

ACADEMIC APPOINTMENTS & EDUCATION

ACADEMIC APPOINTMENTS

ASSISTANT PROFESSOR – DEPARTMENT OF SUPPLY CHAIN MANAGEMENT | RUTGERS BUSINESS SCHOOL

📅 September 2017 – Current 🌐 Newark, NJ

- *Primary Research Areas: Energy Systems, Sustainability, Demand Planning, Operations Research, Risk & Disruption, Statistical Modeling, and Continuous Improvement*

EDUCATION

RUTGERS UNIVERSITY

- **DOCTOR OF PHILOSOPHY (PHD)** – Industrial & Systems Engineering | October 2016
 - Dissertation: Simulation-Based Optimization Models for Electricity Generation Expansion Planning Problems Considering Human Health Externalities
 - Advisor: David Coit
 - Committee: David Coit (Chair), Frank Felder (Co-Chair), Annmarie Carlton, Susan Albin, Honggang Wang
- **MASTER OF SCIENCE (MS)** – Industrial & Systems Engineering | May 2013
- **MASTER OF SCIENCE (MS)** – Applied & Mathematical Statistics | May 2013
- **BACHELOR OF SCIENCE (BS)** – Ceramic Engineering | May 2007

STEVENS INSTITUTE OF TECHNOLOGY

- **MASTER OF ENGINEERING (MENG)** – Pharmaceutical Manufacturing Practices | May 2009

PUBLICATIONS & PRESENTATIONS

REFEREED JOURNAL PUBLICATIONS

(*: CORRESPONDING AUTHOR)

- [1] K. G. Mun, W. Cai, M. Rodgers*, S. Choi, A data-driven resilient supply chain design for energy security and economic prosperity, *International Journal of Production Research*, September 2023, <https://doi.org/10.1080/00207543.2023.2254414>. [Impact Factor: 9.2 | A Rating – ABDC Journal Quality]
- [2] D. Singham, M. Rodgers*, A Battery Depletion Risk Measure for Centralized Systems with Storage Capabilities, *Operations Research Letters*, 50(6), 660-666, November 2022, <https://doi.org/10.1016/j.orl.2022.10.005>. [Impact Factor: 1.151 | A Rating – ABDC Journal Quality]
- [3] S. Selcuklu, M. Rodgers*, A. Movlyanov, Economically and Environmentally Sustainable Power System Expansion: A Case Study for Turkey, *Computers & Industrial Engineering*, 164: 107892, February 2022, <https://doi.org/10.1016/j.cie.2021.107892>. [Impact Factor: 5.431 | A Rating – ABDC Journal Quality | Scopus Rating: 15/297 General Engineering (Q1)]
- [4] X. Xu, M. Rodgers, W. Guo. A Hub-and-spoke Design for Ultra-cold COVID-19 Vaccine Distribution, *Vaccine*, 39(41): 6127-6136, October 2021, <https://doi.org/10.1016/j.vaccine.2021.08.069>. [Impact Factor: 3.641 | Q1 Scopus Rating]
- [5] M. Rodgers*, Pathways to Eliminate Carbon Emissions via Renewable Energy Investments at Higher Education Institutions, *The Electricity Journal*, 34(5): 106952, June 2021, <http://dx.doi.org/10.1016/j.tej.2021.106952>. [Impact Factor: 1.018]
- [6] S. Tsianikas, N. Yousefi, J. Zhou, M. Rodgers*, D. Coit, A storage expansion planning framework using reinforcement learning and simulation-based optimization, *Applied Energy*, 290: 116778, May 2021, <https://doi.org/10.1016/j.apenergy.2021.116778>. [Impact Factor: 9.746 | Scopus Rating: 1/185 Building and Construction (Q1)]
- [7] X. Xu, M. Rodgers, W. Guo. Hybrid Simulation Models for Spare Parts Supply Chain Considering 3D Printing Capabilities, *Journal of Manufacturing Systems*, 59: 272-282, April 2021, <https://doi.org/10.1016/j.jmsy.2021.02.018>. [Impact Factor: 8.633 | Scopus Rating: 9/336 Industrial and Manufacturing Engineering (Q1)]

