

# **CURRICULUM VITAE FOR ANDREI BADESCU**

July 2022

## **A. BIOGRAPHICAL INFORMATION**

### **PERSONAL**

#### *Home Address:*

57 Brookside Avenue,  
Toronto, ON, M6S 4G8  
Tel: 416 - 399 - 8762

#### *University Address:*

Department of Statistical Sciences  
University of Toronto  
700 University Avenue  
Toronto.

### **EDUCATION**

2004 – 2006 Post Doctoral Studies in Actuarial Science, University of Waterloo, Faculty of Mathematics and Computer Science, Department of Statistics and Actuarial Science, Waterloo, Ontario.

2000 – 2004 Ph.D. in Statistics and Actuarial Science, University of Western Ontario, Department of Statistics and Actuarial Science, London, Ontario.

1998 – 1999 M.Sc. in Quantitative Economics, Academy of Economics Studies, Faculty of Cybernetics, Department of Quantitative Economics, Bucharest, Romania.

1993 – 1998 B.Sc. Hons., Major in Mathematics and Economics, Academy of Economics Studies, Faculty of Cybernetics, Bucharest, Romania.

### **EMPLOYMENT**

2022 - Director of the Financial Insurance Master Program at University of Toronto

2020 - 2021 Director of the Data Science Master Program at University of Toronto

2020 Full Professor, Department of Statistics, University of Toronto.

2011 – 2020 Associate Professor, Department of Statistics, University of Toronto.

2008 – present Full member of the Graduate School, University of Toronto.

2006 – 2011 Assistant Professor, Department of Statistics, University of Toronto.

2004 – 2006 Instructor, Department of Statistics and Actuarial Science, University of Waterloo.

2000 – 2004 Teaching and Research Assistant, Department of Statistics and Actuarial Science, University of Western Ontario.

1998 – 2000     Actuary, Omnisig, Bucharest, Romania.

## **HONOURS**

2003    Best Student Paper Award, South-Western Ontario Operations Research Day, University of Western Ontario, London.

1998    Special Award at the Research Symposium in Microeconomics, Academy of Economic Studies, Bucharest, Romania.

## **PROFESSIONAL AFFILIATIONS AND ACTIVITIES**

A. Associate Editor: Insurance: Mathematics and Economics, 2018 -

B. President of the Actuarial Science Section of the Statistical Society of Canada (2022).

C. Member of the NSERC Mathematics and Statistics Evaluation group. (2021- 2024)

D. Member in the Editorial Board of the Economic Computation and Economic Studies and Research.

E. Conference organizer:

- Chair of the graduate student section on Actuarial Science at the SSC conference, June 2016, St. Catherines, Canada.
- International Workshop on Actuarial Science, Academy of Economic Studies, June 2015, Bucharest, Romania.
- Chair of the Scientific Committee at the Actuarial Research Conference, University of Toronto, August 2015.
- Organizer of the 3<sup>rd</sup> Quebec – Ontario Workshop on Insurance Mathematics, January 2014, Quebec City.
- Organizer of the 2<sup>nd</sup> Quebec – Ontario Workshop on Insurance Mathematics, February 2012, Toronto.
- Organizer of the 1<sup>st</sup> Quebec – Ontario Workshop on Insurance Mathematics, January 2011, Montreal.
- Organizer of the Insurance: Mathematics and Economics Congress, 2010, Toronto.
- Organizer of a Section in Ruin Theory at the Canadian Operational Research Society Conference, 2008, Montreal.
- Session chair at several conferences such as Insurance: Mathematics and Economics (2010), Toronto; SSC (2010), Quebec City.

F. Referee for Insurance: Mathematics and Economics, Scandinavian Actuarial Journal, Astin Bulletin, North American Actuarial Journal, European Actuarial Journal, Applied Stochastic Models in Business and Industry, Economic Computation and Economic Studies and Research.

- G. Member of Institute for Operations Research and the Management Sciences, Applied Probability Society, Canadian Operational Research Society, Statistical Society of Canada.

