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## I. INTRODUCTION

### A. Education

- Ph.D., 2006 School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, Georgia  
Dissertation Title: Methods in Productivity and Efficiency Analysis with Applications to Warehousing. Advisor: Leon McGinnis  
Minor in Econometrics
- M.Sc., 2002 School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, Georgia
- B.Sc., 2001 Department of Industrial and Systems Engineering, Virginia Polytechnic Institute and State University, Blacksburg, Virginia  
Dual Minor in Economics and Business. Magna Cum Laude and Co-op with Highest Honors
- 1999–2000 Visiting student, College of Engineering, Tohoku University, Sendai, Japan

### B. Professional Experience

#### Academic Appointments

- 9/2012–Present Associate Professor, Department of Industrial and Systems Engineering, Texas A&M University, College Station, Texas
- 6/2015–5/2018 Visiting Professor, Systems Engineering Laboratory, School of Information Science and Technology, Osaka University, Osaka, Japan
- 6/2013–5-/2014 Visiting Professor, School of Business, Aalto University, Helsinki, Finland
- 8/2006–9/2012 Assistant Professor, Department of Industrial and Systems Engineering, Texas A&M University, College Station, Texas
- 12/2011–1/2012 Visiting Professor, Systems Engineering Laboratory, Department of Information Physics and Sciences, Osaka University, Osaka, Japan
- 1/2011 GRIPS Visiting Scholar, Operations Research Group, National Graduate Institute for Policy Studies, Tokyo, Japan
- 5/2009–6/2009 Research Fellow, Systems Engineering Laboratory, Department of Information Physics and Sciences, Osaka University, Osaka, Japan
- 7/2008 Research Fellow, Systems Engineering Laboratory, Department of Information Physics and Sciences, Osaka University, Osaka, Japan
- 5/2007–6/2007 Research Fellow, Systems Engineering Laboratory, Department of Information Physics and Sciences, Osaka University, Osaka, Japan

## **Industrial Positions**

- 2/2000–5/2000 Analyst, Procurement Department, Ingersoll-Rand Rock Drill, Yokohama, Japan.
- 5/1999–8/1999 Industrial Engineer, Industrial Engineering Department, Ingersoll-Rand Rock Drill, Roanoke, Virginia
- 8/1998–12/1998 Industrial Engineer, Industrial Engineering Department, Ingersoll-Rand Rock Drill, Roanoke, Virginia

## **Professional Awards and Recognition**

- 2017 I5 Award, Institute of Industrial and Systems Engineers (This award recognizes innovative implementations of Industrial and System Engineering concepts; the award was given to recognize the multi-university and industry team working on the National Oilwell Varco Manufacturing System - Collaborative Research Project)
- 2015 Honorable Mention, IIE Transactions Focused Issue on Design and Manufacturing Best Paper Award Competition
- 2013 Third Place, Material Handling Student Design Competition – Advisor
- 2011 Best Reviewer Award, Omega
- 2/2011 Featured article “Productivity Measurement in the Warehousing Industry,” *Industrial Engineer*
- 2009 Invited Research Fellow, Japan Society for the Promotion of Science
- 2009 Honorable Mention, Material Handling Student Design Competition – Advisor
- 2007–2008 INFORMS-TAMU Faculty Appreciation Award
- 1996 Eagle Scout

## **C. Professional Affiliations**

- 2016-2020 Chair, Projects Committee, College-Industry Council on Material Handling Education
- 2014-2020 Member, College-Industry Council on Material Handling Education
- 2018-2019 Subdivisions Council Representative for Chapters, Student Chapters, and Fora - Informs
- 2010-2017 Chair, Informs Productivity, Efficiency and Data Envelopment Analysis Cluster
- 2016 Co-organizer, NSF Workshop: Setting a Broader Impacts Innovation Roadmap

2004- Present Member, Institute for Operations Research and the Management Sciences

2012-2013 Chair, Future Faculty Colloquium, INFORMS

2005, 2006, 2008, 2012, 2013 Member, Institute for Industrial and Systems Engineers

## **II. TEACHING AND MENTORING**

### **A. Teaching Effectiveness**

#### **Undergraduate Courses Taught**

Fundamentals of Industrial Engineering Design (ISEN 210, Texas A&M University)

Engineering Economy for ISE students (ISEN 303, Texas A&M University)

Project Management for Engineers (ISEN 333, Texas A&M University)

Facility Planning (ISEN 416, Texas A&M University)

Manufacturing Systems Design/Capstone Senior Design (ISEN 459, Texas A&M University)

Modeling in Industrial Engineering (ISE 202, GaTech), recitation instructor

#### **Graduate Courses Taught**

Material Handling (ISEN 605, Texas A&M University)

Engineering Economy (ISEN 667, Texas A&M University)

Seminar (ISEN 681, Texas A&M University)

Production Economics (ISEN 662, Texas A&M University)

Productivity and Efficiency Analysis (30E00300, Aalto University), co-taught with Timo Kuosmanen and Chris Parmeter

Current Topics in Quantitative Methods (30E09000, Aalto University)

