

## Haoran Wu, PhD Candidate

---

CONTACT INFORMATION Carl A. Pollock Hall 4343, Tel: +1 (519) 729-6018  
200 University Ave W, Waterloo, Email: [haoran.wu@uwaterloo.ca](mailto:haoran.wu@uwaterloo.ca)  
Ontario, Canada N2L 3G1 Website: [uwaterloo.ca/scholar/h227wu](http://uwaterloo.ca/scholar/h227wu)

EDUCATION **University of Waterloo, Waterloo, Canada**  
PhD candidate in Management Sciences, September 2017 - June 2021(Expected)  
Thesis Title: Analysis of Stochastic Models through Multi-Layer Markov Modulated Fluid Flow Processes  
Supervisors: Qi-Ming He and Fatih Safa Erenay  
GPA: 90/100

**University of Waterloo, Waterloo, Canada**  
MASc in Management Sciences, September 2015 - August 2017  
Thesis Title: Condition-based Inspection and Maintenance of Medical Devices  
Supervisors: Qi-Ming He and Hossein Abouee Mehrizi  
GPA: 93/100

**Northwestern Polytechnical University, Xi'an, China**  
BSc in Management, September 2009 - August 2013  
GPA: 88/100

RESEARCH INTERESTS **Stochastic Modeling:** Queueing Theory, Matrix-Analytic Methods, Markov Modulated Fluid Flow Processes, Markov Decision Processes

**Data Analytics for Health Care:** Survival Analysis, Prognostic Model, Machine Learning, ALS (Amyotrophic Lateral Sclerosis) Management

RESEARCH **Stochastic Modeling**

1. **H Wu**, QM He. [Double-sided Queues with Marked Markovian Arrival Processes and Abandonment](#). In print, *Stochastic Models*, 2020.
  - Fraser Research Paper Award, University of Waterloo 2020
  - Honourable Mention, CORS Queueing SIG Student Paper Prize 2020
2. QM He, **H Wu**. [Multi-Layer M<sup>M</sup>FF Processes and the MAP/PH/K + GI Queue: Theory and Algorithms](#). *Queueing Models and Service Management*, 3(1), 37-87, 2020.
3. **H Wu**, QM He, FS Erenay. Double-sided Queues with Batch Markovian Arrival Processes and Abandonment. Working paper, 2020.
4. **H Wu**, QM He, FS Erenay, KS Pasupathy. Data Analytics for Emergency Department Abandonment: a Queueing Model. Working paper, 2020.

**Data Analytics for Health Care**

1. OO Dalgic, **H Wu**, FS Erenay, MY Sir, OY Ozaltin, BA Crum, KS Pasupathy. Time Trajectories of Critical Events in Amyotrophic Lateral Sclerosis Progression. Submitted to *European Journal of Neurology*, 2020.
2. **H Wu**, FS Erenay, QM He, OY Ozaltin, BA Crum, KS Pasupathy. Univariate Kaplan-Meier Analyses of Time-trajectories of the Critical ALS Events under Varying Progression Aggressiveness. Working paper, 2020.
3. **H Wu**, T Gaamangwe, H Abouee Mehrizi, QM He, M Moore, A Krivoy. Preventive Maintenance of Medical Devices based on Data Analytics Approach. Working paper, 2020.

TEACHING EXPERIENCE	<p><b>University of Waterloo</b></p> <p>Instructor <span style="float: right;">2021 (Scheduled)</span></p> <ul style="list-style-type: none"> <li>• Stochastic Models and Methods, Winter 2021</li> </ul> <p>Teaching Assistant <span style="float: right;">2015 - 2020</span></p> <ul style="list-style-type: none"> <li>• Simulation Analysis and Design, Fall 2015, 2018</li> <li>• Engineering Economics, Spring 2016, Fall 2016</li> <li>• Quantitative Data Analysis for Management Sciences, Fall 2017, 2020</li> <li>• Applied Economics for Management, Winter 2017</li> <li>• Stochastic Processes and Decision Making, Spring 2017-2020</li> <li>• Stochastic Models and Methods, Winter 2018-2020</li> </ul>										
PRESENTATIONS	<p>A Decision Tree Based Classification Approach to Derive Time-trajectories of Critical ALS Events Under Varying Progression Aggressiveness, INFORMS Annual Conference, Washington, D.C. (2020)</p> <p>Double-sided Queues with Marked Markovian Arrival Processes and Customer Abandonment, CanQueue, Banff, Canada. (2020) (Video available at <a href="https://www.birs.ca">BIRS.ca</a>)</p> <p>Capturing Natural Progression of Amyotrophic Lateral Sclerosis (ALS) Based on Static and Dynamic Risk Factors, INFORMS Annual Conference, Seattle, WA. (2019)</p> <p>Analysis of Double-sided Queues with Markovian Arrival Processes and Customer Abandonment, CanQueue, Toronto, Canada. (2019)</p> <p>Multi-Layer Markov Modulated Fluid Flow (<i>MMFF</i>) Processes, CORS Waterloo Chapter, Waterloo, Canada. (2019)</p> <p>Condition-based Maintenance and Aperiodic Inspection for Multi-component Systems, CORS Annual Conference, Halifax, Canada. (2018)</p>										
HONORS AND AWARDS	<table border="0" style="width: 100%;"> <tr> <td>Fraser Research Paper Award, University of Waterloo</td> <td style="text-align: right;">2020</td> </tr> <tr> <td>Honourable Mention, CORS Queueing SIG Student Paper Prize</td> <td style="text-align: right;">2020</td> </tr> <tr> <td>Graduate Travel Award, University of Waterloo</td> <td style="text-align: right;">2018 - 2020</td> </tr> <tr> <td>University of Waterloo Graduate Scholarship</td> <td style="text-align: right;">2015 - 2018</td> </tr> <tr> <td>El Gabbani Scholarship, University of Waterloo</td> <td style="text-align: right;">2016</td> </tr> </table>	Fraser Research Paper Award, University of Waterloo	2020	Honourable Mention, CORS Queueing SIG Student Paper Prize	2020	Graduate Travel Award, University of Waterloo	2018 - 2020	University of Waterloo Graduate Scholarship	2015 - 2018	El Gabbani Scholarship, University of Waterloo	2016
Fraser Research Paper Award, University of Waterloo	2020										
Honourable Mention, CORS Queueing SIG Student Paper Prize	2020										
Graduate Travel Award, University of Waterloo	2018 - 2020										
University of Waterloo Graduate Scholarship	2015 - 2018										
El Gabbani Scholarship, University of Waterloo	2016										
ACADEMIC SERVICE	<p>Journal Reviewer for <i>Advances in Applied Probability</i>, <i>INFOR: Information Systems and Operations Research</i>, <i>Cost Effectiveness and Resource Allocation</i>, <i>Acta Mathematicae Applicatae Sinica</i>, and <i>Journal of Industrial and Management Optimization</i></p> <p>Member of INFORMS (2019-) and CORS (2017-)</p> <p>Committee Member of CORS Waterloo Student Chapter (2018-).</p>										
SOFTWARE	<p>MATLAB, R, Python, C, L<sup>A</sup>T<sub>E</sub>X, Arena, SPSS</p>										