

Veronica White

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Statement of Purpose

I am a 4th year PhD student in Industrial and Systems Engineering at UW-Madison. My main goal in life is to leave this world in better condition than how I found it through utilizing operations research and empowering others to positively impact public policy, public knowledge, and ultimately, peoples' lives. I have experience working on collaborative projects with various groups such as medicine, public policy, law enforcement, farmers, etc. My focus area is operations research with emphasis on optimization, simulation, and causal modeling.

Education

University of Wisconsin – Madison

Doctor of Philosophy, Industrial Engineering

Master of Science, Industrial Engineering

Anticipated Graduation: May 2022

May 2019

Iowa State University – Ames, Iowa

Bachelor of Science, Industrial Engineering

May 2017

Magnum cum Laude

Relevant Research Experience

Police Scheduling & Interdicting Modeling – Graduate Research Assistant

October 2019 to Present

UW Industrial and Systems Engineering – with Dr. Albert & Dr. Zayas-Caban

- Study Overview: NSF funding for data collection and dataset merging, which will be used to inform the creation of mathematical optimization models in illicit drug interdiction modeling and police scheduling
- Utilizing causal inference and discrete event simulation to understand the Opioid Crisis in Dane County, WI
- Future work: Modeling dynamic police scheduling and police illicit drug interdiction modeling, via dynamic programming and max flow network models, to be built in Python or Julia.

Stochastic Ambulance Dispatching Modeling – Graduate Research Assistant

May 2018 to June 2020

UW Industrial and Systems Engineering – with Dr. Albert; resulting [paper](#) in press.

- Completed and summarized computational results using Python for a stochastic programming model that optimizes the location and dispatching of emergency medical service (EMS) vehicles
- Modified associated discrete event simulation and dispatching algorithm in Python

Additional Research Experience

Research Assistant

October 2020 to Present

National Institute of Justice (NIJ), [RAP program](#)

Research Assistant and Data Analyst

October 2018 to Present

Madison Addiction Recovery Initiative – with Dr. Zgierska MD

- Study Overview: The Madison Addiction Recovery Initiative, MARI, is a smart policing initiative
- Created graphs and statistical analysis using R
- Writing publications of the clinical protocol and the analysis/outcomes of the program

Iowa e-Health Project – Research Assistant

October 2018 to May 2020

University of Wisconsin Madison, Center for Health and Systems Studies – with Dr. Gustafson & Dr. Molfenter

- Study Overview: Randomized control trial on the implementation of an addiction-based recovery mobile application in the clinic setting.
- Working with Iowa Department of Public Health to obtain de-identified data for the study
- Wrote [protocol paper](#), summarized survey results, and developed analytic procedures for future results paper
- Planned and developed study protocol execution and materials for training at 11 addiction organizations

Predicting Post Surgery Prescribing of Opioids – Graduate Research Assistant

September 2017 to May 2018

UW Industrial and Systems Engineering – with Dr. Bain MD & Dr. Li

- Developed study design after completing literature review and interviews of physicians and patients
- Managed and cleaned database of 250+ orthopedic patients, which was collected from multiple sources
- Built logistic regression model and visualization in Python from statistically significant variables
- Resulting [paper](https://doi.org/10.1109/JBHI.2020.2992973): <https://doi.org/10.1109/JBHI.2020.2992973>

Iowa Food Hub Network Project – Undergraduate Research Assistant

September 2016 to June 2017

Iowa State University – with Dr. Krejci

- All deliverable materials can be found on our project site: <https://sites.google.com/site/afhnetwork/home>
- Created labeling system in VBA and integrated it into our inventory tracking-transportation application
- Collaborated to write and present [paper](#) at 2017 IISE Conference:
- [Presented poster](#) at the Iowa State University IMSE Industrial Advisory Board Meeting. Apr. 20.

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Industry Experience

Amazon – DIAL OR Scientist Intern, Amazon Devices optimization team Summer 2020
Virtual Due to COVID-19

- Created a new solver that separated the final Amazon Devices supply chain optimization model from the main Amazon Devices Solver, allowing it to be solved separately and repeatedly
- Communicated and documented model logic for optimization team, demand planning team and contractors
- Corrected and simplified several model constraints handling backlog and inventory penalties

Corporate Quality Engineering Intern Summer 2016 & Summer 2017
Shure Incorporated – Niles, IL

- Utilized Minitab to analyze a destructive gauge R&R, Salt-fog study using ANOVA, etc.
- Used hypothesis testing and accelerated life testing to determine durability and reliability of new products

Safety & Ergonomics Intern January 2015 to August 2015
Lennox International – Marshalltown, IA

Service and Leadership Experience

Graduate Student Advisory Council – ISYE representative October 2020 to Present

- GSAC provides feedback on topics effecting graduate student life to College of Engineering Leadership
- Participate in ISYE Student and Alumni Affairs cluster focused on enhancing the ISYE student experience
- Created 24/7 [google form](#) for ISYE graduate students to provide insight into future GSAC discussions

INFORMS UW-Madison Student Chapter - Vice President September 2019 to September 2020

- Won INFORMS 2020 Student Chapter Annual Award at the Cum laude level
- Advised undergraduate team in INFORMS Spring 2020 student competition

Tau Beta Pi Wisconsin Alpha Student Chapter - Pi Mile Run Co-Coordinator October 2018 to April 2019

- Organized, fundraised, and secured a venue and permits for a [local 5k/10k](#) that hosted 100 runners and raised over \$2,000 for Occupaw's Guide Dog Association

Tau Beta Pi Iowa Alpha Student Chapter - Vice President January 2016 to May 2017

- Led committee to compete in SourceAmerica's 2016-2017 [Design Challenge](#)
- Collaborated with the Advisory board to provide direction and new ideas for the chapter

Additional Presentation Experience

Guest Lecturing: Modified and presented course instructor's materials during course lecture

- ISYE 524 – Introduction to Optimization – 75 min ~ 60 Graduate students
 - June 17th & 19th, 2019 — Course Introduction & Review of Linear Algebra
- ISYE 323 – Operations Research: Deterministic Modeling – 75 min ~ 65 Undergraduate students
 - November 6th, 2018 — Integer Programming
 - April 26th, 2018 — the Branch and Bound Algorithm

Teaching Assistant (TA): Created and facilitated weekly discussion sections to summarize and practice course material. Held weekly office hours. Provided feedback to students to improve their knowledge.

- ISYE 323 – Operations Research – Deterministic Modeling Spring 2018, Fall 2018
- ISYE 313 – Engineering Economic Analysis Fall 2017, Summer 2018

Tutor: Worked with 5 groups, of 3-6 students. Each group meet bi-weekly. Worked through example problems and answered student questions.

- Statistics 231 – Introduction to Statistical Concepts and Methods Fall 2016, Spring 2017
- Physics 222 – Introduction to Classical Physics 2 Fall 2016, Spring 2017

Recent Honors and Awards

Rea & Gustafson Award Fall 2019
Chancellor's Opportunity Award Fall 2017
REOMAC Foundation Scholarship Fall 2015

Relevant Software and Programming Knowledge

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| Python | Julia | Matlab | R | VBA | Java | Minitab |
| Arena | SQL | Working knowledge of: | | SPSS | HTML/CSS/JavaScript | |