Professor Baha Alzalg

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Curriculum Vitae

Personal Information

- Full Name: Baha Mahmoud Nahar Alzalg.
- Citizenship, Year/Place of Birth: Jordanian, 1982/Ajloun–Jordan.
- Marital Status: Married; Father of four children.
- Place of Residence: Amman, Jordan.

Education

2012: Post-Doctorate in Operations Research, ECE Dept, University of California, Davis, CA.
Advisor: Prof. Qing Zhao (Currently, Joseph C. Ford Professor of Engineering at Cornell University)
Postdoc Sponsored by the U.S. Army Research Lab and BBN Technologies, Grant 3-QZC1011

2011: Ph.D. in Mathematics, Washington State University, Pullman, WA.
Area of study: Mathematical Optimization. Advisor: Prof. K. A. Ariyawansa.
Dissertation title: *Optimization over symmetric cones under uncertainty.*
Doctorate Funded by the U.S. Army Research Office under Award No. W911NF-08-1-0530.

2007: M.Sc. in Mathematics, Yarmouk University, Jordan.
Area of study: Mathematical Logic. Advisor: Prof. M. A. Shakhatreh.
Thesis title: *On fuzzy logic and its applications.*

2005: B.Sc. in Mathematics, Yarmouk University, Jordan.

Academic Positions

- The University of Jordan: Full Professor (2021–present), Associate Professor (2016–2021), Assistant Professor (2013–2016); UJ Department of Mathematics, Amman, Jordan.
- The Ohio State University: Visiting Associate Professor (2019–2022); OSU Department of Computer Science and Engineering, Columbus, OH.
- Rochester Institute of Technology: Visiting Research Scholar (2018/2019); RIT School of Mathematical Sciences, Rochester, NY.
- University of Tabuk: Visiting Assistant Professor (Spring 2015); UT Mathematics Dept., Tabuk, KSA.
- University of Colorado Denver: Research Assistant Professor (Fall 2012); CUD Department of Mathematical and Statistical Sciences, Denver, CO.
- University of California Davis: Postdoctoral Research Fellow (2011/2012); UCD Department of Electrical and Computer Engineering, Davis, CA.
- Washington State University: Research Assistant (2010/2011), Teaching Assistant (2009/2010); WSU Department of Mathematics, Pullman, WA.
- University of Wisconsin Milwaukee: Graduate Teaching Assistant (Fall 2009); UWM Department of Mathematical Sciences, Milwaukee, WI.
- Yarmouk University: Adjunct Lecturer (2008), YU Department of Mathematics, Irbid, Jordan.
- Jordan University of Science and Technology: Adjunct Lecturer (2007); JUST Department of Mathematics and Statistics, Irbid, Jordan.

Administrative Positions

- Head of Mathematics Department (2016–2018), College of Science, The University of Jordan.
- Representative of Mathematics Dept (2013/2014), College of Science Board, The University of Jordan.

RESEARCH INTERESTS

- Continuous optimization.
- Interior-point methods for convex optimization.
- Decomposition methods for stochastic optimization.
- Second-order cone programming.
- Semidefinite programming.
- Semi-infinite programming.
- Mathematical programming in abstract spaces.
- Jordan algebra and its applications to optimization.
- Mathematics of operations research.
- Analysis of algorithms.
- Computational and complexity analysis.
- Combinatorial optimization and Ramsey theory of graphs.
- Theoretical computer science.
- Numerical simulation and computational mathematics.
- Mathematical modelling.

PUBLICATIONS

- **Book**:
  - Baha Alzalg. *Combinatorial and Algorithmic Mathematics: From Foundation to Optimization*. 528 pages, John Wiley & Sons, September 2024, ISBN: 978-1-394-23594-0 [`Video`]

- **Published/Accepted Papers:**

  1. Hadjer Alioui, Baha Alzalg. A hybrid branch-and-bound and interior-point algorithm for stochastic mixed-integer nonlinear second-order cone programming. To appear in *Communications in Combinatorics and Optimization* (2024).

  2. Asma Gafour, Baha Alzalg. A barrier Lagrangian dual method for multi-stage stochastic convex semidefinite optimization. To appear in *Vietnam Journal of Mathematics* (2024).

  3. Baha Alzalg, Lilia Benakkouche. The nonconvex second-order cone: Algebraic structure toward optimization. *Journal of Optimization Theory and Application* 201(2) 631-667 (2024).

