

# Caleb Xavier Bugg

Operations Analyst  
Reaching Our Sisters Everywhere, Inc. (ROSE)  
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Citizenship: United States of America (USA)

## Current Appointments

Reaching Our Sisters Everywhere, Inc. (ROSE)  
Operations Analyst  
2024-Present

## Education

Ph.D. Operations Research, The University of California, Berkeley, 2022.  
Designated Emphasis in Development Engineering  
M.S. Operations Research, The University of California, Berkeley, 2018.  
B.S. Mathematics, Morehouse College, 2017.  
Minor in Economics

## Previous Appointments

The Georgia Institute of Technology  
Jerry and Harriet Theusen Postdoctoral Fellow  
H. Milton Stewart School of Industrial and Systems Engineering  
Center for Health and Humanitarian Systems  
2022–2024

The Brookings Institute  
Research Internship, Africa Growth Initiative  
Global Economy and Development Program  
Summer 2022

The American Institute for Economic Research (AIER)  
Visiting Scholar (Graduate Level)  
“Engineering Insights for a Free-Market Economy”  
Advisor: Dr. Robert Wright  
Summer 2021

Argonne National Laboratory (ANL)

Givens Fellow (Graduate-Level)

“Biobjective Optimization with Chance Constraints”

Advisor: Dr. Matt Menickelly

Summer 2019

University of Michigan (Ann Arbor, MI)

UM Transportation Research Institute (Summer 2016)

Advisor: Robert Hampshire, Ph.D.

“Qualitative Preferences in OLS Regression Analysis”

Mathematical Sciences Research Institute (Berkeley, CA)

Research Experience for Undergraduates at MSRI (Summer 2015)

Advisor: Francis Edward Su, Ph.D.

“Committee Selection with Approval Voting and Hypercubes”

## Academic Awards

NSF Research Traineeship (NRT) Fellow

NSF Innovations at the Nexus of Food, Water, and Energy Systems (InFEWS)

Spring 2020-Spring 2022

Mentored Research Award

Graduate Division of UC Berkeley

Academic Year 2021-2022

Global Young Scientists Summit

Nominee from the College of Engineering

University of California, Berkeley

Grassi Fellow

Department Fellowship Program [Spring 2020]

Manufacturing, Industrial Systems, and Service Systems

Industrial Engineering and Operations Research (IEOR)

University of California, Berkeley

Grassi Endowment

First-year Fellowship Program [AY 2017-2018]

Manufacturing, Industrial Systems, and Service Systems

Industrial Engineering and Operations Research (IEOR)

University of California, Berkeley

## Publications

### *Peer-Reviewed Journal Articles*

**Bugg, Caleb**, and Anil Aswani. "Logarithmic sample bounds for Sample Average Approximation with capacity-or budget-constraints." *Operations Research Letters* 49.2 (2021): 231-238. [Publication link](#).

### *Conference Papers*

**Bugg, Caleb**, Chen Chen, and Anil Aswani. "Nonnegative tensor completion via integer optimization." *Advances in Neural Information Processing Systems* 35 (2022): 10008-10020.

### *Working Papers*

Popoola, A., **Bugg, C.**, Garcia, G., & Paynabar, K (2024, May 10). *Reducing Homelessness Among Foster Care Youth: A Predictive Approach Using Ensemble Methods* [Conference presentation abstract]. Third annual workshop on AI and Analytics for Social Good, College Park, MD, United States.

## Invited Talks

The Centers for Disease Control and Prevention (CDC): Healthy Food Environments

"Implementing FSGs is Beneficial for Human and Planetary Health"

October 2023

## Conference Talks

2024 Blackwell-Tapia Conference

"Stochastic Optimization: Complexity-Based Analysis and Development Engineering"

Institute for Computational and Experimental Research in Mathematics (ICERM)

November 2024

2023 INFORMS Annual Conference

"Implementing FSGs with Machine Learning is Beneficial for Human and Planetary Health"

October 2023

2022 Conference on Neural Information Processing Systems (NeurIPS)

"Nonnegative Tensor Completion via Integer Optimization"

November 2022

2022 INFORMS Annual Conference

"Nonnegative Tensor Completion with Healthcare Applications"

October 2022

Conference for African-American Researchers in the Mathematical Sciences

"Biobjective Optimization with Chance Constraints"

July 2019

## Research Interests

data science, operations research and management, food & nutrition policy, housing policy

## Teaching Experience

The University of California, Berkeley, Department of Industrial Engineering and Operations Research, Graduate Student Instructor (GSI), 2018–2021.

Courses taught:

IEOR 115: Industrial and Commercial Database Systems (undergraduate level)

IEOR 265: Learning and Optimization (graduate level)

ENG 120: Engineering Economics (undergraduate level)

| Course   | Position                 | Semester    | Instructor Rating | College-wide Median | Response Rate |
|----------|--------------------------|-------------|-------------------|---------------------|---------------|
| IEOR 265 | GSI and Guest Instructor | Spring 2021 | 4.20              | 4.22                | 10/35         |
| IEOR 115 | GSI and Guest Instructor | Fall 2020   | 4.39              | 4.27                | 28/93         |
| IEOR 265 | GSI                      | Spring 2020 | 4.30              | 3.95                | 10/33         |
| IEOR 115 | GSI                      | Fall 2019   | 3.69              | 3.94                | 28/71         |
| ENG 120  | GSI                      | Spring 2019 | 3.50              | 4.14                | 26/143        |
| IEOR 115 | GSI                      | Fall 2018   | 3.89              | 3.88                | 29/67         |

## Service and Memberships

The Big Ten ++ DEI Conference

Participant and HBCU Panel Moderator

October 2023

The Georgia Institute of Technology

NextProf Nexus

Participant

August 2023

The Georgia Institute of Technology

The Black Graduate Engineering and Science Students (BGESS)

Internal Vice President

Academic Yrs. 2020-2021, 2021-2022

The University of California, Berkeley

National Society of Black Engineers (NSBE)

Member

Spring 2019-Present

Informs Minority Issues Forum (MIF)

Member

Fall 2018-Present

National Association of Mathematicians (NAM)

Member

Fall 2016-Present

## Honorary Societies

Phi Beta Kappa Academic Honor Society

Senior Inductee (Spring 2017)

Pi Mu Epsilon Mathematics Honor Society

Sophomore Inductee (Spring 2015)

## References

Gian-Gabriel Garcia, Ph.D.

Assistant Professor, Industrial and Systems Engineering  
The Georgia Institute of Technology  
Predictive and Prescriptive Analytics for Healthcare  
giangarcia@gatech.edu  
(404) 894-2000 (Georgia Tech)

Anil Aswani, Ph.D.

Graduate School Faculty Advisor  
Associate Professor, Industrial Engineering and Operations Research  
University of California, Berkeley (Berkeley, CA)  
Cooperative Research Area: Statistical Learning Theory  
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Ryan Comfort

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Last updated: January 16, 2025