## B. **ACADEMIC HISTORY**

### **RESEARCH ENDEAVOURS**

Predictive Modelling in Insurance, Claim Reserving and Ratemaking, Telematics, Mathematical Risk Theory, Modelling Dependence in Insurance, Matrix Analytic Methods in Stochastic Modelling.

### **RESEARCH AWARDS**

- 2020 – Canadian Institute of Actuaries Research Grant, Development of ECM algorithms in R for Mixture of Experts Regression Model, 20,000 CAD; *Co-investigators: Sheldon Lin, Chau Tseung.*
- 2020 - CKER and CAS Grant, Extended ECM Algorithm for Fitting Mixture of Experts Models to Censored and Truncated Regression Data with Applications in Ratemaking and Reserving, 14,000 USD; *Co-investigators: Samson Tsz Fung, Sheldon Lin.*
- 2019 – 2024 National Science and Engineering Research Council of Canada, NSERC Individual Discovery Grant, \$25,000/year.
- 2018 NSERC Engage, 25,000 CAD; *Co-investigators: Tianle Chen.*
- 2017 April, Research Grant from the Society of Actuaries, \$15,000 USD; *Co-investigators: Tianle Chen, Sheldon Lin.*
- 2015 June, Research Grant from the Casualty Actuarial Society, \$13,000 USD; *Co-investigators: Sheldon Lin.*
- 2014 – 2019 National Science and Engineering Research Council of Canada, NSERC Individual Discovery Grant, \$14,000/year.
- 2009 – 2014 National Science and Engineering Research Council of Canada, NSERC Individual Discovery Grant, \$19,000/year.

- 2006 – 2009 National Science and Engineering Research Council of Canada, NSERC Individual Discovery Grant, \$13,000/year.
- 2008 – 2010 University of Toronto Connaught Matching Grant Competition, \$15,000 year.
- 2006 – 2008 University of Toronto Connaught Start-up Grant.
- 2006 University of Toronto, Start-up Grant, \$15,000.
- 2004 – 2006 National Science and Engineering Research Council of Canada, Post Doctoral Fellowship, \$40,000/year.

## C. **SCHOLARLY AND PROFESSIONAL WORK**

### **Peer Reviewed Journal Publications Accepted:**

1. Fung, T.C., Badescu, A. and Lin, X.S. “Fitting censored and truncated regression data using the Mixture of Experts models, 2022, ” North American Actuarial Journal, in press.
2. Tseung, S.C, Badescu, A., Fung, T.C. and Lin, X.S., “LRMoE.jl: a software package for flexible actuarial loss modelling using mixture of experts regression model, 2021, ” Annals of Actuarial Science, 15(2), 419-440.
3. Fung, T.C., Badescu, A. and Lin, X.S., “A new class of severity regression models with an application to IBNR prediction,” North American Actuarial Journal, 2020, 25(2), 206-231.
4. Tsz C.F., Badescu A.L, Lin S., A Class of Mixture of Experts Models for General Insurance: Theoretical Developments, 2019, Insurance: Mathematics and Economics, 89, 111-127.
5. Tsz C.F., Badescu A.L, Lin S., A Class of Mixture of Experts Models for General Insurance: Application to Correlated Claim Frequencies, Astin Bulletin, 2019, 49 (3), 647-688.
6. Badescu A.L., Chen T., Lin S., Tang D., A marked Cox model for the number of IBNR claims: estimation and application, Astin Bulletin, 2019, 49 (3), 709-739.
7. Tsz, F.C., Badescu A.L., Lin X.S., Multivariate Cox Hidden Markov Models with an Application to Operational Risk. Scandinavian Actuarial Journal, 2019, (8), 686-710.