Course Number & Title	UG or Grad	Sem/Year	Average Teaching Evaluation Score
ISEN 459 - Manufacturing Systems Design (Senior Design)	UG	Fall 07	4.11
ISEN 459 - Manufacturing Systems Design (Senior Design)	UG	Spring 08	4.41
ISEN 689 – Production Economics (Now ISEN 662)	Grad	Spring 08	4.44
ISEN 459 - Manufacturing Systems Design (Senior Design)	UG	Fall 08	4.28
ISEN 459 - Manufacturing Systems Design (Senior Design)	UG	Spring 09	4.43
ISEN 605 - Material Handling Systems	Grad	Spring 09	4.85
ISEN 303 - Engineering Economic Analysis	UG	Summer09	3.66
ISEN 303 - Engineering Economic Analysis	UG	Fall 09	3.38
ISEN 303 - Engineering Economic Analysis	UG	Spring 10	3.72
ISEN 689 - Production Economics (now ISEN 662)	Grad	Spring 10	4.83
ISEN 303 - Engineering Economic Analysis	UG	Summer 10	4.09
ISEN 303 - Engineering Economic Analysis	UG	Fall 10	4.16
ISEN 605 - Material Handling Systems	Grad	Fall 10	4.55
ISEN 303 - Engineering Economic Analysis	UG	Summer 11	4.18
ISEN 333 - Project Management for Engineers	UG	Fall 11	4.11
ISEN 662 - Production Economics	Grad	Fall 11	5
ISEN 681 - Seminar	Grad	Fall 11	N/A
ISEN 681 - Seminar	Grad	Spring 12	N/A
ISEN 303 - Engineering Economic Analysis	UG	Spring 12	4.25
ISEN 416 - Facility Planning	UG	Fall 12	4.15
ISEN 416 - Facility Planning	UG	Fall 12	4.16
ISEN 605 - Material Handling Systems	Grad	Spring 13	4.33
ISEN 303 - Engineering Economic Analysis	UG	Fall 14	3.82
ISEN 303 - Engineering Economic Analysis	UG	Fall 14	4.14
ISEN 667 - Engineering Economic Analysis	Grad	Fall 15	4.10
ISEN 605 - Material Handling Systems	Grad	Spring 16	4.37
ISEN 667 - Engineering Economic Analysis	Grad	Fall 16	3.89

Note: Evaluations are based on a 5-point scale; N/A indicates no formal evaluation completed

## **Lectures**

July 2015 & July 2016 Production Economics - Department of Information Sciences and Technology, Osaka University

March 2013 Special topics: Methods in Empirical Microeconomics (Econ 685):  
Production Functions and Productivity - Department of Economics, Texas A&M University

December 2011 Measurement of Efficiency and Productivity: An Introduction to Methods - Department of Information and Physical Sciences, Osaka University

## **B. Advisory Activities**

### **Ph.D. Degree**

Kevin Layer – advisor – expected graduation 2019

Seokjun Yoon – committee member – expected graduation May 2019

Dissertation: Essays on Payment Reform Models and Capacity Planning in Healthcare Operations.

Daisuke Yagi – advisor – expected graduation 2018

Dissertation: Theory and Application of Shape Constrained Estimators for Analyzing Census of Manufacturing Data

Hoon Hwangbo – committee member – graduated May 2017

Dissertation: Performance Evaluation of Wind Power Systems Based on Production Economic Theory.

Employment: Post-doc at Texas A&M University.

Jose Luis Preciado Arreola – advisor – graduated May 2016

Dissertation: Functional Estimator Selection Techniques for Production Functions and Frontiers.

Employment: Innovation Lab at Home Depot (formerly Blacklocus)

HongSeok Seo – committee member – graduated August 2015

Dissertation: Agricultural Policy Analysis: Considering Policy Measure Updating in Milk Pricing and Crop Insurance

Employment: Research fellow at Korea Rural Economic Institute

Pei Huang – committee member – graduated May 2015

Dissertation: Three Essays on Economic and Societal Implications of Decadal Climate Variability and Fishery Management.

Employment: Aurora Energy Research Ltd.

Maethee Mekaroonreung – advisor – graduated August 2012

Dissertation: Modeling and analysis of polluting firms: the production frontier approach.

Employment: Standard Chartered Bank

Chia-Yen Lee – advisor – graduated May 2012

Dissertation: Demand Effects in Productivity and Efficiency Analysis

Employment: Assistant Professor, Institute of Manufacturing Information and Systems, National Cheng Kung University

Seyed Reza Seyedolshohadaie – committee member – graduated August 2011  
 Dissertation: Modeling Risks in Infrastructure Asset Management

Brandon Pope – co-advisor with Abhi Deshmukh – graduated August 2011  
 Dissertation: Engineering incentives in distributed systems with healthcare applications  
 Employment: Baylor Scott & White Healthcare

Soondo Hong – co-advisor with Brett Peters – graduated August 2010  
 Dissertation: Analysis and control of batch order-picking processes considering picker blocking;  
 Employment: Pusan National University

**Opponent**

Xiaofeng Dai – Business School, Aalto University – 2016  
 Employment: Jiangnan University

Mojtaba Ghyiasi – Department of Business and Economics, University of Southern Denmark – 2013

**Master’s Degree**

Student Name	Department	Chair/Member	Graduation	Placement
Abhilash Tangadpalliwar	Industrial and Systems Engineering		Expected Spring 2018	
Utkarsh Pande	Industrial and Systems Engineering		Expected Spring 2018	
Marcella Crispim Sarmiento	Industrial and Systems Engineering	Chair (Thesis)	Spring 2016	National Oilwell Varco Ph.D. program, Mays Business School, Texas A&M
Hankyul Oh	Industrial and Systems Engineering	Chair	Spring 2016	Micron Technology
Anurag Mittal	Industrial and Systems Engineering	Chair	Spring 2015	Google
Shachi Pande	Industrial and Systems Engineering	Member	Fall 2014	Ph.D. program Mays Business School, Texas A&M
Seokjun Yoon	Industrial and Systems Engineering	Chair	Spring 2014	Foxconn
Yi-Chin Chen	Industrial and Systems Engineering	Member	Spring 2014	National Oilwell Varco
Mukilan Loganathan	Industrial and Systems Engineering	Chair	Fall 2013	National Oilwell Varco
Jayanth Jayaraman	Industrial and Systems Engineering	Chair	Spring 2013	National Oilwell Varco
Rajeshkumar Boovaragamoorthy	Industrial and Systems Engineering	Chair	Fall 2012	National Oilwell Varco