  4. Baha Alzalg, Karima Tamsaouete, Lilia Benakkouche, Ayat Ababneh. The Jordan algebraic structure of the rotated quadratic cone. *Linear and Multilinear Algebra* 1–22 (2024).

  5. Baha Alzalg and Karima Tamsaouete. Algebraic-based primal interior-point algorithms for stochastic infinity norm optimization. *Communications in Combinatorics and Optimization* 9(4) 655-692 (2024).

  6. Baha Alzalg. Barrier methods based on Jordan-Hilbert algebras for stochastic optimization in spin factors. *RAIRO Operations Research* 8(1) 1011-1044 (2024).

  7. Amira Achouak Oulha and Baha Alzalg. A path-following algorithm for stochastic quadratically constrained convex quadratic programming in a Hilbert space. *Communications in Combinatorics and Optimization* 9(2) 353-387 (2024).

  8. Lilia Benakkouche, Blake Whitman and Baha Alzalg. Polar convex programming: A new paradigm for nonlinear optimization. *Applied Mathematics and Information Sciences*. 17(3) 539–551 (2023).

  9. Karima Tamsaouete and Baha Alzalg. An algebraic-based primal-dual interior-point algorithm for rotated quadratic cone optimization. *Computation*. 11(3), 50 (2023).

  10. Baha Alzalg, Mohammad Alabedalhadi. A homogenous predictor-corrector algorithm for stochastic nonsymmetric cone optimization with discrete support. *Communications in Combinatorics and Optimization* 8, 531–559 (2023).

  11. Baha Alzalg, Asma Gafour. Convergence of a weighted barrier algorithm for stochastic convex quadratic semidefinite optimization. *Journal of Optimization Theory and Applications* 196, 490-515 (2022).

12. Baha Alzalg, Amira Achouak Oulha. On approximate solutions for robust semi-infinite multi-objective convex symmetric cone optimization. *Positivity*. 26, 86 (2022).

13. Baha Alzalg, Hadjer Alioui. Applications of stochastic mixed-integer second-order cone optimization. *IEEE Access*. 10, 3522–3547 (2022).

14. Lewa' Alzaleq, Valipuram Manoranjan, Baha Alzalg. Exact traveling waves of a generalized scale-invariant analogue of the Korteweg-de-Vries equation. *Mathematics*. 10(3), 414 (2022).

15. Baha Alzalg. Logarithmic-barrier decomposition interior-point methods for stochastic linear optimization in a Hilbert space. *Numerical Functional Analysis and Optimization*. 41(8), 901–928 (2020).

16. Baha Alzalg. A logarithmic barrier interior-point method based on majorant functions for second-order cone programming. *Optimization Letters*. 14, 729–746 (2020).

17. Baha Alzalg, Asma Gafour, Lewa Alzaleq. Volumetric barrier cutting plane algorithms for stochastic linear semi-infinite optimization. *IEEE Access*. 80, 4995–5008 (2020).

18. Baha Alzalg. A primal-dual interior-point method based on various selections of displacement step for symmetric optimization. *Computational Optimization and Applications*. 72(2), 363–390 (2019).

19. Baha Alzalg, Khaled Badarneh, Ayat Ababneh. Infeasible Interior-Point Algorithms for Stochastic Second-order Cone Optimization. *Journal of Optimization Theory & Applications* 181(1), 324–346 (2019).

20. Baha Alzalg. Primal interior-point decomposition algorithms for two-stage stochastic extended second-order cone programming. *Optimization*. 67(12), 2291–2323 (2018).

21. Mohammad Alabed Alhadi, Baha Alzalg. Stochastic second-order cone programming: The equivalent convex program. *Applied Mathematics & Information Sciences*. 12(3), 1-6 (2018).

22. Baha Alzalg, Mohammad Pirhaji. Elliptic cone optimization and primal-dual path-following algorithms. *Optimization*. 66(12), 2245-2274 (2017).

23. Baha Alzalg. The Jordan algebraic structure of the circular cone. *Operators and Matrices*. 11(1), 1–21 (2017).

24. Baha Alzalg, Mohammad Pirhaji. Primal-dual path-following algorithms for circular programming. *Communications in Combinatorics and Optimization*. 2(2), 65-85 (2017).

25. Anwar Zeb, Gul Zaman, Vedat Suat ERTURK, Baha Alzalg, Faisal Yousafzai and Madad Khan. Approximating a giving up smoking dynamic on adolescent nicotine dependence in fractional order. *PLoS ONE*. 11(4)(2016).