- [8] X. Xu, W. Guo, M. Rodgers*. A Real-time Decision Support Framework to Mitigate Quality Degradation in Perishable Supply Chains, *Computers & Industrial Engineering*, 150: 106905, 2020, <https://doi.org/10.1016/j.cie.2020.106905>. [Impact Factor: 5.431 | A Rating – ABDC Journal Quality | Scopus Rating: 15/297 General Engineering (Q1)]
- [9] M. Rodgers*, D. Coit, F. Felder, A.G. Carlton, A Metamodeling Framework for Quantifying Health Damages of Power Grid Expansion Plans, *International Journal of Environmental Research and Public Health*, 16(10): 1-21, 2019, <https://doi.org/10.3390/ijerph16101857>. [Impact Factor: 3.39 | Special Issue on Air Quality and Health Predictions]
- [10] M. Rodgers*, D. Singham, A Framework for Assessing Disruptions in a Clinical Supply Chain Using Bayesian Belief Networks, *Journal of Pharmaceutical Innovation*, 2019, <https://doi.org/10.1007/s12247-019-09396-2>. [Impact Factor: 2.750]
- [11] M. Rodgers*, R. Oppenheim, Ishikawa Diagrams and Bayesian Belief Networks for Continuous Improvement Applications, *The TQM Journal*, 31(3): 294-318, 2019, <https://doi.org/10.1108/TQM-11-2018-0184>. [Scopus Cite Score: 4.3 | Scopus Rating: 36/218 General Business, Management and Accounting (Q1)]
- [12] M. Rodgers*, D. Coit, F. Felder, A.G. Carlton. Assessing the Effects of Power Grid Expansion on Human Health Externalities, *Socio-Economic Planning Sciences*, 66: 92-104, 2019, <https://doi.org/10.1016/j.seps.2018.07.011>. [Impact Factor: 4.923 | Invited Paper | Scopus Rating: 67/704 Geography, Planning and Development (Q1)]
- [13] M. Rodgers*, D. Coit, F. Felder, A.G. Carlton. Generation Expansion Planning Considering Health and Societal Damages – A Simulation-Based Optimization Approach, *Energy*, 164: 951-963, 2018, <https://doi.org/10.1016/j.energy.2018.09.004>. [Impact Factor: 7.147 | Scopus Rating: 4/290 Modeling and Simulation (Q1)]
- [14] C.M. Farkas, M.D. Moeller, F. Felder, K.R. Baker, M. Rodgers, A.G. Carlton, Temporalization of Peak Electric Generation PM Emissions during High Energy Demand Days, *Environmental Science & Technology*, 49(7): 4696-4704, 2015, <https://doi.org/10.1021/es5050248>. [Impact Factor: 9.028 | Scopus Rating: 6/122 Environmental Chemistry (Q1)]

REFEREED JOURNAL PUBLICATIONS (UNDER REVIEW & IN PREPARATION)

(*: CORRESPONDING AUTHOR)

UNDER REVIEW

- K. G. Mun, W. Cai, M. Rodgers*, S. Choi, Optimizing multi resource-based energy supply chains in developing economies: A periodic review model for affordable and sustainable solutions.
- S. Tsianikas, N. Yousefi, J. Zhou, M. Rodgers, D. Coit, Deep Reinforcement Learning for Power and Storage Expansion Planning in Microgrids.
- A. Park, M. Rodgers*, S. Cho, Toward Sustainable Freight Services: Ensuring Equitable Job Distribution for Independent Truckers.
- M. Rodgers*, A. Kapoor, A. Baveja, S. Mukherjee. M. Rodgers*, A. Kapoor, A. Baveja, S. Mukherjee. Solving Business Problems: The Business-Driven Data-Supported Process.