Chuck Jen-Chung Hsiao	Mechanical Engineering	Member	Fall 2012	Ph.D. program Mechanical Engineering, Texas A&M
Edgar Galvan	Mechanical Engineering	Member	Summer 2012	Ph.D. program Mechanical Engineering, Texas A&M
Jayasudhan Thalal Jayachandran	Industrial and Systems Engineering	Chair	Spring 2012	Aspen Technology
Eren Ulusoy	Civil Engineering	Member	Spring 2012	
Uma M. Panneerselvam	Industrial and Systems Engineering	Chair	Spring 2012	Opower
Dineshkumar Muniyandi	Industrial and Systems Engineering	Chair	Spring 2012	
Midhun Somy	Industrial and Systems Engineering	Chair	Spring 2011	Brenntag
Nannan Chen	Industrial and Systems Engineering	Member	Spring 2011	Ph.D. program Industrial & Systems Engineering, Texas A&M
Kitisak Pungchareon	Industrial and Systems Engineering	Chair	Fall 2010	Ministry of Industry, Thailand
Niranjan Rudrapatna Nataraj	Industrial and Systems Engineering	Chair	Summer 2010	NVIDIA
Nevena Vajdic	Civil Engineering	Member	Summer 2009	
Le Lou	Industrial and Systems Engineering	Chair	Spring 2009	
Fawaz Mohiudheen Sidhique	Industrial and Systems Engineering	Chair	Spring 2009	
Jungho Seo	Industrial and Systems Engineering	Chair	Spring 2009	
Hong-Seok Seo	Industrial and Systems Engineering	Member	Fall 2008	Ph.D. program Agricultural Economics, Texas A&M
Jiyang Lee	Industrial and Systems Engineering	Chair	Summer 2008	Korean Military
Hao Tang	Industrial and Systems Engineering	Chair	Spring 2008	Oracle
Anand Dinesh Patel	Industrial and Systems Engineering	Chair	Spring 2008	
Euyjin Lim	Industrial and Systems Engineering	Chair	Spring 2007	Korean Military
Norman Polando Anino Cardenas	Industrial and Systems Engineering	Chair	Spring 2007	



### Senior Design Projects

Year	Semester	Company	Students
2016	Spring	Cheap Caribbean	Kyohei Okuhara
2016	Spring	AT&T	James Robinson and Alyson Lyssy
2016	Spring	Houston Zoo	Victoria Bueno, Daniel Moomau, Sean Smalligan, and Hannah Smith
2015	Fall	Houston Zoo - Lights	Thalia Vizcardo, Kelly Robiins, Gabriel Velazquez
2015	Fall	GE	David Graham, Iliya Kuleshov, Alessandra Leuzzi-Botello, Taylor Shirey
2015	Fall	HEXA	Stephanie Cano, Israel Hernandez, Sundown Hunter, Kristina Smith
2012	Spring	NOV	Daniel Stephenson, Rafael Rodriquez, Waleed Faiz, and Nimroz Momin
2012	Spring	Ply Gem	Nicholas Bock, Tim Ege, Trey Roady, Sarah Bell, and Maryam Rouzbehani
2011	Fall	NOV	Kody Chappell, Jacobs Crawley, Aron Hughes, Merdith Kirchhoff, and Gabriel Rosas
2011	Spring	NOV	James Martinez, Dulce Alamazan, Vikram Ambrose, Cory Nasso, and Colton Willis
2010	Fall	NOV	Michael Bauer, John Weiss, and Jaylin Liu
2010	Fall	Halliburton	Paola Rios, Penelope Aliwarga, Taylor Carter, and Sergio Ramirez
2010	Spring	Texas Commercial Waste	Ryan Krueger, Clayton Laing, and Lindsey Clement
2009	Fall	NOV	Taylor Mink, Alexis Ewing, Jennifer Schmidt, Kevin White, and Carlos Aulenbacher
2007	Spring	PI Component	Laura Menges, Erik Gebhardt, Sarah Grubb and Chris Ivey
2006	Fall	Ryder	Keilon Lathan, Sylvia Kuwana, Sheba Ashitey, and Jie Yu

### C. Educational Development

Spring 2013 Faculty Institutes – Flip your course

Summer 2009 – Material Handling Teachers Institute

Fall 2007 - Course Development and Enhancement Program 2007-2008 school year

Jan 2007 - One-Week Program in Research and Teaching for Junior Faculty

## D. International Activities

### Languages

Japanese: proficient speaker

### Visitors Hosted

- Aug-Sept 2008     Haba Yosuke, Student, Osaka University
- Jan-Dec 2011     Byung-In Kim, Faculty, Pohang University of Science of Technology
- Aug - Sept 2011   Ryoji Tsujiuchi, Student, Jochi (Sophia) University
- Feb – Dec 2013    Choonjoo Lee, Faculty, Korean National Defense University
- Aug 14 – Aug 15   Jianhui Xie, Student, University of Science and Technology of China
- Sept 17 – Aug 18   Yujiao Xian, Student, Beijing Institute of Technology