8. Ahn S., Badescu A.L., Cheung E., Kim Y., An IBNR-RBNS insurance risk model with marked Poisson arrivals, *Insurance: Mathematics and Economics*, 2018, 79, 26-42.
9. Avram F., Badescu A.L., Pistorius M., Rabehasaina L., On a class of dependent Sparre Andersen risk models and a bailout application, *Insurance: Mathematics and Economics*, 2016, 71, 27 – 39.
10. Badescu A.L., Lin S., Tang D., A marked Cox model for the number of IBNR claims: Theory, *Insurance: Mathematics and Economics*, 2016, 69, 29 - 37.
11. Antonio K., Badescu A.L., Gong L., Lin X.S., Verbelen R. Fitting mixtures of Erlangs to censored and truncated data using the EM algorithm, *Astin Bulletin*, 2015, 45(03), 729 - 758.
12. Badescu A.L., Gong L., Lin X.S., Tang D. Modeling correlated frequencies with application in operational risk management, *Journal of Operational Risk*, 2015, Vol 10(1), 1-45.
13. Breuer L., Badescu A.L., A generalised Gerber-Shiu measure for Markov-additive risk processes with phase-type claims and capital injections, *Scandinavian Actuarial Journal*, 2014, Issue 2, 93-115.
14. Gong L., Badescu A.L., Cheung E., Recursive Methods for a Two-Dimensional Risk Process with Common Shocks, *Insurance: Mathematics and Economics*, 2012, 50, 109-120.
15. Mitric I.R., Badescu A.L., Stanford D., On the absolute ruin in a Sparre Andersen risk model with constant interest, *Insurance: Mathematics and Economics*, 2012, 50, 167-178.
16. Badescu A.L., Cheung E., Rabehasaina L. - A Two Dimensional Risk Model with Proportional Reinsurance, *Journal of Applied Probability*, 2011, 48(3), 749 - 765.
17. Cheung E., Landriault D., Badescu A.L. – On a Generalization of the Risk Model with Markovian Claim Arrivals, *Stochastic Models*, 2011, 27(3), 407 - 430.
18. Asimit A.V., Badescu A.L. - Extremes on the Discounted Aggregate Claims in a Time Dependent Risk Model, *Scandinavian Actuarial Journal*, 2010, 2, 93 – 104.
19. Badescu A.L., Cheung E., Landriault D. - Dependent Risk Models with Bivariate Phase-Type Distributions, *Journal of Applied Probability*, 2009, 46(1), 113-131.
20. Badescu A.L., Landriault D., - Applications of Fluid Flow Matrix Analytic Methods in Ruin Theory - a Review, *Serie A: Matemáticas de la Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales*, 2009, 103(2), 353 – 372.
21. Badescu A.L. - Discussion of The Discounted Joint Distribution of the Surplus Prior to Ruin in a Sparre Andersen Model, *North American Actuarial Journal*, 2008, 12(2), 210-212.
22. Albrecher H., Badescu A.L., Landriault D. - On the Dual Risk Model with Taxation, *Insurance: Mathematics and Economics*, 2008, 42(3), 1086-1094.

23. Badescu A.L., Breuer L. - The Use of Vector-Valued Martingales in Risk Theory, *Blatter der DGVFM*, 29, 2008, 1-12.
24. Badescu A.L., Landriault D. - Recursive Calculation of the Dividend Moments in a Multi-Threshold Risk Model, *North American Actuarial Journal*, 12(1), 2008, 74-88.
25. Badescu A.L., Drekić S., Landriault D. - On the Analysis of a Multi-Threshold Markovian Risk Model, *Scandinavian Actuarial Journal*, 2007, 4, 248-260.
26. Badescu A.L., Drekić S., Landriault D. - Analysis of a Threshold Dividend Strategy for a MAP Risk Model, *Scandinavian Actuarial Journal*, 2007, 4, 227-247.
27. Badescu A.L., Landriault D. - Moments of the Discounted Dividends in a Threshold-Type Markovian Risk Process, *Brazilian Journal of Probability and Statistics*, 2007, 21, 13-25.
28. Ahn S., Badescu A.L., Ramaswami V. - Time Dependent Analysis of Finite Buffer Fluid Flows and Risk Models with a Dividend Barrier, *Queueing Systems: Theory and Applications*, 2007, 55(4), 207-222.
29. Ahn S., Badescu A.L. - On the Analysis of the Gerber-Shiu Discounted Penalty Function for Risk Processes with Markovian Arrivals, *Insurance: Mathematics and Economics*, 2007, 41(2), 234-249.
30. Badescu A.L., Stanford D.A. - A Generalization of the De Vylder Approximation for the Probability of Ruin, *Economic Computation and Economic Cybernetics Studies and Research*, 2006, (40)3-4, 245-265.
31. Badescu A.L., Breuer L., Drekić S., Latouche G., Stanford D.A. - The Surplus prior to Ruin and the Deficit at Ruin for a Correlated Risk Process, *Scandinavian Actuarial Journal*, 2005, 6, 433-446.
32. Badescu A.L., Breuer L., Da Silva Soares A., Latouche G., Remiche M-A., Stanford D.A. - Risk Processes Analyzed as Fluid Queues, *Scandinavian Actuarial Journal*, 2005, 2, 127-141.
33. Stanford D.A., Avram F., Badescu A.L., Breuer L., Da Silva Soares A., Latouche G. - Phase-Type Approximations to Finite-Time Ruin Probabilities in the Sparre Andersen and Stationary Renewal Risk Models, *Astin Bulletin*, 2005, 35, 131-144.