IN PREPARATION

- G. Culhan Kumcu, M. Rodgers, K. Mun, W. Cai, X. Xu, Microgrid Integration for Improved Electricity Access in Kenya (*Stage: Model Development | Target Journal: Production & Operations Management*).
- G. Culhan Kumcu, M. Rodgers, M. Mahdikhani, A. Park, Building Back Better: Power Grid Expansion Models to Address Societal and Infrastructure Challenges (*Stage: Model Development | Target Journal: Production & Operations Management*).
- M. Rodgers, D. Dreyfus, Designing an Ambulance Deployment System – A Case Study for the Ghana’s Hospital Networks (*Stage: Model Development | Target Journal: Production & Operations Management*).
- M. Rodgers, Optimal Resource Deployment with Stochastic Availability (*Stage: Model Development | Target Journal: Production & Operations Management*).

- M. Rodgers, L. Lei, A. Baveja, R. Oppenheim. How Large Public Universities Can Achieve Their Goal of Inclusive Excellence: Lessons from Supply Chain Management Availability (*Stage: Preliminary Research | Target Journal: TBD*).

REFEREED CONFERENCE PROCEEDINGS

- [1] S. Selcuklu, D. Coit, F. Felder, M. Rodgers, N. Wattanapongsakorn, A new methodology for solving multi-objective stochastic optimization problems with independent objective functions, *2013 IEEE International Conference on Industrial Engineering and Engineering Management*, pp. 101-105, 2013.
- [2] N. Chatwattanasiri, D. Coit, M. Rodgers, S. Song, System Reliability Optimization Considering Uncertain Future Operating Conditions and Usage Stresses, *18th ISSAT Reliability and Quality in Design Conference*, pp. 667-674, 2012.

BOOK CHAPTERS

(*: CORRESPONDING AUTHOR)

- [1] M. Rodgers*, R. Oppenheim, Rutgers University's Pathway to Complete Renewable Electricity Generation, a chapter in *Cases in Financial Management: Applications for Financial Analysis*, I. Brick and H. Poniachek (eds.), World Scientific, 115-123, February 2023, <https://doi.org/10.1142/11728>.

PRESENTATIONS

INVITED PRESENTATIONS

- Leveraging Analytics to Design Pathways to Eliminate Scope 2 Emissions, NJ Climate Research Symposium – June 2023
- Designing Recycling Systems at Rutgers University using Decision Support Tools and Strategic Management Principles,
 - *Pace University's Lubin Research Seminar Series* – April 2023
 - *New Jersey Department of Environmental Protection* – April 2023
- Clean Energy, Greenhouse Gas Emissions Reduction, and Rapid Decarbonization in the PJM Region (Panel Moderator), *NJ Climate Resource Center Webinar* – February 2023
- From Business Disruption to Business Success, *NJSBDC Webinar* – January 2021
- The Power of Answering the Right Question to Resolve Business Dilemmas, *SESA Systems Webinar* – August 2020
- Big Data Excellence: A Framework for Sustained Performance, *IISE ELSS Annual Conference* – September 2019, Atlanta, GA
- Simulation-based Optimization Models for Electricity Generation Expansion Planning Problems Considering Human Health Externalities
 - *CRRRI Eastern Meeting* – May 2019, Shawnee on Delaware, PA
 - *POMS Annual Conference* – May 2019, Washington, DC
 - *INFORMS Annual Meeting* – Oct 2017, Houston, TX
 - *Rutgers University – Department of Industrial & Systems Engineering Seminar* – Nov 2017, Piscataway, NJ
 - *New Jersey Institute of Technology* – December 2017, Newark, NJ
 - *Rutgers Energy Institute* – March 2018, New Brunswick, NJ
- We Are Pioneers!, Johnson & Johnson's Supply Chain Global Symposium, Skillman, NJ – 2018
- A Framework to Leverage Cause-and-Effect Diagrams and Bayesian Belief Networks in Continuous Improvement Applications, *IISE ELSS Annual Conference* – September 2018, Atlanta, GA

OTHER PRESENTATIONS

- Big Data Excellence: A Framework for Sustained Performance, *INFORMS Annual Meeting* – October 2019, Seattle, WA
- Real-Time Dispatching in Electricity Markets, *INFORMS Annual Meeting* – November 2018, Phoenix, AZ
- A Framework for Assessing Disruptions in a Clinical Supply Chain Using Bayesian Belief Networks, *POMS Annual Conference* – May 2018, Houston, TX