26. Baha Alzalg, Francesca Maggiono, Sebastiano Vitali. Homogeneous self-dual methods for symmetric cones under uncertainty. *Far East Journal of Mathematical Sciences*. 99(11) 1603–1778 (2016).

27. Vedat Erturk, Gul Zaman, Baha Alzalg, Anwar Zeb, Shaher Momani. Comparing two numerical methods for approximating a new giving up smoking model with fractional order derivative. *Iranian Journal of Science and Technology (Transaction A)*. 41(3), 569-575 (2017).

28. Baha Alzalg. The algebraic structure of the arbitrary-order cone. *Journal of Optimization Theory & Applications*. 169(1), 32–49 (2016).

29. Baha Alzalg. Volumetric barrier decomposition algorithms for stochastic quadratic second-order cone programming. *Applied Mathematics & Computation*. 256, 494–508 (2015).

30. Baha Alzalg. Decomposition-based interior point methods for stochastic quadratic second-order cone programming. *Applied Mathematics & Computation*. 249, 1–18 (2014).

31. Baha Alzalg. Homogeneous self-dual algorithms for stochastic second-order cone programming. *Journal of Optimization Theory & Applications*. 163(1), 148–164 (2014).

32. Baha Alzalg, K. A. Ariyawansa. Logarithmic barrier decomposition-based interior point methods for stochastic symmetric programming. *Journal of Mathematical Analysis and Applications*. 409, 973–995 (2013).

33. Baha Alzalg. Optimal search in a multi-component hypothesis testing. *Proc. 3rd Annual Int. Conf. Oper. Res. Stat.* 115–121 (2013).

34. Baha Alzalg. Stochastic second-order cone programming: Application models. *Applied Mathematical Modelling*. 36, 5122–5134 (2012).

35. Baha Alzalg, C. Anghel, W. Gan, Q. Huang, M. Rahman, A. Shum, C. Wah Wu. Contingency constrained optimal power flow solutions in complex network power grids. *Proc. IEEE Int. Symp. Circuits Systems*. 1636–1639 (2012).

36. Baha Alzalg, K. Ariyawansa. Stochastic mixed integer second-order cone programming: A new modeling tool for stochastic mixed integer optimization. *Proc. Int. Conf. Sc. Comp.* 315-321 (2011).

37. M. Jaradat, Baha Alzalg. Cycle-complete graph Ramsey numbers $r(C_4, K_9), r(C_5, K_8) \leq 33$. *International Journal of Mathematical Combinatorics*. 1, 42–45 (2009).

38. M. Jaradat, Baha Alzalg. The cycle-complete graph Ramsey number $r(C_6, K_8) \leq 38$. *SUT Journal of Mathematics*. 44(2), 257–263 (2008).

39. M. Jaradat, Baha Alzalg. The cycle-complete graph Ramsey number $r(C_8, K_8)$. *SUT Journal of Mathematics*. 43(1), 85–98 (2007).

- **Papers Under-Review:**

40. Baha Alzalg, Lilia Benakkouche. Functions and inequalities associated with the nonconvex second-order cone (2024).

41. Lilia Benakkouche, Baha Alzalg. An ADMM-based heuristic algorithm for optimization problems over nonconvex second-order cone (2024).