## III. SCHOLARSHIP

### A. Publications and Presentations (Note: Graduate students and post-docs in boldface)

#### Journal Articles in press and Published

- P1. **Yagi, D.**, Y. Chen, A.L. Johnson, and T. Kuosmanen, 2018. “Shape Constrained Kernel-Weighted Least Squares: Application to Production Function Estimation for Chilean Manufacturing Industries.” Accepted at *Journal of Business & Economic Statistics*.
- P2. **Hwangbo, H.**, A.L. Johnson, and Y. Ding, 2018. “Spline Model for Wake Effect Analysis: Characteristics of Single Wake and Its Impacts on Wind Turbine Power Generation” *IIE Transactions*: 50(2): 112-125.
- P3. De Koster, R., A.L. Johnson, and D. Roy, 2017. “Warehouse design and management” *International Journal of Production Research* 55(21): 6327-6330. (Invited)
- P4. Johnson, A.L. 2017. DEAにおける近年の研究動向と応用 (Recent Research and Applications in DEA). *オペレーションズ・リサーチ (Communications of Operations Research Society of Japan)* 62(7): 404-410. (Invited)
- P5. **Hwangbo, H.**, A.L. Johnson, and Y. Ding, 2017. “A Production Economics Analysis for Quantifying the Efficiency of Wind Turbines” *Wind Energy* 20(9): 1501-1513.

- P6. Kuosmanen, T. and A.L. Johnson, 2017. "Modeling joint production of multiple outputs in StoNED: Directional distance function approach." *European Journal of Operational Research* 262(2): 792-801.
- P7. **Hong, S.**, A.L. Johnson, and B.A. Peters, 2016. "Order batching in a bucket brigade order picking system considering picker blocking" *Flexible Services and Manufacturing Journal* 28(3): 425-441.
- P8. **Hong, S.**, A.L. Johnson, and B.A. Peters, 2015. "Quantifying picker blocking in a bucket brigade order picking system" *International Journal of Production Economics* 170: 862-873.
- P9. **Lee, C-Y.** and A.L. Johnson, 2015. "Effective Production: Measuring of the Sales Effect using Data Envelopment Analysis" *Annals of Operational Research* 235(1): 453-486.
- P10. **Pope, B.**, A. Deshmukh, A.L. Johnson, and J.J. Rohack, 2015. "Modeling Dependence in Health Behaviors," *IIE Transactions* 47(10): 1112-1121.
- P11. **Preciado Arreola, J.L.** and A.L. Johnson, 2015. "A Birth-Death Markov Chain Monte Carlo method to estimate the number of states in a state-contingent production frontier model." *American Journal of Agricultural Economics* 97(4): 1267-1285.
- P12. **Lee, C-Y.** and A.L. Johnson, 2015. "Measuring Efficiency in Imperfectly Competitive Markets: An Example of Rational Inefficiency," *Journal of Optimization Theory and Applications* 164(2): 702-722.
- P13. **Mekaroonreung, M.** and A.L. Johnson, 2014. "A nonparametric method to estimate a technical change effect on marginal abatement costs of U.S. coal power plants." *Energy Economics* 46: 45-55.
- P14. Johnson, A.L. and J. Ruggiero, 2014. "Nonparametric Measurement of Productivity and Efficiency in Education." *Annals of Operations Research* 221(1): 197-210.
- P15. **Lee, J.**, B.-I. Kim, A.L. Johnson, and **K. Lee**, 2014. "The Nuclear Medicine Production and Delivery Problem." *European Journal of Operational Research* 236: 461-472.
- P16. **Pope, B.**, A. Deshmukh, A.L. Johnson, and J.J. Rohack, 2014. "Multilateral Contracting and Prevention" *Health Economics* 23(4): 397-409.
- P17. **Fallah-Fini, S.**, K. Triantis, and A.L. Johnson, 2014. "Reviewing the Literature on Non-parametric Dynamic Efficiency Measurement: State-of-the-Art." *Journal of Productivity Analysis* 41(1): 51-67.

- P18. **Lee, C-Y.** and A.L. Johnson, 2014. "Proactive Data Envelopment Analysis: Effective Production and Capacity Expansion in Stochastic Environments" *European Journal of Operational Research* 232(1): 537-548.
- P19. **Pope, B.** and A.L. Johnson, 2013. "Scope Properties: Nonparametric Assessment, Policy Insights and Functional Estimation" *Journal of Productivity Analysis* 40(2): 239-250.
- P20. **Hong, S.,** A.L. Johnson, and B.A. Peters, 2013. "A Note on Picker Blocking Models in Parallel-Aisle Picking Systems" *IIE Transactions* 45(12): 1345-1355.
- P21. **Lee, J.,** B.-I. Kim, and A.L. Johnson, 2013. "A two-dimensional bin packing problem with size changeable items for the production of wind turbine flanges in the open die forging industry." *IIE Transactions* 45(12): 1332-1344.
- P22. Kim, B.-I., **H. Li** and A.L. Johnson, 2013. "An augmented large neighborhood search method for solving the team orienteering problem" *Expert Systems with Applications* 40(8): 3065-3072.
- P23. **Lee, C-Y.,** A.L. Johnson, E. Moreno-Centeno, and T. Kuosmanen, 2013. "A More Efficient Algorithm for Convex Nonparametric Least Squares" *European Journal of Operational Research* 227(2):391-400.
- P24. **Hong, S.,** A.L. Johnson, and B.A. Peters, 2012. "Batch Picking in Narrow-Aisle Order Picking Systems with Consideration for Picker Blocking." *European Journal of Operational Research* 221(3): 557-570.
- P25. **Mekaroonreung, M.** and A.L. Johnson, 2012. "Estimating the Shadow Prices of SO<sub>2</sub> and NO<sub>x</sub> for U.S. Coal Power Plants: A Convex Nonparametric Least Squares Approach." *Energy Economics* 34(3): 723-732.
- P26. Johnson, A.L. and T. Kuosmanen, 2012. "One-stage and Two-stage DEA Estimation of the Effects of Contextual Variables." *European Journal of Operational Research* 220(2): 559-570.
- P27. **Hong, S.,** A.L. Johnson, and B.A. Peters, 2012. "Large-scale Order Batching in Parallel-aisle Picking Systems." *IIE Transactions* 44(4): 88-106.
- P28. **Lee, C-Y.,** and A.L. Johnson, 2012. "Two-dimensional Efficiency Decomposition to Measure the Demand Effect in Productivity Analysis." *European Journal of Operational Research* 216: 584-593.
- P29. Collier, T., A.L. Johnson, and J. Ruggiero, 2011. "Measuring Technical Efficiency in Sports." *Journal of Sports Economics* 12(6): 579-598.