- Effects of Human Health Externalities on Expansion Plans, *INFORMS Annual Meeting* – Nov 2014, San Francisco, CA
- Meta-modeling Societal Health Costs of Electricity Generation Using Kriging, *ISERC* – May 2013, San Juan, Puerto Rico
- A Roadmap for Formulating the Generation Expansion Planning Problem to Include Societal Health Costs – *INFORMS Annual Meeting* – Oct 2012, Phoenix, AZ

GRANTS

EXTERNAL GRANTS


- NJEDA Phase 3: NJ Small Business Granting and Funding Programs Disparity Study
 - Award Amount: \$95,000
 - PI: Kevin Lyons | Key Personnel: Magda Comeau, Mark Rodgers, and Matthew Walsman
 - Timeline: July 2022 – November 2022
 - ID: Award Notification Received | NJ Economic Development Association
- Designing Recycling Systems at Rutgers University using Decision Support Tools and Strategic Management Principles
 - Award Amount: \$206,346
 - PI: Mark Rodgers | Key Personnel: Kevin Lyons (co-PI) and Matthew Walsman (co-PI)
 - Timeline: February 2022 – February 2023
 - ID: SHW22-002 | NJ Department of Environmental Protection
- NJEDA Phase 2: Equity Investment Disparity Study
 - Award Amount: \$78,635.00
 - PI: Kevin Lyons | Key Personnel: Magda Comeau, Mark Rodgers, and Matthew Walsman
 - Timeline: June 2021 – March 2022
 - ID: FP00025110 | NJ Economic Development Association
- NJEDA Phase 1: NJEDA Wind Port Project Disparity Study
 - Award Amount: \$58,267
 - PI: Kevin Lyons | Key Personnel: Magda Comeau and Mark Rodgers
 - Timeline: July 2020 – October 2020
 - ID: FP00021212 | NJ Economic Development Association
- Supply Chain Management Training Plan Continuity Topic -- CARES Act Program Topic (D1)
 - Award Amount: \$90,000
 - PI: Leon Fraser | Sub-Award PI: Mark Rodgers
 - Timeline: April 2020 – September 2021
 - ID: SBAHQ20C0073 (Sub-Award) | NJ Small Business Development Center

INTERNAL GRANTS

- Rutgers Business School, Dean's Fund for Summer Ph.D. Research Assistantship, "Building Alignment for Fleet Asset Managers to Align Operational Demand" (with G. Culhan Kumcu), Summer 2022.
- Rutgers University | PECE Mini Grant | 2018 - \$180 | 2019 - \$145

TEACHING EXPERIENCE

RUTGERS UNIVERSITY

 Newark, NJ

- Data-Driven Analysis for Decision-Making (22:711:573)
- Demand Planning & Fulfillment (29:799:310)
- Six Sigma and Lean Manufacturing (29:799:460)
- Operations Analysis (22:799:580)

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🌐 New Brunswick, NJ

- Demand Planning & Fulfillment (33:799:310)
- Six Sigma and Lean Manufacturing (33:799:460)

NEW JERSEY INSTITUTE OF TECHNOLOGY (NJIT)

🌐 Newark, NJ

- Calculus for Business

UNION COUNTY COLLEGE

🌐 Cranford, NJ

- Courses Taught: Elementary Statistics | Pre-Algebra | Introduction to Algebra 1 | Introduction to Algebra 2