CONFERENCE PRESENTATIONS

- *Convergence of a weighted barrier algorithm for stochastic convex quadratic semidefinite optimization*. Presentation at the 3rd International Symposium on Current Developments in Fundamental and Applied Mathematics Sciences. **Istanbul, Turkey**, 2–4, Sep. 2024.
- *An ADMM-based heuristic algorithm for optimization problems over nonconvex second-order cone*. Presentation at the International Conference on Optimization. **Fez, Morocco**, 16–18, May 2024.
- *High-dimensional causality cone: Algebraic foundation and optimization*. Presentation at the 2023 SIAM Conference on Applied Algebraic Geometry. **Eindhoven, The Netherlands**, 10–14, Jul. 2023.
- *Stochastic infinity norm optimization and self-concordant primal interior-point algorithms*. Presentation at the Int'l Symposium on Applied Mathematics and Engineering. **Online**, 21–23, Jan. 2022.
- *Approximate solutions for robust semi-infinite multi-objective convex symmetric cone optimization*. Presentation at the 14th Int'l Conf. on Multiple Objective Program. & Goal Program. **Online**, 20–21, Dec. 2021.
- *A Lagrangian dual method for multi-stage stochastic convex semidefinite programming*. Presentation at Yarmouk Mathematics Conference 2021. **Irbid, Jordan**, 18–21, Sep. 2021.
- *A set of application models for stochastic mixed-integer second-order cone optimization*. Presentation at the 10th Int'l Conference on Mathematical Modeling in Physical Sciences. **Online**, 6–9, Sep. 2021.
- *On approximate solutions for robust semi-infinite multi-objective symmetric cone optimization*. Presentation at the 1st Conference on Mathematics & Applications of Mathematics. **Jijel, Algeria**, 30 Jun. - 1 Jul., 2021.
- *Hybrid volumetric-logarithmic path-following algorithms for symmetric cone programming*. Presentation at the 21st Midwest Optimization Conference. **DeKalb, Illinois**, 18–19 Oct. 2019.
- *Decomposition-based interior-point methods for stochastic nonsymmetric conic optimization problems*. Presentation at the 2nd European Conference on Stochastic Optimization. **Rome, Italy**, 20–22 Sept. 2017.
- *The circular cone: A new paradigm for symmetric cones*. Presentation at the 5th Int'l Conf. Matrix Analysis and Applications. **Fort Lauderdale, Florida**, 17–20 Dec. 2015.
- *Stochastic second-order cone programming: Applications and algorithms*. Presentation at the Operational Research Practice in Africa Conference. **Algiers, Algeria**, 20–22 Apr. 2015.
- *Optimal search in a multi-component hypothesis testing*. Presentation at the Annual Int'l Conference Operations Research and Statistics. **Singapore**, 22–24 Apr. 2013.
- *A comp. analysis of the optimal power flow problem*. Presentation at the IEEE Int'l Symp. on Circuits and Systems. **Seoul, South Korea**, 20–23 May 2012.
- *On recent trends in stochastic conic optimization*. Presentation at the 2011 INFORMS Ann. Meeting (Invited). **Charlotte, North Carolina**, 13–16 Nov. 2011.

- *The Optimal power flow prob.: Network topology.* Presentation on Mathematical Modeling in Industry XV, IMA. **Minneapolis, Minnesota**, 7–12 Aug. 2011.
- *Stochastic symmetric programs over integers.* Presentation at the 2011 Int'l Conf. on Scientific Comp. (Invited), **Las Vegas, Nevada**. 18–21 July 2011.
- *Chance-Constrained Second-Order Cone Programming.* Presentation at the Young Operational Research Conference. **Nottingham, England**, 4–7 Apr. 2011.
- *Stochastic Mixed Integer Second-Order Cone Programming.* Presentation at the 2nd Int'l Conference on Numerical Analysis and Optimization. **Muscat, Oman**, 3–6 Jan. 2011.
- *Stochastic Second-Order Cone Programming.: A Definition.* Presentation at the 12th Int'l Conference on Stochastic Programming. **Halifax, Canada**, 16–20 Aug. 2010.
- *An Intr. to Stochastic Semidefinite Programs.* Int'l Conf. on Cont. Optim. **Santiago, Chile**, 26–29 July 2010.

INVITED PRESENTATIONS IN SEMINARS

- Algebra Seminar, The Ohio State University, Columbus, Ohio, Date: 18 April 2022. Talk title: *The algebraic properties of Einstein-Minkowski causality cone and its extensions.*
- RIT Math Seminar, Rochester Institute of Technology, Rochester, New York, 5 February 2019. Talk title: *Second-Order Cone Programming and Beyond.*
- Applied Math Seminar, University of Tabouk, Tabuk, KSA, 1 June 2015. Talk title: *Recent Developments in Stochastic Symmetric Programming.*
- Mathematics Seminar, The University of Jordan, Amman, Jordan, 12 Dec. 2012. Talk title: *Some Applications of Stochastic Conic Programs.*
- OR Seminar, University of Colorado, Denver, Colorado, 25 Sept. 2012. Talk title: *An Introduction to Stochastic Conic Programs.*
- UC Davis Electrical Engineering Seminar, Davis, California, 9 Sept. 2011. Talk title: *On Cycle-Complete graphs Ramsey Numbers.*
- OR Seminar, Naval Postgraduate School, Monterey, California, 1 Sept. 2011. Talk title: *Stochastic Symmetric Optimization.*
- Mathematical Modeling in Industry XV, IMA, Minneapolis, Minnesota, 8 Aug. 2011. Talk title: *The Optimal power flow problem: Contingency constraints.*
- WSU Mathematics Colloquium, Pullman, Washington, 24 Feb. 2011. Talk title: *From Linear Programming to Multi-Order Cone Programming.*

