Juyoung **Wang**

Master of Applied Science Candidate · Mathematical and Computational Engineer

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"The Lord will watch over your coming and going both now and forevermore. - Psalm 121:8"

Education

University of Toronto (UofT)

Toronto, Ontario, Canada

Master of Applied Science in Industrial and Systems Engineering — *Jan. 2019 - Present*

- **Overall GPA**: 3.8/4.0
- **Advisors**: *Merve Bodur (from University of Toronto)* and *Mucahit Cevik (from Ryerson University)*.
- **Research topic**: Mathematical optimization, Stochastic programming, Statistics, Machine learning.

Pontifical Catholic University of Chile (PUC-Chile)

San Joaquin, Santiago, Chile

Bachelor of Engineering Sciences in Mathematical and Computational Engineering — *Mar. 2014 - Dec. 2017*

- **Overall GPA**: 5.6/7.0 (3.7/4.0 in American grading scheme)
- **Major GPA (for the last two years)**: 5.8/7.0 (3.8/4.0 in American grading scheme)
- Graduated with distinction (highest honors for students with Bachelor's degree)
- **Major**: Mathematical and computational engineering - deterministic modelling.
- **Minor**: Mathematical and computational engineering - stochastic modelling.

Publications and Preprints

2020	**Multi-stage stochastic intensity modulated radiation therapy planning**, Juyoung Wang, Mucahit Cevik, Merve Bodur	*Draft available*
2020	**On the impact of deep learning-based time-series forecasts on multistage stochastic programming policies**, Juyoung Wang, Mucahit Cevik, Merve Bodur	*Submitted*
2019	**Mixed-integer linear programming models for the paint waste management problem**, Juyoung Wang, Mucahit Cevik, Saman Hassanzadeh Amin, Amir Ali Parsaee, Minor revision at Transportation Research Part E: Logistics and Transportation Review	*Minor revision*

Honors and awards

2019-2020	**MIE Graduate research fellowship**, Awarded by UofT MIE department (Approx CAD 17,000 per year)	*Toronto, Canada*
2017	**Graduated with distinction**, Highest honor available for Engineering bachelor's students at PUC-Chile.	*Santiago, Chile*

Academic experiences

Industry-University cooperation projects at University of Toronto

Oct. 2019 - Oct. 2020

- Together with the LG Science Park and research team at Data Science Laboratory of Ryerson University, we worked on neural-network based time-series prediction algorithms, having Merve Bodur and Mucahit Cevik as the principal investigators.

Industry-University cooperation projects at Pontificia Universidad Católica de Chile

Aug. 2017 - Dec. 2017

- As a part of a graduation project, together with Vicente Gomez, and José Macherone, we worked with a data-driven consulting company Everis. We mainly worked on developing prediction models for scheduled appointment cancellations, in order to help people to build better schedules.

Teaching assistant positions at University of Toronto

Jan. 2019 - Aug. 2021

- Integer programming applications: Graduate level integer programming course. (2021 Winter)
- Algorithms & numerical methods: Undergraduate level algorithms course. (2020 Winter)

Teaching assistant positions held at Pontificia Universidad Católica de Chile

Mar. 2014 - Dec. 2017

- Optimization methods: Undergraduate level continuous optimization and operations research course (2017 Semester I)
- Calculus for economists: Undergraduate level course (2017 Semester I)
- Single variable calculus: Undergraduate level course (2016 Semester I)

Undergraduate research activities participated at Pontificia Universidad Católica de Chile

Jan. 2016 - Dec. 2017

- High-dimensional optimization in non-Euclidean geometry: Studied basics of high-dimensional statistics and optimization algorithms used in such a context, e.g. mirror-descent from a functional analytic viewpoint. The activity was advised by professor Cristobal Guzman. (2017)
- Large-scale continuous optimization: Studied basics of statistical learning and related optimization problems, e.g. best subset selection via modern optimization lens. This research activity was advised by professor Jorge Vera. (2016)

Talks

2020 INFORMS annual meeting

Online

Presenter

Nov. 2020

- Gave a talk at Novel applications of stochastic programming session organized by Haoxiang Yang, with topic of multi-stage stochastic programming approach to IMRT planning problem.

2020 IFORS

Seoul, South Korea

Presenter

Jun. 2020, Cancelled due to COVID19

- Registered to give a talk at Stochastic Programming and Applications session organized by Lewis Ntaimo, with topic of multi-stage stochastic programming approach to IMRT planning problem.

Optimization days 2019 at HEC Montréal

Quebec, Canada

Presenter

May. 2019

- Gave a talk with topic of a mixed-integer linear programming model for the management of household hazardous wastes with an application to paint waste stream in Toronto

Relevant courses

Coursera

Online

Massive open online courses

- **Deep learning specialization**: Neural Networks and Deep Learning, Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization, Structuring Machine Learning Projects, Convolutional Neural Networks, Sequence Models
- **Generative adversarial networks specialization**: Build Basic Generative Adversarial Networks, Build Better Generative Adversarial Networks (Ongoing)
- **Probabilistic graphical models specialization**: Representation (Ongoing)

University of Toronto

Toronto, Canada

Graduate level courses

Jan. 2019 - Dec. 2019

- Integer programming (A+), Constraint programming (B+), Monte Carlo Methods (A) and Stochastic programming and robust optimization (A+)

Pontificia Universidad Católica de Chile

Santiago, Chile

Graduate level courses

Mar. 2017 - Dec. 2017

- Convex optimization (Top graded), Advanced topics in machine intelligence (A+) and Mathematical foundations of data science (A+)

Pontificia Universidad Católica de Chile

Santiago, Chile

Undergraduate level courses

Mar. 2014 - Dec. 2017

- Introduction to computer programming, Calculus I, Calculus II, Calculus III, Linear Algebra, Ordinary differential equations, Probability and statistics, Statistical inference, Regression analysis, Discrete mathematics, Real analysis, Measure theory, Functional analysis, Numerical analysis, Parallel algorithms for scientific computing, Operations research, Stochastic processes, Optimization methods and Graduation project

Skills

Programming Python, Julia, MATLAB, SQL, R, C++

Packages Tensorflow, Keras, Pytorch, Gurobi, CPLEX, Scikit-learn, JuMP, SDDP.jl, among others

Languages Korean (Mother tongue), Spanish (Native), English (Advanced, TOEFL iBT 110/120 at 2018)

Work experiences

Scotiabank

Santiago, Chile

Data scientist

Jul. 2018 - Nov. 2018

- Worked as a data scientist at Scotiabank, Chile. Hired directly by clients, after working three months as an external consultant.

SII Group

Santiago, Chile

Consultant

Apr. 2019 - Jul. 2018

- Worked as a data science consultant at SII Group, together with digital banking team of Scotiabank, Chile.