- P30. **Nataraja, N.R.** and A.L. Johnson, 2011. "Guidelines for Using Variable Selection Techniques in Data Envelopment Analysis." *European Journal of Operational Research*. 215: 662-669.
- P31. Johnson, A.L. and T. Kuosmanen, 2011. "One-stage estimation of the effects of operational conditions and practices on productive performance: Asymptotically normal and efficient, root-n consistent StoNEZD method." *Journal of Productivity Analysis* 36(2): 219-230.
- P32. Johnson, A.L. and J. Ruggiero, 2011. "Allocative Efficiency Measurement with Endogenous Prices." *Economic Letters* 111(2): 81-83.
- P33. **Hong, S.**, A.L. Johnson, H. Carlo, D. Nazzal, and J.A. Jimenez, 2011. "Optimizing the location of crossovers in conveyor-based automated material handling systems in Semiconductor wafer fabs." *International Journal of Production Research* 49(20): 6199-6226.
- P34. Collier, T., A.L. Johnson, and J. Ruggiero, 2011. "Technical Efficiency Estimation with Multiple inputs and Multiple Outputs Using Regression Analysis." *European Journal of Operational Research* 208(2): 153-160.
- P35. **Lee, C-Y.**, and A.L. Johnson, 2011. "A decomposition of productivity change in the semiconductor manufacturing industry." *International Journal of Production Research* 49(16): 4761-4785.
- P36. Johnson, A.L. and L.F. McGinnis, 2011. "Performance Measurement in the Warehousing Industry." *IIE Transactions* 43(3): 203-215.
- P37. **Mekaroonreung, M.** and A.L. Johnson, 2010. "Estimating the efficiency of American petroleum refineries under varying assumptions of the disposability of bad outputs." *International Journal of Energy Sector Management* 4(3): 356-398.
- P38. Chen, W-C. and A.L. Johnson, 2010. "The Dynamics of Performance Space of Major League Baseball Pitchers 1871-2006." *Annals of Operational Research* 181(1): 287-302.
- P39. Nazzal, D., J.A. Jimenez, H.J. Carlo, A.L. Johnson, and **V. Lasrado**, 2010. "An Analytical Model for Conveyor-Based Material Handling System with Crossovers in Semiconductor Wafer Fabs." *IEEE Transactions on Semiconductor Manufacturing* 23(3): 468-476.
- P40. Johnson, A. L., W.-C. Chen and L. F. McGinnis, 2010. "Large-scale Internet benchmarking: Technology and application in warehousing operations." *Computers in Industry* 61:280-286.

- P41. Estella, S., A.L. Johnson, and J. Ruggiero, 2010. "Three-stage DEA Models for Incorporating Exogenous Inputs." *Computers and Operations Research* 37(6): 1087-1090.
- P42. Chen, W-C. and A.L. Johnson, 2010. "A Unified Model for Detecting Efficient and Inefficient Outliers in Data Envelopment Analysis." *Computers and Operations Research* 37 (2): 417-425.
- P43. Kuosmanen, T. and A.L. Johnson, 2010. "Data Envelopment Analysis as Nonparametric Least Squares Regression." *Operations Research* 58(1): 149-160.
- P44. Johnson, A.L. and L.F. McGinnis, 2009. "The Hyperbolic Oriented Efficiency Measure as a Remedy to Infeasibility of Super Efficiency Models." *Journal of the Operational Research Society* 60(11): 1511-1517.
- P45. Johnson, A.L. and L.F. McGinnis, 2008. "Outlier Detection in Two-Stage Semiparametric DEA Models." *European Journal of Operational Research* 187(2): 629-635.

#### **Submitted and Working Papers**

- S1. **Yagi, D.**, A.L Johnson, and H. Morita 2017. "Iterative Nonparametric S-shape Estimation." *Texas A&M University Working Paper*.
- S2. **Layer, K.**, A.L Johnson, and R. Sickles 2017. "Direction Selection in Stochastic Directional Distance Functions" *Texas A&M University Working Paper*.
- S3. **Preciado Arreola, J.L.** and A.L. Johnson, 2017. "Insights from Machine Learning for Evaluating Production Function Estimators on Manufacturing Survey Data." R & R at *Journal of Productivity Analysis*.
- S4. Johnson, A.L., 2017. "Shape Constraints in Economics and Operations Research." R&R at *Statistical Science*.
- S5. **Preciado Arreola, J.L.** and A.L. Johnson, 2017. "Estimating Stochastic Production Frontiers: A One-stage Multivariate Semi-Nonparametric Bayesian Concave Regression Method." Submitted, *European Journal of Operations Research*.
- S6. **Oh, H.**, A.L. Johnson, L. Lucianetti, and **S. Youn** 2017. "The Effect of Performance Measurement Systems on Productive Performance: An Empirical Study of Italian Manufacturing Firms" Submitted, *International Journal of Production Economics*.