### **Peer Reviewed Conference Proceedings**

1. Badescu A.L., Cheung E., Landriault D. - The Laplace Transform of the Time to Ruin in a Bivariate Phase-type Risk Process, *Proceedings of the Fourth Brazilian Conference on Statistical Modeling in Insurance and Finance*, 2009.
2. Badescu A.L., Landriault D. - On the Dividend Moments in a Markovian Risk Model, *Proceedings of the Third Brazilian Conference on Statistical Modeling in Insurance and Finance*, 2007, 92-97.

### **PRESENTATIONS**

#### **Invited Conference and Workshop Presentations**

- Using Mixture of Experts for ratemaking and claim reserving, ICAS Predictive Analytics Community of Practice Events, online event, March 2021.
- A New and Flexible Regression Model for Ratemaking and Reserving, Invited speaker at the CAS general annual Meeting, “November 2019, Honolulu, Hawaii
- Invited speaker at the General Annual Meeting of the Casualty Actuarial Society, “A New and Flexible Regression Model for Ratemaking and Reserving, November 2019, Honolulu, Hawaii.
- Keynote speaker at “Perspective on Actuarial Risks in Talks of Young Researchers”, April 2019, Sibiu, Romania.
- Insurance risk models with Marked Poisson arrivals, October 2015, Oaxaca, Mexico, Invited speaker at the workshop “Recent Advances in Actuarial Science”
- Stochastic claim reserving with applications, June 2015, International Conference in Insurance, Bucharest, Romania.
- A risk model with reporting delays - INFORMS-APS, Costa Rica 2013.
- On some ruin problems for multidimensional risk process – Invited Speaker for the “Workshop on Queues and Risk”, 4-7 March 2013, Eindhoven.
- Two dimensional risk processes with proportional reinsurance, The third workshop on Gerber-Shiu discounted penalty functions, University of Waterloo, Canada, 2010.
- Dependent risk models with bivariate phase-type distributions, The second workshop on Gerber-Shiu discounted penalty functions, Austrian Academy of Science, University of Linz, Linz, Austria, 2008.
- On the analysis of the Gerber-Shiu discounted penalty function, The first Gerber-Shiu workshop Montreal, Toronto, 2006, (also presented at EURO Reykjavik, Iceland).
- Risk models with constant dividend barrier, CORS conference Montreal, Canada, 2006.
- Risk models with constant dividend barrier, SSC London, 2006.
- Computational issues for risk processes analyzed as fluid queues, CORS/INFORMS Joint Meeting, Banff, Canada, 2004
- Using the Gaver-Stehfest inversion for long-tailed service time distributions, CORS/INFORMS Joint Meeting, Banff, Canada, 2004.
- A generalization of the DeVolder approximation for the probability of ruin, Actuarial Research Conference, Waterloo, Canada, 2003.
- Saddle point approximations for the evaluation of finite time ruin probabilities, CORS National Conference, Vancouver, Canada, 2003.

- A generalization of the DeVlylder approximation with applications in queuing theory, CanQueue, Saskatoon, Canada, 2002.
- Simple approximations for the probability of ruin, INFORMS Annual Meeting, San Jose, U.S., 2002.

