

Biplab Bhattacharya

Department of Industrial and Systems Engineering, University at Buffalo, SUNY

339b Bell Hall, Buffalo, NY 14260

Phone: (716) 507-5172

Email: biplabsu@buffalo.edu

Website – biplabbhattacharya.com

Education

- Ph.D. Candidate in Industrial and Systems Engineering** Sep.2019
University at Buffalo, The State University of New York, Buffalo, NY
Topic: Improving equity in medical supply chains in low-resource settings
Committee: Dr. Rajan Batta, Dr. Li Lin and Dr. Pavani K. Ram
- Master of Science in Industrial and Systems Engineering** May.2015
University at Buffalo, The State University of New York, Buffalo, NY
Concentration: Production Systems
- Bachelor of Technology in Mechanical Engineering** Apr.2012
Dual Degree: Diploma in Business Management Apr.2012
Symbiosis International University, Pune, India

Research/Project Experience

- Global Public Health – Equitable supply in Pharmaceutical Stock-outs** Aug.2015 – Sep.2019
Dissertation Research
- Developed an equity measure to assess severity communities due to drug stock-outs
 - Designed and implemented a heuristic for medicine delivery using mobile pharmacies to address burden due to drug stock-outs
 - Developing a medical oxygen technology selection decision making tool with routing for oxygen cylinders
- Public Health – Refugee Health Literacy Project** May.2018 – Sep.2019
Graduate Research Assistant
- Developed the data collection tool, conducted focus group interviews and field data collection
 - Mentored student teams to develop android application as a part of the health literacy intervention
- Health Data Analytics – Catholic Health, Buffalo, NY** May.2017 – Sep.2018
Graduate Research Assistant
- Determining the casual effect of multiple health related factors on hospital utilization and quality of care using Western New York Medicaid data
 - Identifying the opportunity of introducing new home health care services by addressing specific needs of patients
- Global Public Health – Clinton Health Access Initiative (CHAI) Inc., Uganda** Jan.2016 – Oct.2016
Graduate Research Assistant
- Analyzed health facility survey data to assess availability of ORS and Zn (used to treat diarrhea)
 - Investigated behavior of rural pharmacies and drug shops based on historical stock-level data
 - Conducted field work and presented this work to CHAI in Uganda

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Facility Layout – Armstrong Pumps Inc., North Tonawanda, NY

Feb.2014 – Aug.2015

Graduate Research Assistant

- Determined, collected and analyzed data of Armstrong's production, sales, facility requirements and space needs for 10 production lines based on company's business strategic plan
- Successfully improved material handling efficiency by 22% by implementing a new layout

Health Facility Analytics (Business Intelligence) –Financial Performance Dashboard

Jun.2014-May.2015

Master's research

- Developed a Markov-chain model to predict impact of patient flow on revenue for acute care organizations

Facility Layout – TREK, Inc., Lockport, NY

Sep.2014 – Feb.2015

Graduate Research Assistant

- Conducted cost and benefit analysis to evaluate facility expansion options;
- Performed workflow analysis to establish the spatial relationship of operational units
- Provided recommendations for final layout selection and the layout design was implemented by the company

Inventory Management System - Catholic Health Systems., NY

Jul.2014 – Dec.2014

Graduate Research Assistant

- Proposed a standardized inventory management system for four acute care facilities.
- Analyzed raw data to evaluate state of inventory; studied datasets to learn ordering and consumption patterns. Formulated a system for measuring inventory performance

Publications

Bhattacharya, B., Lin, L., Batta, R., & Ram, P. K. (2019). Stock-out severity index: tool for evaluating inequity in drug stock-outs. *Central European Journal of Operations Research*, 1-21.

Bhattacharya, B., Batta, R., Lin, L., Ram, P.K., Using Mobile Pharmacies to Reduce Inequity due to Drug Stock-outs in Low- and Middle-Income countries (*undergoing revisions for the European Journal of Operations Research*)

Casucci, S., Zhou, Y., **Bhattacharya, B.**, Sun, L., Nikolaev, A., & Lin, L. (2019). Causal analysis of the impact of homecare services on patient discharge disposition. *Home health care services quarterly*, 38(3), 162-181.

Bhattacharya, B., and Lam ,F.. "Overcoming Shortages of Essential Medicines: Perspectives from Industrial and Systems Engineering and Public Health Practice." *Transforming Global Health*. Springer, Cham, 2020. 179-191.