## Conference Proceedings

- C1. **Hong, S.**, A.L. Johnson, and B.A. Peters, 2014. "Order batching with time constraints in a parallel-aisle warehouse: a multiple-policy approach." *Progress in Material Handling Research: Proceedings of 2014 International Material Handling Research Colloquium (IMHRC)*, June 2014, Cincinnati, Ohio.
- C2. Johnson, A.L., 2010. "Evaluating the Effect of Operational Conditions and Practices on Warehouse Performance." *Progress in Material Handling Research: Proceedings of 2010 International Material Handling Research Colloquium (IMHRC)*, May 2010, Milwaukee, Wisconsin.
- C3. **Hong, S.**, A.L. Johnson, and B.A. Peters, 2010. "Analysis of Picker Blocking in Narrow-Aisle Batch Picking." *Progress in Material Handling Research: Proceedings of 2010 International Material Handling Research Colloquium (IMHRC)*, May 2010, Milwaukee, Wisconsin.
- C4. Johnson, A.L, Carlo, H.J., Jimenez, J.A., Nazzal, D., and **V. Lasrado**, 2009. "A Greedy Heuristic for Locating Crossovers in Conveyor-based AMHS in Wafer Fabs." *Winter Simulation Conference Proceedings*.
- C5. Nazzal, D., A.L. Johnson, H.J. Carlo, and J.A. Jimenez, 2008. "An Analytical Model for Conveyor-Based AMHS in Semiconductor Wafer Fabs." *Winter Simulation Conference Proceedings*.
- C6. Johnson, A.L., 2008. "Warehouse Benchmarking Results: A Comparison of Wholesale and Manufacturing Warehouses." *Progress in Material Handling Research: Proceedings of 2008 International Material Handling Research Colloquium (IMHRC)*, May 2008, Dortmund, Germany.

## Book Chapters

- B1. Johnson, A.L. 2017. "Stochastic DEA: The Regression Based Approach." K. Tone (Ed), *Advances in DEA Theory and Applications: With Examples in Forecasting Models*, Wiley.
- B2. **Lee, C-Y.** and A.L. Johnson, 2017. "Predictive Efficiency Analysis: A Study of U.S. Hospitals." K. Tone (Ed), *Advances in DEA Theory and Applications: With Examples in Forecasting Models*, Wiley.
- B3. Johnson, A.L. and Kuosmanen, T., 2015. "An introduction to CNLS and StoNED methods for efficiency analysis: computational aspects and formulations." S. Ray, S. Kumbhakar, and P. Dua (Eds), *Benchmarking for Performance Evaluation: A Frontier Approach*, Springer.

- B4. Kuosmanen, T., A.L. Johnson, and **A. Saastamoinen**, 2015. “Stochastic nonparametric approach to efficiency analysis: A unified framework.” J. Zhu (Ed), *Data Envelopment Analysis – A Handbook of Models and Methods*, Springer.
- B5. Banerjee, A., A.L. Johnson, **M. Mekaroonreung**, and **B. Pope**, 2013. “Healthcare Systems.” Adedeji B. Badiru (Ed), *The Handbook of Industrial and Systems Engineering*.
- B6. **Lee, C-Y.** and A.L. Johnson, 2013. “Operational Efficiency.” Adedeji B. Badiru (Ed), *The Handbook of Industrial and Systems Engineering*.
- B7. Collier, T., A.L. Johnson, and J. Ruggiero, 2011. “Aggression in Mixed Martial Arts: An Analysis of the Likelihood of Winning a Decision.” R. Todd Jewel (Ed), *Violence and Aggression in Sporting Contests: Economics, History and Policy*, Jewel.

### **Invited Seminar**

1. University of Leuven, Kortrijk, Belgium, 2018
2. Lancaster University, 2017
3. Aston University, 2017
4. Department of Industrial and Systems Engineering, Virginia Tech, 2017
5. Department of Economics, Rice University, 2017
6. VATT Finland, Fifth Helsinki Workshop on Efficiency and Productivity Analysis, Helsinki, Finland, 2016
7. Institute of Manufacturing, National Cheng Kung University, 2016
8. H. Milton Stewart School of Industrial and Systems Engineering, Georgia Tech, 2016
9. Industrial and Manufacturing Engineering, Penn State University, 2015
10. DEA Interest Group of the Japanese Operations Research Society, 2008, 2009, 2011, 2015
11. Department of Service and Information Economy, School of Business, Aalto University, 2014
12. University of Leuven, Kortrijk, Belgium, 2014
13. Finance Research Group Seminar, Queen’s University, Belfast, Northern Ireland, 2014



14. Department of Business and Economics, University of Southern Denmark, 2013
15. Department of Mathematics and Systems Analysis, School of Science, Aalto University, 2013
16. Department of Industrial and Systems Engineering, University of Wisconsin-Madison, 2013
17. Third Helsinki Workshop on Efficiency and Productivity Analysis, Aalto University, Helsinki, Finland, 2012
18. DEA Symposium, Seikei University, Tokyo, Japan, 2012
19. Department of Information Physics and Sciences, Osaka University, Japan, 2007, 2008, 2012
20. Department of Information and Communication Sciences, Sophia University, Japan, 2009, 2011
21. H. Milton Stewart School of Industrial and Systems Engineering, Georgia Tech, 2010
22. Department of Economics, Rice University, 2010
23. Department of Systems and Engineering Management, Air Force Institute of Technology, 2010
24. Department of Mechanical and Industrial Engineering, University of Texas, 2010
25. Department of Agricultural Economics, Texas A&M University, 2010
26. Department of Information and Operations Management, Mays Business School, Texas A&M University, 2009

#### **Invited Participant**

1. NBER - Japan Project Meeting, Tokyo, Japan, 2015, 2016, 2017
2. Helsinki Workshop on Efficiency and Productivity Analysis, Helsinki, Finland, 3<sup>rd</sup> in 2012, 5<sup>th</sup> and 6<sup>th</sup> in 2014, and 7<sup>th</sup> in 2016.

