Biplab Sudhin Bhattacharya

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EDUCATION

Doctor of Philosophy in Industrial and Systems Engineering *09/2015 – 05/2019*
Topic: Improving equity in medical supply chains in low-resource settings
University at Buffalo, The State University of New York, Buffalo, NY

Master of Science in Industrial and Systems Engineering *08/2013 – 09/2015*
University at Buffalo, The State University of New York, Buffalo, NY

Bachelor of Technology in Mechanical Engineering *08/2008 – 04/2012*
Dual degree: Diploma in Business Management
Symbiosis International University, Pune, India

EMPLOYMENT HISTORY

Geisinger Health System – Senior Modeler 09*/2019 – present*
- Developing solutions aligned with core principles of Geisinger to improve patient care, access and efficiency through machine learning, optimization and simulation.

The Community for Global Health Equity, NY – Graduate Research Assistant 02*/2017 – 12/2018*
- Conducted field work, lead teams of graduate and undergraduate students to develop an app
- Outlined medical oxygen supply chain recommendations for USAID

Industrial and Systems Engineering, University at Buffalo –Instructor *08/2017 – 12/2017*
- Taught Simulation Modeling and Analysis (IE 477 - class of 44, score – 4.6/5)

The Community for Global Health Equity, NY – Graduate Research Assistant *06/2015 – 08/2017*
- Lead team on a project to study trends in purchasing behavior in drug-shops in Uganda

PubMatic India Pvt. Ltd., India – *Sr. Publisher Operations Specialist* *07/2012 – 07/2013*
- Analyzed revenue and user access data to identify key business trends and opportunities to optimize performance and client earnings

Larsen and Toubro Ltd., India. – Internship - Industrial engineering *12/2010 – 01/2011*

Premier Ltd., India. – Internship – Industrial Engineering *01/2012 – 04/2012*

LEADERSHIP AND CONSULTING EXPERIENCE

Catholic Health Systems, NY – Graduate Research Assistant, Health Data Analytics *05/2017 – 09/2018*
- Determining the casual effect of multiple health related factors on hospital utilization and quality of care using Western New York Medicaid data

Meals on Wheels WNY, Inc., NY – Mentor, Warehouse optimization *08/2017 – 10/2018*
- Mentored IE grad students for the INFORMS pro bono project to develop a warehouse utilization tool

Armstrong Pumps, Inc., NY – Research Assistant, Facility Layout project *02/2015 – 09/2015*
- Developed and evaluated layout alternatives to better meet current and future business demands

Trek, Inc., NY – Facility Planning and Layout design *08/2014 – 02/2015*
- Used spatial, equipment, future sales and cost data to develop strategic business decision alternatives

Catholic Health Systems, NY – Research Assistant, Lean Six Sigma project *07/2014 – 12/2014*
- Analyzed inventory data to study utilization patterns. Formulated a system for measuring inventory performance and proposed a standardized inventory management system.

PUBLICATIONS AND BOOK CHAPTERS

- **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 (*under revision at 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., A vehicle routing model incorporating simultaneous Pickup and Delivery with Time Windows model for strategic oxygen technology selection for health facilities in low- and middle-income countries (in preparation – submission target: January 2019)

GRADUATE ACADEMIC COURSE PROJECTS AND RELEVANT COURSEWORK

Santander Product Recommendation (*Kaggle project)*: Implemented Random Forest and Multinomial Logistic Regression to predict product recommendations for customers in a dataset of 1 million customers with 13 million rows of data with 24 features and 24 products

Twitter emotion detector: Developed an API integration with twitter that logs tweets and detects underlying emotion.

Integer Programming problems: I have used Gurobi with Python to solve various optimization problems and implemented algorithms like simulated annealing and branch & bound.

Hurricane evacuation planning using public transportation: Implemented a model *(link)* from a peer reviewed paper to test alternative heuristics on a variation of the vehicle routing problem.

Goodwill WNY, Inc.: Improved material handling time by 40% applying process improvement and facility design methods.

ARIMA Forecasting model: Created forecasting models to predict demand for different SKUs. ARIMA model created using R with 89% accuracy for a Nike store

Facility Location modeling: Implemented facility location algorithms in Python for optimal facility location for multiple blood banks to minimize travel between hospitals and maximize effective range.

Relevant Coursework: Statistical Data Mining, Discrete Optimization, Stochastic Methods, Facilities Design, Production Planning and Control, Linear Programming, Simulation Modeling, Design and Analysis of Experiments, IE Research in Healthcare, Global Health and Supply Chain Engineering.

TECHNICAL SKILLS

R, SAS, Minitab, SQL	– data processing, visualization, database handling, factorial experiments, machine learning
Python	– programming, data processing, visualization, mathematical optimization
Gurobi and CPLEX	– linear and integer program modeling and optimization
@Risk, Arena, AnyLogic	– Agent Based Modeling and Discrete Event Simulations

AWARDS AND ACHIEVEMENTS

J. Scott Fleming Merit Award	University at Buffalo	*2019*
Summa Cum Laude, UB-INFORMS, *Vice President*	INFORMS	*2017 – 18*
Cum Laude, UB-INFORMS, *Vice President*	INFORMS	*2016 – 17*
DOW Big Data Challenge, finalist	DOW chemicals	*2016*
Poster Competition, winner	Annual Departmental competition	*2018*
Poster Competition, finalist	INFORMS Annual Meeting	*2017*
Health and Humanitarian Logistics Conference, *Travel Award*	Georgia Institute of Technology	*2016*
International Field Work Travel Award	Community for Global Health Equity	*2016*
Graduate Research Assistantship	University at Buffalo	*01/2018 – 07/2019*
Teaching Assistantship	University at Buffalo	*08/2017 – 12/2017*
Graduate Research Assistantship	University at Buffalo	*08/2015 – 07/2017*

AFFILIATIONS AND SERVICE

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