

Parsiad Azimzadeh

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Canadian Citizen
Fluent in English, proficient in Farsi

Current position

PHD, University of Waterloo (expected: 2017)
Thesis title: Viscosity Solutions and Numerical Analysis of Impulse Control Problems
Supervisor: [George Labahn](#)

Education

- 2013 MMATH, University of Waterloo
Thesis title: [Hedging Costs for Variable Annuities](#)
Supervisor: [Peter Forsyth](#)
- 2011 BSc, Simon Fraser University (Major Computing Science; Minor Mathematics)

Selected Publications and preprints

- [1] P. Azimzadeh, E. Bayraktar, and G. Labahn. “Convergence of approximation schemes for weakly nonlocal second order equations”. In: *arXiv preprint arXiv:1705.02922* (2017). URL: <https://arxiv.org/abs/1705.02922>.
- [2] P. Azimzadeh. “A fast and stable test to check if a weakly diagonally dominant matrix is an M-matrix”. In: *arXiv preprint arXiv:1701.06951* (2017). URL: <http://arxiv.org/abs/1701.06951>.
- [3] P. Azimzadeh. “A zero-sum stochastic differential game with impulses, precommitment, and unrestricted cost functions”. In: *Appl. Math. Optim. (to appear)* (2017). URL: <http://arxiv.org/abs/1609.09092>.
- [4] P. Azimzadeh and P. A. Forsyth. “Weakly chained matrices, policy iteration, and impulse control”. In: *SIAM J. Numer. Anal.* 54.3 (2016), pp. 1341–1364. ISSN: 0036-1429. URL: <http://dx.doi.org/10.1137/15M1043431>.
- [5] P. Azimzadeh and T. Carpenter. “Fast Engset computation”. In: *Oper. Res. Lett.* 44.3 (2016), pp. 313–318. ISSN: 0167-6377. URL: <http://dx.doi.org/10.1016/j.orl.2016.02.011>.
- [6] P. Azimzadeh and P. A. Forsyth. “The existence of optimal bang-bang controls for GMxB contracts”. In: *SIAM J. Financial Math.* 6.1 (2015), pp. 117–139. ISSN: 1945-497X. URL: <http://dx.doi.org/10.1137/140953885>.

- [7] P. Azimzadeh, P. A. Forsyth, and K. R. Vetzal. “Hedging costs for variable annuities under regime-switching”. In: *Hidden Markov models in finance*. Vol. 209. Internat. Ser. Oper. Res. Management Sci. Springer, New York, 2014, pp. 133–166. URL: http://dx.doi.org/10.1007/978-1-4899-7442-6_6.
- [8] Parsiad Azimzadeh. “Hedging costs for variable annuities”. MA thesis. University of Waterloo, 2013. URL: <https://uwspace.uwaterloo.ca/handle/10012/7829>.
- [9] T. Carpenter, S. Singla, P. Azimzadeh, and S. Keshav. “The impact of electricity pricing schemes on storage adoption in Ontario”. In: *Proceedings of the 3rd International Conference on Future Energy Systems: Where Energy, Computing and Communication Meet*. ACM, 2012, p. 18. URL: <http://dx.doi.org/10.1145/2208828.2208846>.
- [10] M. J. Best, S. Mottishaw, C. Mustard, M. Roth, P. Azimzadeh, A. Fedorova, and A. Brownsword. “Schedule data, not code”. In: *Proceedings of the 3rd USENIX Workshop on Hot Topics on Parallelism (HotPar’11)*. 2011. URL: https://www.usenix.org/events/hotpar11/tech/final_files/Best.pdf.

Code

2015-Now

Maintainer of [GNU Octave financial package](#) (language: GNU Octave)

A package for Monte Carlo simulation, options pricing routines, financial manipulation, plotting functions, and additional date manipulation tools.

My most ambitious contribution to the package was a robust Monte Carlo simulation framework. The package has enjoyed approximately 5,000 downloads in 2016.

Other

Other code projects can be found on [GitHub](#).

Experience

2010-2011

NSERC undergraduate research at Simon Fraser University

Multi-threaded and transactional memory research under the supervision of Professor [Alexandra Fedorova](#).

2008

Accenture

Web developer (summer semester)

Awards

2015-2017

David R. Cheriton Graduate Scholarship

20,000 CAD

2014

Meloche Monnex Graduate Scholarship in Quantitative Finance and Insurance

5,000 CAD

2014

OGS (declined)

15,000 CAD

2013-2015

David R. Cheriton Graduate Scholarship

20,000 CAD

2012

OGS

15,000 CAD

2012

University of Waterloo President’s Scholarship

10,000 CAD

2012

QEII-GSST

5,000 CAD

2011

NSERC USRA

4,500 CAD

Teaching

2011-Now

Teaching assistant, University of Waterloo for the following courses:*

[CS 245 Logic and Computation](#)

CS 335 Computational Methods in Business and Finance

CS 370 Numerical Computation

CS 476 Numeric Computation for Financial Modeling

*for each course, a list of semesters during which teaching assistantships took place can be provided upon request

Skill highlights

Numerical Methods (Linear Algebra, PDEs, Monte Carlo Simulations, etc.)

Mathematical Analysis (Real Analysis, Probability, Viscosity Solutions of PDEs, etc.)

Multi-threaded Programming

Algorithms and Data Structures

Web Development and Databases

Technology

Operating systems: POSIX (Linux, BSD, OS X, etc.) and Windows NT

Languages: C++11, MATLAB/GNU Octave, Java, Python, SQL, etc.

Revisioning: Git, Mercurial, SVN, etc.

Selected Talks

- [1] Parsiad Azimzadeh. *Convergence of approximation schemes for weakly nonlocal second order equations*. SONAD and AMMCS-CAIMS Congress. 2017. URL: http://parsiad.ca/talks/convergence_of_approximation_schemes_for_weakly_nonlocal_second_order_equations.pdf.
- [2] Parsiad Azimzadeh. *Why viscosity solutions have nothing to do with viscosity*. University of Waterloo Math Faculty Number Nosh. 2016. URL: http://parsiad.ca/talks/why_viscosity_solutions_have_nothing_to_do_with_viscosity.pdf.
- [3] Parsiad Azimzadeh. *Weakly chained matrices, policy iteration, and impulse control*. SONAD. 2016. URL: http://parsiad.ca/talks/weakly_chained_matrices_policy_iteration_and_impulse_control.pdf.
- [4] Parsiad Azimzadeh. *Numerical combined stochastic and impulse control*. AMMCS-CAIMS Congress. 2015. URL: http://parsiad.ca/talks/numerical_combined_stochastic_and_optimal_control.pdf.

Selected Posters

- [1] Parsiad Azimzadeh. *The value of a zero-sum stochastic differential game involving impulse control*. SIAM Conference on Financial Mathematics and Engineering. 2016. URL: http://parsiad.ca/posters/the_value_of_a_zero_sum_stochastic_differential_game_involving_impulse_control.pdf.
- [2] Parsiad Azimzadeh. *Weakly chained matrices, policy iteration, and impulse control*. Cherriton Research Symposium. 2016. URL: http://parsiad.ca/posters/weakly_chained_matrices_policy_iteration_and_impulse_control.pdf.

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<http://parsiad.ca/CV>