Valerie Y. Odeh Couvertier

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Education

May 2024 (Expected) — **Ph.D. in Industrial & Systems Engineering**
University of Wisconsin - Madison
Advisor: Dr. Gabriel Zayas-Cabán

July 2020 — **Master of Science in Industrial Engineering**
University of Puerto Rico, Mayaguez
Advisor: Dr. Wandaliz Torres-García
GPA: **4.00/4.00**

May 2018 — **Bachelor of Science in Industrial Engineering**
University of Puerto Rico, Mayaguez
Major GPA: **4.00/4.00** GPA: **3.82/4.00,** *Magna Cum Laude*

Research Experience

Evaluating Link Between Imaging in ED and Outpatient Setting
(August 2020 – May 2022): *UW Industrial & Systems Engineering – Dr. Zayas-Cabán*

- Research aimed to identify the causal effect of advanced imaging (CT scans and MRIs) in the emergency department (ED) on rates of return visits to the ED and on subsequent outpatient healthcare utilization (imaging) for patients with abdominal pain.
- Established clinical predictors of return visits to the ED among patients with abdominal pain who did and did not receive advanced imaging.

Computational Modeling Using Multi-omics to Extract Early Predictive Signatures of T-cells Quality
(August 2018-July 2020): *Socially Responsible Operations Research Center (SRO)*

- Developed an integrative computational pipeline using mathematical modeling and machine learning techniques that enabled the characterization of CAR T-cell multi-omic profiles predictive of quality at early stages of the manufacturing process.
- Evaluated strategies to mitigate the impact of highly correlated variables and parameter tuning to the sensitivity of machine learning variable importance measures.
- Collaborated with Georgia Institute of Technology, University of Georgia, and University of Wisconsin-Madison.

Industry Experience

Lens Case Assembly Capacity Analysis (Capstone Project)
(August 2017-February 2018): Techno Plastics Industries- Aguada, Puerto Rico

- Redesigned manufacturing area in order to improve product flow and eliminate WIP.
- **Reduced** WIP inventory by **98.65%** using one-piece flow configuration.
- Increased line production by **227.03%**.

Warehouse Layout Planning (Facilities Planning and Layout Project)
(January-June 2017): UPRM Supply Warehouse- Mayaguez, Puerto Rico

- Designed warehouse layout that **reduced** walking **distance** traveled by **68%.**
- Maximized space utilization by **50%.**

3D Printing Prototype Line Capacity Analysis (Work Measurement Project)
(January-May 2016): HP Inc.- Aguadilla, Puerto Rico

- Performed time studies and provided time standards for 3D printing prototype line.
- Applied line balancing and process standardization techniques that reduced cycle time by **39%.**

***Engineering Co-op* Student**
(August-December 2015): Lilly del Caribe, Inc- Guayama, Puerto Rico

- Elaborated **warehouse space capacity tool** to track space utilization, shipments, and receipts.
- Assisted in the Material's warehouse decommissioning strategy due to cease of operations.
- Planned movements, shipments, and disposition of **70%** of the materials stored in the warehouse.

Manufacturing Engineer Intern
(June-August 2015)**:** Hewlett-Packard- Aguadilla, Puerto Rico

- Conducted time studies and **line balancing** on production line to determine capacity and **resource utilization**.
- Improved ergonomic design of production lines and operator's tasks.
- Assigned department locations based on relationship priorities.
- **Achieved** an estimated **$360,000 annual savings** in salaries and benefits by correctly establishing the number of employees needed to meet demand.

Ergonomic Evaluation and Assessment
(January-May 2015): Hewlett-Packard- Aguadilla, Puerto Rico

- Analyzed the process through the use of engineering tools (RULA, NIOSH) and reduced ergonomic risks by **50%.**

Teaching Experience

Graduate Student Teaching Assistant
(August 2017-December 2018): University of Puerto Rico, Mayaguez
Course: ININ 4040: Facilities Planning and Layout Laboratory

- Developed and conducted laboratory class for 40+ students with the use of design software such as **SketchUp** and **AutoCAD**.
- Graded undergraduate student's laboratory reports and exams.
- Authored the Facilities Planning and Layout AutoCAD laboratory manual.

Mentoring Experience

***CMaT REU Program* Mentor**
(June 2020): University of Puerto Rico, Mayaguez

- Mentored and facilitated the professional development of an undergraduate student from Georgia Tech in the area of data analytics and bioinformatics with application to research in CAR T-cell manufacturing.