3. Summer Workshop on Operations Research and Supply Chain Management, National Taiwan University, Taipei, Taiwan, 2016.
4. Hitotsubashi Summer Institute, Hitotsubashi University, Tokyo, Japan, 2016.
5. Data Envelopment Analysis International Conference, Nanjing Audit University, Nanjing, China, 2016.
6. Nonparametric Statistical Inference Under Shape Constraints Workshop, International Centre for Mathematical Sciences, Edinburgh, Scotland, 2016.
7. Workshop, Dynamic and Network DEA, GRIPS, Tokyo, Japan, 2015.
8. Material Handling Teacher's Institute, University of Wisconsin-Madison, 2015.
9. Plenary talk, European Workshop for Efficiency and Productivity Analysis, Helsinki, Finland, 2015.
10. Measuring Management Conference, Harvard University, 2014.
11. Workshop, Dynamic and Network DEA GRIPS, Tokyo, Japan, 2013.
12. DEA Symposium, Seikei University, Tokyo, Japan, 2012
13. DEA cluster, Japanese Operations Research Society Meeting, 2007, 2008, 2009, 2011
14. Invited Academic, ProMat 2009, Chicago, IL, January 2009
15. Georgia Productivity Workshop III, Athens, GA, 2005

### **Editor**

- 2017- Associate Editor, *Journal of Productivity Analysis*
- 2014- Department Editor, Facilities and Production Logistics, *IIE Transactions*
- 2017 Guest Editor, special issue, *The Data Envelopment Analysis Journal*
- 2017 Guest Editor, special issue, *International Journal of Production Research*
- 2011-2015 Associate Editor, *The Data Envelopment Analysis Journal*
- 2012-2015 Associate Editor, *International Transactions in Operational Research*

## Journal Reviewer

*Operations Research, Management Science, Journal of Econometrics, European Journal of Operations Research, Journal of Operations Management, Production and Operations Management, International Journal of Production Research, Journal of Manufacturing Systems, Journal of the Operations Research Society, Annals of Operations Research, Information Sciences, International Journal of Energy Sector Management, Journal of Operations Research Society Japan, European Journal of Industrial Engineering, Journal of Productivity Analysis, Data Envelopment Analysis Journal, Computers and Operations Research, IIE Transactions, Omega, Flexible Services and Manufacturing*

## B. Research Projects

Total including collaborative projects: ~\$6,040,000 (~\$1,437,667, A.L. Johnson)  
Projects through Texas A&M Experiment Stations or University System's Sponsored Research Services: ~\$3,670,000 (~\$1,341,667, A.L. Johnson)  
International Projects: ~\$2,370,000 (~\$96,000, A.L. Johnson)

### i. Projects through Texas A&M Experiment Stations or University System's Sponsored Research Services

**2016–2020** National Oilwell Varco: NOV-Manufacturing System – Stage 2 (Collaborative with University of Wisconsin-Madison and Penn State University), \$1,800,000. PI: A.L. Johnson; collaborators at other schools: A. Krishnamurthy and R.C. Voigt

The project extends the tools developed in the original NOV-MS project to aftermarket services. Aftermarket services faces unique challenges that will require extensions to the existing tools. For manufacturing operations, we will develop analytical tools to identify improvement strategies based on data gathered and presented using the dashboard developed in the original project. The existing tools need to be adapted and extended to meet the challenges of the oil industry's existing down market.

**2016 - 2017** Texas A&M University – Department of Research – PECSA Grant: Sweet or Sour? The Potential for U.S.-Cuban Trade in Sugar, \$25,000 plus \$25,000 matching funds from the colleges involved.  
PI: R. Robertson, Co-PIs: L. Ribera and A. Johnson

The project will analyze the potential for U.S.-Cuban sugar trade with a particular focus on Cuban sugar production. This project is important because Cuba historically has been an important global sugar producer and U.S. sugar producers are sensitive to foreign competition. Cuban liberalization and subsequent possible inflow of foreign investment makes the timing of the baseline data collection and subsequent analysis unique and extremely valuable. The project's implications are significant for U.S. sugar producers, U.S. national agricultural policy, and for agricultural development in developing countries generally.

**2015 - 2016** National Oilwell Varco: Analytical tools for an NOV-Manufacturing System (collaborative with University of Wisconsin-Madison and Penn State University), \$300,000.

PI: A.L. Johnson; collaborators at other schools: A. Krishnamurthy and R.C. Voigt

Description: This research project resulted in a set of analytical tools that helped National Oilwell Varco predict key performance metrics such as on-time delivery and cost. Using historical data, statistical methods correlations between variables measured on the shop floor and overall facility performance were identified.

**2011 - 2015** National Oilwell Varco: Being Responsive in a Complex Custom-Engineered Manufacturing Environment: Strategies, Methods, and Tools (Collaborative with University of Wisconsin-Madison and Penn State University), \$1,200,000.