SERVICE, AWARDS & AFFILIATIONS

SCHOOL AND DEPARTMENTAL SERVICE

- Dissertation Committees
 - Gul Culham Kumcu, Rutgers Business School, Chair (Placed at TOBB University – Fall 2023)
 - Nasser Al Monawer, Rutgers Business School, Committee Member
 - Maryam Mahdikhani, Rutgers Business School, Committee Member (Placed at the College of Charleston – Fall 2020)
 - Olena Rudna, Rutgers Business School, Committee Member
 - Ai-Chih Chang, Rutgers Business School, Committee Member (Placed at NJIT – Fall 2019)
 - Arim Park, Rutgers Business School, Committee Member (Placed at North Carolina A&T – Fall 2019)
- RBS MS Supply Chain Analytics Independent Study Advisor
 - Spring 2020: Rounak Nischal, Rongxin Zhuo
 - Fall 2019: Remya Balakrishnan, Meng-Chu Chien, Hanisha Jamtani, Akshay Rawat, Ailun Xin, Yang Zeng
- SCM PhD Admissions Committee (2022 – Current)
- Newark Undergraduate Program Academic Coordinator (2020 – Current)
- Co-Organizer – 2020 Rutgers TEN Plus Supply Chain Innovation Challenge, (2019 – Current)
- Institute for Supply Management (ISM) Liaison (2020 – Current)
- Co-Organizer – Supply Chain Management Seminar Series (2019 – 2020)
- Volunteer – 2018 Rutgers TEN Plus Supply Chain Case Challenge, 2018

UNIVERSITY SERVICE

- Students Advised:
 - Justin Morris, Office of Climate Action Research Assistantship (2022 – 2023)
 - Christopher Oh, Undergraduate Independent Study Advisor (2023)
 - Arbab Hussain, Undergraduate Independent Study Advisor (2021)
 - Emerson Walker, Undergraduate Senior Capstone Research Project (2020-2021)
 - Amy Wang, Rutgers University, Honors Thesis Research Advisor (2018 – 2020)
 - Siddhesh Dabholkar, Undergraduate Senior Capstone Research Project (2018-2019)
 - Tiffany Fong, First-year Interest Group Seminar (FIGS) Faculty Mentor (2018-2019)
 - Xingye Feng, Aresty Student Research Co-Advisor (2018-2019)
 - Amy Wang & Dustin Wang, Rutgers Energy Institute (REI) Summer Internship Co-Advisor (Summer 2018)
- Dissertation Committees:
 - Danial Nazemi – Rutgers University, School of Engineering, Committee Member

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- Shenghan Guo – Rutgers University, School of Engineering, Committee Member (Placed at Arizona State University)
- Stamatis Tsianikas, Rutgers University – School of Engineering, Committee Member (Placed at Google)
- Nooshin Yousefi – Rutgers University, School of Engineering, Committee Member (Placed at American Express)
- Jian Zhou, Rutgers University – Rutgers University, School of Engineering, Committee Member (Placed at Nanjing University of Science and Technology)
- Faculty Advisor:
 - Phi Chi Theta – Rutgers University Chapter (2018 – Current)
 - Rutgers University Chapter of the American Society for Quality (RUASQ) (2018 – Current)
- New Brunswick Faculty Council Representative (Fall 2019 – Current)
- Member – Rutgers Energy Institute (REI) Director Search Committee (2018)

PROFESSIONAL SERVICE

EDITORIAL SERVICE

- Topic Editor, *Sustainability* | Jan 2021 - Current
- Consulting Editor, *Journal of Education for Business* | Sept 2018 – Jan 2020

AD-HOC REVIEWER

Applied Energy, Reliability Engineering and System Safety, Socio-Economic Planning Sciences, Energies, International Journal of Environmental Research and Public Health, Journal of Renewable and Sustainable Energy, Sustainability

OTHER SERVICE ACTIVITIES

- Panel Member - New Jersey Offshore Wind: Supply Chain & Workforce Development Roundtable Discussion, Newark, NJ - 2019
- Keynote Speaker at Johnson & Johnson's Supply Chain Global Symposium, Skillman, NJ –2018
- Workshop Leader – Introduction to STEM-Related Career Paths, Edison Central 6 School, West Orange, NJ - 2013
- Workshop Leader – Introduction to Engineering Disciplines, Rutgers University, New Brunswick, NJ – 2011, 2012, & 2013
- Executive Board Member, Rutgers University Chapter of the National Society of Black Engineers (NSBE) | 2005 - 2007

AWARDS

- RBS-SCM Instructional Fellow, 2022-2024
- RBS Junior Faculty Teaching Award, 2019
- NSF IGERT For Fuels Fellowship, 2011 – 2013
- Ralph Bunche Distinguished Graduate Fellowship, 2010 – 2011

CERTIFICATIONS

- Verizon VLSS – Six Sigma Black Belt | Jan 2017
- ASQ Six Sigma Green Belt (Lic # 3196) | June 2009

