <i>Computers &amp; Chemical Engineering</i>, submitted.</li> <li>6. <b>F. Albalawi</b>, H. Durand and P. D. Christofides, "Distributed Economic Model Predictive Control with Safeness-Index Based Constraints for Nonlinear Systems," <i>System &amp; Control Letters</i>, submitted.</li> <li>7. <b>F. Albalawi</b>, H. Durand and P. D. Christofides, "Process Operational Safety via Model Predictive Control: Recent Results and Future Research Directions," <i>Computers &amp; Chemical Engineering</i>, submitted.</li> <li>8. J. Zhang, P. D. Christofides, X. He, <b>F. Albalawi</b>, Y. Zhao and D. Zhou, "Intermittent Sensor Fault Detection for Stochastic LTV Systems with Parameter Uncertainty and Limited Resolution," <i>International Journal of Control</i>, submitted.</li> <li>9. Z. Zhang, Z. Wu, H. Durand, <b>F. Albalawi</b> and P. D. Christofides, "On Integration of Feedback Control and Safety Systems: Analyzing Two Chemical Process Applications," <i>Chemical Engineering Research and Design</i>, Accepted.</li> </ol>	

10. Z. Wu, **F. Albalawi**, Z. Zhang, J. Zhang, H. Durand and P. D. Christofides, "Control Lyapunov-Barrier Function-Based Model Predictive Control of Nonlinear Systems," *Automatica*, Submitted.
11. Z. Wu, J. Zhang, Z. Zhang, H. Durand, M. Mahmood, P. Mhaskar and P. D. Christofides, "Lyapunov-based economic model predictive control of stochastic nonlinear systems," *Automatica*, Submitted.

REFEREED  
CONFERENCE  
PROCEEDINGS  
PAPERS

1. **F. Albalawi**, H. Durand, A. Alanqar and P. D. Christofides, "Process Safeness Index: Its Definition and Use in Economic Model Predictive Control to Ensure Process Operational Safety," *Proceedings of the American Control Conference*, Seattle, Washington, 2017.
2. **F. Albalawi**, H. Durand and P. D. Christofides, "Operational Safety of Chemical Processes via Safe Model Predictive Control," *Proceedings of the International Conference on Chemical Process Control*, Tucson, Arizona, 2017.
3. A. Alanqar, H. Durand, **F. Albalawi** and P. D. Christofides, "Integrating Production Scheduling and Process Operation via Economic Model Predictive Control," *Proceedings of the 55th IEEE Conference on Decision and Control*, Las Vegas, Nevada, 2016.
4. **F. Albalawi**, A. Alanqar, H. Durand and P. D. Christofides, "Simultaneous Control of Safety Constraint Sets and Process Economics Using Economic Model Predictive Control," *Proceedings of the American Control Conference*, 5062-5067, Boston, Massachusetts, 2016.
5. **F. Albalawi**, H. Durand, A. Alanqar and P. D. Christofides, "Integrating Process Safety Consideration in Lyapunov-Based Model Predictive Control," *Proceedings of IFAC 2017 World Congress*, Toulouse, France, 2017.
6. **F. Albalawi**, H. Durand and P. D. Christofides, "Distributed Economic MPC with Safety-Based Constraints for Nonlinear Systems," *Proceedings of IFAC 2017 World Congress*, Toulouse, France, 2017.
7. A. Alanqar, H. Durand, **F. Albalawi** and P. D. Christofides, "Fault-Tolerant Economic Model Predictive Control Using Empirical Models," *Proceedings of the International Conference on Chemical Process Control*, Tucson, Arizona, 2017.
8. Z. Zhang, Z. Wu, H. Durand, **F. Albalawi** and P. D. Christofides, "On Integration of Model Predictive Control with Safety System: Preventing Thermal Runaway," *Proceedings of the 13<sup>th</sup> International Symposium on Process System Engineering*, Accepted, San Diego, California, 2018.
9. Z. Wu, **F. Albalawi**, Z. Zhang, J. Zhang, H. Durand and P. D. Christofides, "Model Predictive Control for Process Safety via Safeness Index and Control Lyapunov-Barrier Function," *Proceedings of the 13<sup>th</sup> International Symposium on Process System Engineering*, Accepted, San Diego, California, 2018.

CONFERENCE  
PRESENTATIONS

1. **F. Albalawi**, A. Alanqar, H. Durand and P. D. Christofides, "Simultaneous Control of Safety Constraint Sets and Process Economics Using Economic Model Predictive Control," American Control Conference, Boston, Massachusetts, 2016.

2. **F. Albalawi**, A. Alanqar, H. Durand and P. D. Christofides, "Simultaneous Control of Safety Constraint Sets and Process Economics Using Distributed Economic Model Predictive Control," AIChE Annual Meeting, paper 308c, Salt Lake City, Utah, 2015.
3. **F. Albalawi**, H. Durand and P. D. Christofides, "Distributed Lyapunov-Based Model Predictive Control with Safety-Based Constraints," AIChE Annual Meeting, San Francisco, California, Novemebr 13<sup>th</sup>, 2016.
4. **F. Albalawi**, H. Durand, A. Alanqar and P. D. Christofides, "Safety-Based Model Predictive Control with Data-Based Determination of Safety Level Sets," AIChE Annual Meeting, San Francisco, California, November 17<sup>th</sup>, 2016.

ACTIVITIES

Presenting at American Institute of Chemical Engineering (AIChE)	<b>November 2015</b>
Presenting at American Institute of Chemical Engineering (AIChE)	<b>November 2016</b>
Presenting at American Control Conference (ACC)	<b>May 2017</b>
Presenting at The International Federation of Automatic Control (IFAC)	<b>July 2017</b>