***CMaT RET Program* Mentor**
(June 2019): University of Puerto Rico, Mayaguez

- Mentored and facilitated the professional development of a high school teacher in the area of data analytics and bioinformatics with application to research in CAR T-cell manufacturing.

Mechanical and Industrial Engineering Mentoring Student
(August 2013-May 2014): University of Puerto Rico, Mayaguez

- Mentored and tutored 1st year undergraduate students to help them transition and adjust to the university lifestyle.
- Participated in conducting the course UNIV 3005 (Introduction to University Life), mandatory for all undergraduate students.

Research Publications

Valerie Y. Odeh-Couvertier, Brian W. Patterson, and Gabriel Zayas-Cabán. "Association Between Advanced Image Ordered in the Emergency Department on Subsequent Imaging for Abdominal Pain Patients." Academic Emergency Medicine.

Valerie Y. Odeh-Couvertier, Nathan J. Dwarshuis, Maxwell B. Colonna, Bruce L. Levine, Arthur S. Edison, Theresa Kotanchek, Krishnendu Roy, and Wandaliz Torres-Garcia. "Predicting T Cell Quality During Manufacturing Through an Artificial Intelligence-based Integrative Multi-Omics Analytical Platform." Bioengineering & Translational Medicine (2021).

Stephanie Marie Villanueva-Pérez, **Valerie Odeh-Couvertier**, Viviana Vázquez-García, Rocío Isabel Fernández Lafuente, Verónica Díaz Cruz, Zulma Acevedo Figueroa, Jomar Cintrón-Font et al. "Reintroducing Industrial Engineering Students to Manufacturing through Environmental Pertinence." Científica 25, no. 1 (2021): 1-7.

Thesis

Valerie Odeh-Couvertier. Clustering highly correlated predictors to extract early predictive signatures of CAR-T cell quality. Diss. 2020.

Presentations at Conferences

Valerie Odeh-Couvertier (presenter), Nathan Dwarshuis, Maxwell Colonna, Danning Huang, Arthur Edison, Facundo Fernández, Krishnendu Roy, Theresa Kotanchek, and Wandaliz Torres. CAR-T/T cell variability assessment and omics characterization through an integrative computational pipeline. CMaT Annual Retreat, Atlanta, GA, February 27, 2020.

Valerie Odeh-Couvertier (presenter), Nathan Dwarshuis, Maxwell Colonna, Danning Huang, Arthur Edison, Facundo Fernández, Krishnendu Roy, Theresa Kotanchek, and Wandaliz Torres. Computational Modeling Using Multi-omics to Extract Early Predictive Signatures of T-cells Quality. 2019 4th North American Industrial Engineering and Operations Management Conference, Toronto, ON, October 24, 2019.

Valerie Odeh-Couvertier (presenter), Nathan Dwarshuis, Maxwell Colonna, Danning Huang, Arthur Edison, Facundo Fernández, Krishnendu Roy, Theresa Kotanchek, and Wandaliz Torres. Computational Modeling Using Multi-omics to Extract Early Predictive Signatures of T-cells Quality. 2019 Conference of Ford Fellows, San Juan, PR, October 4, 2019.

Valerie Odeh-Couvertier (presenter), Nathan Dwarshuis (presenter), Maxwell Colonna (presenter), Danning Huang, Arthur Edison, Facundo Fernández, Krishnendu Roy, Theresa Kotanchek, and Wandaliz Torres. Assessment and Characterization of CAR T-cells. CMaT Annual Retreat, Athens, GA, August 6-8, 2019

Valerie Odeh-Couvertier (presenter), Nathan Dwarshuis, Maxwell Colonna, Danning Huang, Arthur Edison, Facundo Fernández, Krishnendu Roy, Theresa Kotanchek, and Wandaliz Torres. Computational Modeling Using Multi-omics to Extract Early Predictive Signatures of T-cells Quality. CMaT Annual Retreat, Athens, GA, August 6-8, 2019.

Valerie Odeh-Couvertier (presenter), Nathan Dwarshuis, Maxwell Colonna, Danning Huang, Arthur Edison, Facundo Fernández, Krishnendu Roy, Theresa Kotanchek, and Wandaliz Torres. Computational Modeling Using Multi-omics to Extract Early Predictive Signatures of T-cells Quality. Quest University 2019, Río Grande, PR, June 1, 2019.