WORKSHOPS AND SUMMER SCHOOLS

- Illinois Computer Science Summer Teaching Workshop 2021. August 8–10, 2021 @ University of Illinois Urbana-Champaign, Illinois.
- Midwest Arithmetic Geometry and Number Theory Series 2019. October 12–13, 2019 @ The Ohio State University, Columbus, Ohio.
- Junior Geometry and Topology in the Midwest. October 13, 2018 @ University of Wisconsin, Madison, Wisconsin.
- The Mathematics and the Microbiome Workshop. October 10–11, 2018 @ The Ohio State University, Columbus, Ohio.
- First Meeting of National Qualifications Frameworks for Jordanian Higher Education. March 22, 2017 @ Prince Sumaya University for Technology, Amman, Jordan.
- Opening up Education in South-Mediterranean Countries (OpenMed). February 23, 2017 @ Prince Sumaya University for Technology, Amman, Jordan.
- Workshop on Designing Academic Programs, Delivery Mechanisms and Evaluation. November 20–21, 2016 @ The Association of Arab Universities, Amman, Jordan.
- Workshop on Learning Outcomes within Professional Higher Education. November 14–15, 2016 @ The University of Jordan, Amman, Jordan.
- International Day for the Total Elimination of Nuclear Weapons. September 27, 2016 @ The University of Jordan, Amman, Jordan.
- Workshop on Teaching & Developing a Confident Work Environment. September 2013 @ University of Jordan, Amman, Jordan.

- The Essentials of Teaching and Learning Workshop. August 2012 @ University of Colorado Denver, Colorado.
- Adv. in Scientific Computing, Imaging Sc. & Optimization. April 2012 @ University of California Los Angeles, California.
- Mathematical Modeling in Industry XV, A 10–day Workshop for PhD Students. August 2011 @ University of Minnesota in IMA, Minneapolis, Minnesota.
- A graduate level workshop titled "Operations research in sport". April 2011 @ University of Nottingham, United Kingdom.
- A PhD level workshop on stochastic programming. August 2010 @ Dalhousie University, Nova Scotia, Canada.
- A School on Continuous Optimization for young researchers. July 2010 @ Universidad de Chile, Santiago, Chile.

Graduate Student Advisees

- **Former Ph.D. Students:**
  1. Lilia Benakkouche (PhD 2023, Current position: Asst. Professor at L'Université M'Hamed Bougara de Boumerdès, Algeria). Dissertation title: *On Optimization Problems Over Nonconvex Cones*.
  2. Karima Tamssaouete (PhD 2023, Current position: Asst. Professor at L'Université M'Hamed Bougara de Boumerdès, Algeria). Dissertation title: *On Optimization Problems Over Convex Cones*.
  3. Hadjer Alioui (PhD 2023, Current position: Asst. Professor at L'Université M'Hamed Bougara de Boumerdès, Algeria). Dissertation title: *On Continuous and Mixed-Integer Optimization Under Uncertainty*.
  4. Amira Achouak Oulha (PhD 2023, Current position: Asst. Professor at University of Bachir El Ibrahimi, Bordj Bou Arreridj, Algeria). Dissertation title: *Infinite-Dimensional Quadratic and Convex Optimization Under Uncertainty*.
  5. Asma Gafour (PhD 2022, Current position: Asst. Professor at Université Djillali Liabès de Sidi Bel Abbès, Algeria). Dissertation title: *Stochastic Nonlinear Conic Optimization*.
  6. Mohammed Abdelhadi (PhD 2018, Current position: Asst. Professor at Al-Balqa' Applied University, Jordan). Dissertation title: *Optimization Over Nonsymmetric Cones Under Uncertainty*.

- **Former Master Students**:
  7. Arwa Jebrel (MSc 2017, Current position: Math Teacher at Ministry of Education in Jordan).
  8. Khaled Badarneh (MSc 2016, Current position: Math Teacher at Ministry of Education in Jordan).