### **Contributed Conference Presentations**

- Simple Estimations of IBNR reserves with Logit-weighted Reduced Mixture of Experts. Risk conference, Barcelona 2022.
- On the Logit-weighted Reduced Mixture of Experts models with insurance applications, SSC 2022, online
- On the Logit-weighted Reduced Mixture of Experts models with insurance applications, Insurance Data Science conference, New England Statistics Symposium, 2022, online.
- On the Logit-weighted Reduced Mixture of Experts models with insurance applications, Insurance Data Science conference, Milano 2022.
- Risk models with delays, “Relax” Conference, University of Liverpool, 2018
- An IBNR-RBNS insurance risk model, European Actuarial Conference, Lyon, France 2016.
- On a class of dependent Sparre Andersen risk models and a bailout application, Insurance: Mathematics and Economics, Atlanta, US, 2016
- Risk processes with delays, Actuarial Research Conference, Santa Barbara, US, 2014.
- Recursive Methods for a Two-Dimensional Risk Process with Common Shocks, Insurance: Mathematics and Economics, Italy, 2011.
- A two-dimensional risk model with proportional reinsurance, Astin Colloquia, Madrid, 2011.
- The use of vector valued martingales in risk theory, Insurance: Mathematics and Economics, Istanbul, Turkey, 2009.
- The Laplace transform of the time to ruin in a bivariate phase-type risk process, the Fourth Brazilian Conference on Statistical Modeling in Insurance and Finance, Maresias, Brazil, 2009.
- Risk processes with taxation, Insurance: Mathematics and Economics, China, 2008.



- Recursive calculation of the dividend moments in a multiple threshold risk model, Insurance: Mathematics and Economics, Athens, Greece, 2007.
- On the dividend moments in a Markovian risk process, Third Brazilian Conference on Statistical Modeling in Insurance and Finance, Maresias, Brazil, 2007.
- A two level dividend strategy in a ruin process with Markovian arrivals, Insurance: Mathematics and Economics, Leuven, Belgium, 2006.
- The joint density of the surplus prior to ruin and the deficit at ruin, Insurance: Mathematics and Economics, Quebec, Canada, 2005.
- Risk processes analyzed as fluid queues, Insurance: Mathematics and Economics, Rome, Italy, 2004.
- A generalization of the DeVolder approximation for the probability of ruin, Insurance: Mathematics and Economics, Lyon, France, 2003.
- Finite time ruin probabilities, South West Ontario Operations Research Day, London, Canada, 2003.

### **Invited Colloquium Presentations**

- An IBNR-RBNS insurance risk model, Hong Kong University, Hong Kong, 2017.
- An IBNR-RBNS insurance risk model, CASS Business School, London, University of Liverpool, Liverpool, 2017.
- An IBNR-RBNS insurance risk model, University of Copenhagen, Denmark, 2016.
- Some results for bi-dimensional ruin problems, City University, University of Amsterdam, University Franche Compté, KU Leuven, departmental seminar, 2013.
- The classical ruin problem for multivariate risk processes, University of Connecticut, University of Liverpool, department seminar, 2012.
- Recursive Methods for a Two-Dimensional Risk Process with Common Shocks, Academy of Economic Studies, Romania, department seminar, 2011.
- A two-dimensional risk model with proportional reinsurance, University of Piraeus, Greece, Actuarial Science Day, 2011.
- Bivariate dependent risk processes, University of Montreal, Canada, 2010.
- On the analysis of the Gerber Shiu discounted penalty function in MAP risk model, Sungkyunkwan University, Korea, 2008.
- Stochastic fluid flows and their risk applications, University of Seoul, Korea, 2008.

- Return probabilities for stochastic fluid flows and their use in collective risk theory, University of Waterloo, Canada, 2008.
- Return probabilities for stochastic fluid flows and their use in collective risk theory, University of Calgary, Canada, 2008.
- Return probabilities for stochastic fluid flows and their use in collective risk theory, University of Toronto, Canada, 2008.
- A two Level Dividend Strategy in a Ruin Process with Markovian Arrivals, University of Western Ontario, Canada, 2006.
- Risk processes analyzed as fluid queues, University of Waterloo, Canada, 2005.
- Risk processes analyzed as fluid queues, University of Calgary, Canada, 2004.