Valerie Odeh-Couvertier (presenter), Nathan Dwarshuis, Maxwell Colonna, Danning Huang, Arthur Edison, Facundo Fernández, Krishnendu Roy, Theresa Kotanchek, and Wandaliz Torres. Computational Modeling Using Multi-omics to Extract Early Predictive Signatures of T-cells Quality. PR-LSAMP, University of Puerto Rico, Mayaguez, PR, May 4, 2019.

Valerie Odeh-Couvertier (presenter), Nathan Dwarshuis, Maxwell Colonna, Danning Huang, Arthur Edison, Facundo Fernández, Krishnendu Roy, Theresa Kotanchek, and Wandaliz Torres. Computational Modeling Using Multi-omics to Extract Early Predictive Signatures of T-cells Quality. NIH RISE Symposium, University of Puerto Rico- School of Medicine, San Juan, PR, May 3, 2019.

Valerie Odeh-Couvertier (presenter), Nathan Dwarshuis, Maxwell Colonna, Danning Huang, Arthur Edison, Facundo Fernández, Krishnendu Roy, Theresa Kotanchek, and Wandaliz Torres. Computational Modeling Using Multi-omics to Extract Early Predictive Signatures of T-cells Quality. XXIII Sigma Xi Poster Day, University of Puerto Rico, Mayaguez, PR, April 25, 2019.

Awards and Honors

- **WIHSE Graduate Fellowship** August 2021
- **Advanced Opportunity Fellowship (AOF): Graduate Engineering Research Scholars (GERS) Program** – Univerisity of Wisconsin – Madison February 2020
- **IEOM Conference Graduate Poster Competition** – 2nd Place October 2019
- **NSF Travel Award** – 4th North American IEOM Conference October 2019
- **Frederick W. Taylor Award** – Awarded to the best Industrial Engineering student July 2018
- **Juan A. Gorbea Award** – Outstanding Industrial Engineering student May 2018
- **Industrial Engineering Honor Student Award** May 2018
- **Alpha Pi Mu Honor Society** 2015
- **Golden Key Honor Society** 2014
- **Industrial Engineering Honor Student Award** May 2013

Relevant Courses

Graduate: Simulation Modeling and Analysis, Stochastic Modeling Techniques, Introduction to Optimization, Sequencing and Scheduling of Resources, Knowledge Discovery in Engineering Multivariate Data, Quality Control Systems, Computing with R, Advanced Industrial Experimentation, Advanced Topics in Bioengineering, Advanced Production Control, Lean Six Sigma Methodology

Undergraduate: Probability and Statistics for Engineers, Applied Industrial Statistics, Engineering Economic Analysis, Industrial Safety, Computer-based Information Systems, Work Measurement, Systems Simulation with Digital Computers, Deterministic Models in Operations Research, Design and Analysis of Engineering Experiments, Work Systems Design, Facilities Layout and Design, Real Time Process Control, Statistical Quality Control, Accounting for Engineers, Cost Analysis and Control, Systems Production Inventory Management

Technical Skills

Knowledge in computer applications: Microsoft Office, AutoCAD, FactoryCAD, MathCAD, SketchUp, MySQL, HTML, PHP, Simio, R Studio, LaTeX, SAS, Julia, and MiniTab.

Languages: Proficient in English and Spanish.

Trainings and Certifications

Certifications:

- **Lean Six Sigma Yellow Belt Certified (SSYBC)™,** (February 2015)

BioTalents supported by Amgen: Training in Biotechnology Manufacturing (October 2014)

- Training in the different components of a biomanufacturing process.

References

Dr. Gabriel Zayas-Cabán; Assistant Professor of Industrial & Systems Engineering; University of Wisconsin – Madison, Mechanical Engineering Building Room 3011; email: zayascaban@wisc.edu

Dr. Wandaliz Torres-García; Assistant Professor of Industrial Engineering; University of Puerto Rico – Mayaguez Room II-217B; email: wandaliz.torres@upr.edu

Dr. Sonia Bartolomei-Suárez; Professor of Industrial Engineering; University of Puerto Rico – Mayaguez Room II-212; email: sonia.bartolomei@upr.edu

Dr. Saylisse Dávila-Padilla; Assistant Professor of Industrial Engineering; University of Puerto Rico – Mayaguez Room II-218A; email: saylisse.davila@upr.edu

Dr. Betzabé Rodríguez-Álamo; Professor of Industrial Engineering; University of Puerto Rico – Mayaguez Room II-217A; email: betzabe.rodriguez@upr.edu