Committee Memberships in the University of Jordan

- **At Departmental Level:**
  - Chair of the Graduate Studies Committee in Mathematics Department, 2016/2017, 2017/2018.
  - Chair of the Doctoral Qualifying Exam Committee, 2016/2017, 2017/2018.
  - Chair of the Departmental Website Committee, 2022/2023.
  - Member of the Departmental Social Committee, 2017/2018.
  - Member of the Scientific Research Committee, 2014/2015, 2015/2016, 2022/2023.
  - Member of the Study Plan Committee, 2014/2015, 2015/2016.
  - Member of the Conference Committee, 2015/2016.
  - Member of the the the Screening/Interviewing Committee for Math Position, 2014/2015.
  - Member of the Student Union Election Committee, 2012/2013 and 2013/2014.

- **At College Level:**
  - Member of the Graduate Studies Committee in the College of Science, 2016/2017, 2017/2018.
  - Member of the Curriculum Committee in the College of Science, 22016/2017, 2017/2018.
  - Member of the Planning, Design, and Construction Committee for a New Mathematics Building, 2015/2016.
  - Member of the College's Safety and Emergency Response Committee, 2014/2015.
  - Member of the Social and Sport Committee, 2015/2016.

- **At University Level:**
  - Member of the Committee for Conversion of CGPA into equivalent 4.0-scale University letter grades for the purpose of admission to graduate programs, May 2017–Aug. 2018.
  - Member of the Committee for Quality Assurance and Development Affairs in the School of Science, Nov. 2016–Aug. 2018.

Teaching Experience

Since 2007, I have taught mathematics courses at nine academic institutions in Jordan, Ohio, Washington, Wisconsin, Colorado, and Saudi Arabia. This gave me a great opportunity to work with students of different backgrounds, different cultures, different language skills, etc. Below is a list of courses that I have taught. Responsibilities in all of these course included all aspects of teaching the course, including developing course materials/syllabus, creating specific assignments, preparing slide lectures, writing and administering exams, performing classroom instruction, lecturing, and grading. In addition, we also include the courses' webpages in which you will find information and material related to each course such as course description, detailed course syllabus, textbook, references, selected lecture slides, sample exams with keys, homework assignments with solutions, handouts, etc. My teaching page is here: *http://sites.ju.edu.jo/sites/alzalg/pages/teaching*

Institution and Location	Courses Taught	Semesters
The University of Jordan Amman, Jordan	0301973: Integer & Comb. Optimization (Graduate)	Spring 2018
	0301972: Modern Convex Optimization (Graduate)	Fall 2017
	0301981: Special Topics in Mathematics (Graduate)	Spring 2017
	0301771: Nonlinear Optimization (Graduate)	Summer 2023
	0301472: Numerical Methods (U-Graduate)	Multiple
	0301471: Methods in Applied Math (U-Graduate)	Multiple
	0301371: Linear Optimization (U-Graduate)	Multiple
	0331301: Advanced Calculus (U-Graduate)	Fall 2022
	0301241: Linear Algebra I (U-Graduate)	Fall 2022
	0301221: Ordinary Differential Eqs I (U-Graduate)	Multiple
	0301212: Real Analysis (U-Graduate)	Fall 2015
	0301302: Engineering Math II (U-Graduate)	Multiple
	0301202: Engineering Math I (U-Graduate)	Multiple
	0301102: Calculus II (U-Graduate)	Multiple
	0301101: Calculus I (U-Graduate)	Multiple
The Ohio State University Columbus, OH, USA	CSE 5032: Foundations I–Discrete Structures (Graduate)	SP21, SP22
	CSE 2321: Foundations I–Discrete Structures (U-Graduate)	AU19, AU21
University of Colorado Denver, CO, USA	MATH 3301: Intro to Operations Research I (U-Graduate)	Fall 2012
	MATH 2411: Calculus II (U-Graduate)	Fall 2012
Washington State University Pullman, WA, USA	MATH 201: Finite Mathematics for Business (U-Graduate)	Sum. 2010
	MATH 140: Mathematics for Life Scientists (U-Graduate)	Spring 2010
University of Wisconsin Milwaukee, WI, USA	MATH 231: Calculus & Analytic Geometry (U-Graduate)	Fall 2009
University of Tabuk Tabuk, KSA	MATH 241: Linear Algebra (U-Graduate)	Spring 2015
	MATH 204: Differential Equations (U-Graduate)	Spring 2015
Princess Sumaya Univ. Tech. Amman, Jordan	MATH 102: Calculus II (U-Graduate)	Sum. 2013
Yarmouk University Irbid, Jordan	MATH 102: Calculus II (U-Graduate)	Fall 2008
	MATH 101: Calculus I (U-Graduate)	Sum. 2008
Jordan Univ. of Science Tech. Irbid, Jordan	MATH 102: Calculus II (U-Graduate)	Spring 2008
	MATH 101: Calculus I (U-Graduate)	Fall 2007