PI: A.L. Johnson; collaborators at other schools: A. Krishnamurthy and R.C. Voigt

National Oilwell Varco is continually innovating to maintain its position as the leading provider of customized oilfield products and services. The long-term objective of the research project is to develop, test, and implement a NOV Manufacturing System (NOVMS) that will allow timely responses to company and customer expectations of costs, lead times, quality and delivery. The foundation for NOVMS is the firm's existing knowledge of the challenges facing a large-scale, custom-engineered manufacturing environment and the universities' knowledge of state-of-the-art manufacturing methodologies.

**2009- 2013** National Science Foundation -EAGER: Engineering Incentives for Health Care Systems, \$260,000. PI: A.L. Johnson; Co-PIs: A. Deshmukh and J.J. Rohack

The project addresses the fundamental issues related to designing incentives for distributed decision makers in health care systems. We specifically focus on how incentives can be used to reduce costs by aligning objective function of non-cooperative decision makers. New methods will be developed in order to compute equilibria in large distributed systems. This project proposes to develop novel distributed, iterative methods that will allow us to efficiently decompose the overall problem into a series of sequential bilateral equilibria for each pair of connected players and then iteratively refine the local equilibria until a fixed point for the entire network is attained.

**2007** Wilson Supply: Lean Warehouse Management, \$45,000. PI - Lawrence, F.B., Co-PI A.L. Johnson and B.A. Narayanan,

The project designed, developed, and outlined guidelines for deployment of an appropriate facility layout that lead to increased and efficient utilization of warehouse assets and storage space at Wilson Supply. The project considered current warehouse processes and performed simulations to determine optimal product placement and storage strategies. The optimal layout configuration provided Wilson Supply with the required warehouse capacity to accommodate new product lines, support pre-season buys, and maintain sufficient inventory to provide a close to "100%" customer service level. Wilson Supply received a roadmap for implementation and Key Performance Indicators (KPIs).

**2006-2007** The Book Industry Study Group, Inc.: Warehouse Performance Self-Assessment and Benchmarking, \$15,000. PI: A.L. Johnson.

The project developed an on-line benchmarking tool for the book industry, considering the special resources required by book industry warehouses and the unique mix of services

provided in computing the warehouses' relative efficiency and performance metrics. A book-industry-specific set of attributes, practices, and technologies was used for a statistical benchmarking analysis.

## **ii. International Projects**

**2013 - 2017** Aalto Energy Research Initiative: Sustainable Transition of European Energy Markets – STEEM, ~\$1,964,000; PI: S. Syri; Co-PIs R. Lahdelma, M. Lehtonen, A. Salo, and T. Kuosmanen; Researcher: A.L. Johnson

The project will develop the European energy market and transmission network modeling to address the planned expansion of renewable energy production and seek optimal interaction with the heating systems. European-level hourly modeling will include the heating sector, hydropower, and combined heating and power behavior), which are usually lacking in European models. Efficient overall operation of energy systems in the presence of large amounts of intermittent renewable supply requires a more integrated approach. Electricity market deregulation requires incorporating uncertainty and strategic behavior by market participants into models. The efficient transformation of the European energy infrastructure also requires appropriate incentives for private sector investors, and this is presently not the case in the EU policy framework.

**2013 - 2016** Japan Society for the Promotion of Science: Data Envelopment Analysis for Forecasting, ~\$200,000. PI: K. Tone; Co-PIs: T.S. Chang, A.L. Johnson, and J. Ouenniche

The project investigated the integration of efficiency analysis with the forecasting process. Three specific issues were investigated: inter-temporal efficiency analysis using DEA, the measurement of productivity change using the Malmquist index applied to efficiency estimates from dynamic DEA models, and volatility assessment of forecasting models using DEA. The results provide insights into efficiency analysis methods, strengthening them by measuring the quality of decisions made with forecasted data rather than random outcomes. Insights gained from combining multiple criteria in forecasting models are also developed.

**2010 - 2013** Japan Society for the Promotion of Science: Network Data Envelopment Analysis, ~\$200,000. PI: K. Tone; Co-PIs: N. Avkiran, H. Fukuyama, and A.L. Johnson

The project modeled a production system as three components: production design, demand support, and operations. Efficiency was then decomposed via Network DEA and integrated into the Malmquist Productivity Index framework to develop a more detailed decomposition of productivity change. The goal was to identify the demand effect and identify the root cause of technical regress, i.e., the demand effect allows the source of technical regress to be attributed to both demand deterioration and technical regress in the production technology.

**2009** Japan Society for the Promotion of Science: Invitation Fellowship Program for Research in Japan, ~\$6,000. PI: A.L. Johnson; Sponsor University PI: H. Morita

Project funding supported a one-month visit to develop collaboration between the Systems Engineering Laboratory in the Department of Information and Physical Sciences, Graduate School of Information Science and Technology at Osaka University and the Department of Industrial and Systems Engineering at Texas A&M University. Methods were developed to support performance measurement such as model specification and sensitivity analysis. The uses of stochastic modeling to characterize uncertainty was emphasized, while incorporating the economic foundations of productivity models, focusing on interpretation, and identifying actionable strategies for improvement. In an electric power industry,

Monopolistic behavior is a concern in the electric power industry characterized by limited competition. Typically, governments develop regulations to keep energy prices low for customers. Application to the electric power industry via collaboration with the Central Research Institute of the U.S. electric power industry was investigated.

**iii. Data Collaboration Projects**

**2014 - 2019** Census Research Data Center - Cross Sectional and Time Series Analysis of Production and Energy Efficiency in Manufacturing, PI: G.Boyd; Co-I: A.L. Johnson

The research will examine the underlying causes of changes in the distributions of productivity and energy efficiency in U.S. manufacturing. Time series approaches will allow analysis will be used. The principal analytic approach is the application of frontier production functions and index number-based methods.

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<sup>1</sup> Last Updated March 2, 2018