D. **LIST OF COURSES** (in the last 5 years)

Please refer to the Teaching Statement for more details about the course material.

Undergraduate courses

- ACT230 Mathematics of Finance for Non-Actuaries
- ACT240 Mathematics of Investment and Credit
- ACT348 Advanced Life Contingencies
- ACT455 Advanced Topics in Actuarial Science
- ACT452 Loss Models 2
- ACT466 Credibility and Simulation

Graduate courses

- STA4509 Insurance Risk Models 1
- STA2505 Credibility and Simulation

Supervision

Postdoctoral Fellows:

- 2009 – 2010 Alexandru Valentin Asimit, A time dependent risk model, primary supervisor; secondary supervisor - Professor Sheldon Lin.

Doctoral Students:

- 2021 – Hassan Abdelrahman, TBD.
- 2020 – Sophia Ian Wen Chan, Insurance Telematics.

- 2019 – Sebastian Felipe Calcetero Vanegas, Credibility models with LRMoeEs.
- 2018 – Chau Tseung, LRMoe and their applications in ratemaking and stochastic claim reserving
- 2017 - 2019, Tianle Chen, Micro Level Stochastic Reserving
- 2017 – 2020, Fung Tsz Chai, Predictive Modelling with HMM mixture models, co-supervised with Professor Sheldon Lin
- 2013 – 2016, Dameng Tang, Applications of Pascal Mixture Models to Insurance and Risk Management, co-supervised with Professor Sheldon Lin
- 2008 – 2014, Lan Gong, Applications of Erlang mixtures in insurance, co-supervised with Professor Sheldon Lin
- 2016 – present , Ph. D. Committee for Alex Yang, Department of Statistical Sciences, University of Toronto
- 2013 – 2015 , Ph. D. Committee for Yuxian Chong, Department of Statistical Sciences, University of Toronto.
- 2012 – 2014 , Ph. D. Committee for Pan Pan Wu, Department of Statistical Sciences, University of Toronto.
- 2012 – 2013 , Ph. D. Committee for Ryan Donnelly, Department of Statistical Sciences, University of Toronto.
- 2009 – 2014 , Ph. D. Committee for Yuxiang Chong, Department of Statistical Sciences, University of Toronto.
- 2006 – 2009, Ph. D. Committee for Simon Lee, Department of Statistical Sciences, University of Toronto.

#### Master Students:

- 2022 - Yifeng Ge, - Identifying Risk Factors for Hazardous Driving and Accident Propensity
- 2022 – Kaihua Sun - Credit Scoring Using Alternate Data
- 2021 – 2022 Jiawei Yu - Assessing Risk for Hazardous Driving and Accident Propensity
- 2021 – 2022 Jack Ellis - Collision Detection with High-Rate Telematics Data

- 2021 – 2022 Malikeh Ehghangi - Data-driven Approach to Defining Symptoms of Mental and Cognitive Disorders from Noisy Data.
- 2019 – 2020 Sophia, Ian Wen Chan – Research Assistant, non thesis master.
- 2020 – 2021 Jianda Chen - Hand Pose Reconstruction with Advanced Sensor And Deep Learning
- 2017 – 2018 Tian Huan Guan – E Exploring different modelling techniques in operational risk capital calculation
- 2016 - 2017 Tianle Chen – Estimating the IBNR reserve for a marked Cox process
- 2015 - 2016 Di Wang – Stochastic Claim Reserving
- 2014 - 2015 Nasser Barjesteh, Markov arrival processes and their applications in insurance.
- 2012 – 2013 Adam Ng, Ruin Models with dividend barriers.
- 2012 – 2013 Lina Lin, Estimating IBNR losses – a practical application (joint supervision with Sheldon Lin).
- 2011 – 2012 Joshua Touyz, Debit and Credit Interest Risk Models.