AFFILIATIONS

- Member, American Society for Quality (ASQ) | 2009 - Present
- Member, INFORMS | 2011 – Present
- Member, Production and Operations Management Society (POMS) | 2017 – Present


PROFESSIONAL EXPERIENCE

BUSINESS PROCESS MANAGER | VERIZON

 June 2016 – August 2017  Basking Ridge, NJ

- Built a statistical model using principal component analysis (PCA) and K-means clustering to evaluate facility performance and potential consolidation and/or outsourcing decisions.
- Collaborate with leadership and maintenance operations to establish new KPIs to ensure vehicle availability for internal Verizon business partners.
- Conducted an ad-hoc analysis to study the survival probabilities and vehicle uptime by vehicle class and region.
- Led an enterprise-wide transition and implementation of a new aftermarket parts vendor.

TEAM LEAD – MANAGEMENT ENGINEERING | THE PORT AUTHORITY OF NY & NJ

 August 2015 – June 2016  New York, NY

 September 2013 – July 2014  Jersey City, NJ

- Led a team of junior level analysts in conducting a wide array of management analyses and high priority industrial engineering and strategic consulting projects with estimated annual savings ranging from approximately \$200K to \$10.5MM per project.
- Developed automated dashboards and reporting tools using Microsoft Excel and VBA for productivity and overtime analyses for Senior Leadership.
- Performed various data collection activities including field-based time studies, client and personnel interviews, sampling of staff workload, and benchmarking efforts to research best practices.
- Collaborated with Port Authority line departments and facilities on projects related to identification of process improvement opportunities, optimal resource allocation and utilization, operational planning, and organizational structure. Annual savings per project range from 2 to 11 FTE.

MANAGEMENT CONSULTANT | ZS ASSOCIATES

 July 2014 – July 2015  Princeton, NJ

Project 1: Sales Force Sizing & Structure | March 2015 – July 2015

- Collaborated with a team of offshore and onshore analysts in building, customizing, and implementing an integer-programming optimization model that determines the optimal sales force size and structure for a major pharmaceutical client.

Project 2: Data Stewardship Lead | October 2014 – July 2015


- Managed all data stewardship activities for a major pharmaceutical client including healthcare prescriber universe, product master database, and pharmacy benefit manager/plan network.
- Supervised a team of 12 offshore and 2 onshore resources to ensure key milestones and master data management activities are satisfied.
- Developed detailed process flow diagrams of business processes to identify process improvement opportunities.

Project 3: Diabetes Segmentation Lead Analyst | July 2014 – October 2014

- Conducted an Integrated Delivery Network (IDN) segmentation analysis based on diabetes market sales and prescriber control within IDNs to prioritize key IDNs for sales targeting for a major pharmaceutical company.
- Conducted a territory-level segmentation analysis based on diabetes market sales to identify key regions and territories for sales force alignment purposes.



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ANALYST, STRATEGIC & OPERATIONS PLANNING | BRISTOL-MYERS SQUIBB COMPANY

 November 2009 – August 2010  New Brunswick, NJ


- Executed a lean project that streamlined the volume & inventory projection processes
- Developed a scenario-based inventory model to support the team in the safety stock decision-making process.
- Compiled inventory metrics reports on a monthly basis to monitor performance against targets.

PROCESS OPTIMIZATION ANALYST | BRISTOL-MYERS SQUIBB COMPANY

 January 2008 – November 2009  New Brunswick, NJ

- Executed a lean project that eliminated waste in the transfer of process knowledge from formulation scientists to clinical manufacturing.
- Managed production planning activities for oral solid dosage manufacturing for clinical supplies.
- Developed monthly metrics that detailed operational performance against performance targets.

ASSOCIATE TECHNICAL INVESTIGATOR | BRISTOL-MYERS SQUIBB COMPANY

 May 2005 – January 2008  New Brunswick, NJ

- Employed Process Analytical Technologies (PAT) to assess characteristics of raw and in-process materials.
- Conducted Enslin studies on powder blends and granulations to measure powder moisture absorption.
- Analyzed the flow properties of in-process powders to ensure optimal material flow during production.