Bhattacharya, B., Batta, R., Lin, L., Ram, P.K., Developing a model for strategic oxygen technology selection for health facilities in low- and middle-income countries (in preparation – submission target: January 2019)

Keovisai, M., Imtiaz, S., **Bhattacharya, B.**, Kim, I., Kim, W., Lin, L., Development of a Website as a Health Information Source for Low Health Literacy and Limited English Proficiency (LEP) Patients (in preparation)

Raja, S., **Bhattacharya, B.**, Zhu, J., Measuring and Mapping Racial Disparities in Neighborhood Food Environments in Erie County, NY. (in preparation)

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Teaching/Mentoring Experience

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| Instructor – Department of Industrial and Systems Engineering, University at Buffalo
<i>Course: IE477 - Simulation Modeling and Analysis</i>
Level: senior undergraduate (class size – 44) | Aug.2017 – Dec.2017 |
| Mentor – Refugee Health Literacy <ul style="list-style-type: none"> ▪ Co-ordinating and leading two female master of computer science students for developing an android application as health literacy interventions for Karen refugees ▪ Leading three female undergraduate students in collecting data from the field and developing survey tools | Feb.2018 – Sep.2019 |
| Mentor – Warehouse Optimization, Meals on Wheels WNY <ul style="list-style-type: none"> ▪ Mentoring a team of two Ph.D. and three M.S. in industrial engineering students as a part of INFORMS pro bono project to optimize a warehouse using quantitative analysis | Aug.2017 – Sep.2018 |

Research Lectures and Talks

Invited Research Seminars

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| ▪ INFORMS Annual meeting, <i>“Mobile Pharmacies for Reducing Supply Chain Inequities in Low Resource Settings”</i> , Houston, TX | 2017 |
| ▪ Community for Global Health Equity, <i>“Perspectives from Industrial and Systems Engineering”</i> , University at Buffalo, NY | 2016 |
| ▪ Praxair Seminar Series, Industrial and Systems Engineering, <i>“Tackling inequity in pharmaceutical supply chains in low-resource countries”</i> , University at Buffalo, NY | 2016 |
| ▪ Communities of Excellence Conference, <i>“Systems engineering in global health”</i> , Buffalo, NY | 2016 |

Invited Lectures

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| ▪ Simulation Modeling and Analysis – Industrial and Systems Engineering, IE 477 | 2018 |
| ▪ Global Health – School of Public Health and Health Professions, EEH 521 | 2018 |
| ▪ Facility Design – Industrial and Systems Engineering, IE 327 | 2017 |
| ▪ Industrial Engineering research in Healthcare – Industrial and Systems Engineering, IE 585 | 2017 |
| ▪ Summer bridge Program - Engineering Track, Educational Opportunity Program | 2016 |
| ▪ Planning for Production and Service enterprises, IE 326 | 2016 |

Additional Experience

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| PubMatic India Pvt. Ltd., India – Sr. Publisher Operations Specialist | Jul.2012 – Jul.2013 |
| <ul style="list-style-type: none"> ▪ Analyzed revenue and user access data to identify key business trends and opportunities to optimize performance and client earnings. | |
| Premier. Ltd., India – Internship | Jan.2012-Apr.2012 |
| <ul style="list-style-type: none"> ▪ Optimized process output by 6.6% using lean manufacturing for auto components machining | |

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Computer Skills

R, SAS, Minitab	Data processing, visualization, statistical learning models and factorial experiments
Python	Data processing, optimization, machine learning models and simulations.
Gurobi and CPLEX	Mathematical optimization
Arena, @Risk, AnyLogic	Agent-based and discrete-event simulation modeling

Awards and Achievements

J. Scott Fleming Merit Award	University at Buffalo	2019
Graduate Research Assistantship	University at Buffalo	Jan.2018 – Jul. 2019
Teaching Assistantship	University at Buffalo	Aug.2017 – Dec.2017
Graduate Research Assistantship	University at Buffalo	Aug.2015 – Jul.2017
Summa Cum Laude – UB INFORMS Student Chapter	INFORMS	2017-18
Cum Laude – UB INFORMS Student Chapter	INFORMS	2016-17
Poster Competition winner	Annual departmental competition	2018
Poster Competition finalist	INFORMS Annual Meeting	2017

Affiliations and Service

UB-INFORMS, Chief Editor	2018 – 2019
UB-INFORMS, Vice President - Communications	2013 – 2018
Graduate Student Ambassador, Industrial and Systems Engineering	2015 – 2018
Industrial and Systems Engineering Graduate Student Association, President	2016 – 2017
Member of Institute of Operations Research and Management Sciences (INFORMS)	Since 2013
Member of Alpha Pi Mu, Industrial Engineering Honors Society	Inducted – 2015