#### Undergraduate Students:

- 2019 (summer) Yujie Yang, NSERC USRA
- 2016 (summer) Chen Tianle, NSERC USRA
- 2015 (summer) Chen Tianle, NSERC USRA
- 2015 (summer) Fan Wang, NSERC UTEA
- 2012 (spring) Shining Tang, Fitting mixture of exponentials for property insurance.
- 2011 (fall) Li Li Lin, On De Vylder's approximation for ruin probabilities.
- 2011 (summer) Joshua Touyz, Debit and Credit Interest Risk Models, USRA NSERC student.
- 2009 (summer) Mirabelle Hyunh, Risk Processes with Interest, USRA NSERC student.

- 2008 (summer) Jason Ricci, Dependence in Ruin Theory, USRA NSERC student.

## E. **ADMINISTRATIVE POSITIONS**

### DEPARTMENTAL AND UNIVERSITY SERVICE

- 2022- Director of the Master of Financial Insurance, University of Toronto
- 2021-2022 Math Finance and Actuarial Science Hiring Committee, Department of Statistical Sciences, University of Toronto
- 2021 – 2022 Graduate Committee, Department of Statistical Sciences, University of Toronto
- 2020 – 2021 Graduate Committee, Master of Financial Insurance University of Toronto
- 2020-2021 SGS Connaught Award Committee, University of Toronto
- 2020-2021 Math Finance and Actuarial Science Hiring Committee, Department of Statistical Sciences, University of Toronto
- 2020-2021 Director, Data Science Programs for Statistical Sciences, University of Toronto
- 2020 – 2021 Graduate Committee, Department of Statistical Sciences, University of Toronto
- 2020 – 2021 Executive Committee, Department of Statistical Sciences, University of Toronto
- 2019-2020 Undergraduate Committee Act Sci, Department of Statistical Sciences, University of Toronto
- 2019-2020 Graduate Committee, Department of Statistical Sciences, University of Toronto
- 2019-2020 Undergraduate Committee Act Sci, Department of Statistical Sciences, University of Toronto
- 2018-2019 Graduate Committee, Department of Statistical Sciences, University of Toronto.
- 2018 – 2019 Undergraduate Chair of Actuarial Science, Department

of Statistical Sciences, University of Toronto.

- 2018 – 2019 Dean’s representative in two hiring committees for Computer Science Department, University of Toronto.
- 2017-2018 Undergraduate Committee, Department of Statistical Sciences, University of Toronto.
- 2016-2017 Graduate Committee, Department of Statistical Sciences, University of Toronto.
- 2017 -2018 Dean’s representative in two hiring committees for Computer Science Department, University of Toronto.
- 2016 - 2017 Member of the NSERC Post Graduate School committee of Math, Physics and Chemistry, University of Toronto.
- 2015-2016 Undergraduate Committee, Department of Statistical Sciences, University of Toronto
- 2010– 2015 Graduate Committee, Department of Statistical Sciences, University of Toronto.
- 2015 Scientific Committee Chair for the ARC 2015, University of Toronto.
- 2011 – 2012 Chair of a Panel Section in the Ontario Graduate Scholarship Committee, Ontario.
- 2010 – 2011 Chair of the Seminar Committee, Department of Statistics, University of Toronto.
- 2010 – 2011 Member of the Ontario Graduate Scholarship Selection Committee, Ontario
- 2008 – present Member of the Faculty of Arts and Science Council, University of Toronto.
- 2008 – 2009 Member of the NSERC Post Graduate School committee of Math, Physics and Chemistry, University of Toronto.
- 2008 – 2009 Graduate Committee, Department of Statistics, University of Toronto.
- 2007 – 2008 Graduate Committee, Department of Statistics, University of Toronto.
- 2006 – 2007 Undergraduate Committee, Department of Statistics, University of Toronto.

## F. **EXTERNAL PROFESIONAL SERVICES**

- External PhD examiner for Zyed Ben Salah, University of Montreal (2012 )
- External PhD examiner for Emmanuel Thomson, University of Calgary (2013)
- External PhD examiner for Li Zhou, Western University (2014)