Research Profiles at Academic Networks and Universal Identifiers

- **On Scopus**: *http://www.scopus.com/authid/detail.url?authorId=55053569300*
- **On Google Scholar**: *http://scholar.google.com/citations?user=ij9bAXYAAAAJ*
- **On Research Gate**: *https://www.researchgate.net/profile/Baha_Alzalg3*
- **On MathSciNet**: *https://mathscinet.ams.org/mathscinet/MRAuthorID/984491*
- **On ORCID**: *https://orcid.org/0000-0002-1839-8083*
- **On Publons**: *https://publons.com/researcher/2271757/baha-alzalg*
- **On Kudos**:*https://www.growkudos.com/profile/baha_alzalg*

Professional Activities

- **Wiley Book Proposal Reviewer:** I served as a reviewer for a proposal for a new book titled *Methodology and Techniques for Modelling in Mathematical Programming* at Wiley.

- **Journal Peer Reviewer:** I have served as a peer reviewer for many international journals:
  - Mathematical Reviews (MathSciNet, American Mathematical Society).
  - Journal of Optimization Theory and Applications (Springer).
  - Journal of Global Optimization (Springer).
  - Optimization Methods and Software (Taylor & Francis).
  - Optimization and Engineering (Springer).
  - Optimization Letters (Springer).
  - EURO Journal on Computational Optimization (Elsevier).
  - IEEE Access (Institute of Electrical and Electronics Engineers).
  - Journal of Computational and Applied Mathematics (Elsevier).
  - International Journal of Applied and Computational Mathematics (Springer).
  - Journal of Supercomputing (Springer).
  - Arabian Journal of Mathematics (Springer).
  - FILOMAT (Publisher: Universitet of Nis).
  - Special Matrices (Publisher: De Gruyter Open Ltd.).

- **Consultant in Designing Academic Programs:** I hold a professional certificate, as a consultant, from the Association of Arab Universities in designing academic programs.

- **Session Chair:** I organized a session and delivered invited presentations for the Stochastic Programming area of Optimization Society at the 2011 INFORMS Annual Meeting, 13–16 Nov. 2011, Charlotte, NC.

- **Conferences Committee Member:** Member of the organizing committee for:
  - Global Conference on Artificial Intelligence and Big Data, 25-26 June 2020, Chicago, IL, USA.
  - The Int'l Conference on Fractional Differentiation and its Applications, 16-18 July 2018, Jordan.

- **Advisory Committee Member and External Examiner**: Served as a committee member and an external examiner in some M.Sc. thesis defenses at University of Jordan and some other Jordanian universities.

Honors And Awards

- **A One-Year Scientific Visit Award to RIT**; funded by the University of Jordan, Amman (2018/2019).
- **Sidney G. and Evelyn Hacker Graduate Research Award**; a competitive award given each year to one individual in honor of his exceptional research contribution, Washington State University (2011).
- **Chancellor's graduate students award**; a competitive award given based on application to recruit and retain the "best and the brightest" graduate students, University of Wisconsin—Milwaukee (2009).
- **First class honors in Mathematics**, M.Sc. degree, Yarmouk University, Irbid, Jordan (2007).
- **Dean's list of excellence for Outstanding Academic Records**, Yarmouk University, Jordan (2003–2005).
- **Royal Hashemite Diwan Scholarship**, B.Sc. degree, Yarmouk University, Jordan (2001–2005).

- **Other Awards:**

- **Postdoctoral Scholarship in Optimization**; funded by Army Research Lab and BBN Technologies, the University of California, Davis (2012).
- **Research assistantship with full tuition waiver and stipend**; supported by my advisor's grant comes from the United States Army Research Office under Award W911NF-08-1-0530 (2010–2011).

○ **Teaching assistantship with full tuition waiver and stipend**; awarded by Mathematics Department at Washington State University (2009).
○ **Many travel and accommodation awards**; to present papers in international conferences and workshops.

FUNDED RESEARCH PROJECTS

- **Interior-point methods for stochastic nonsymmetric optimization** (PI: Baha Alzalg); JOD 7200. Funded by Deanship of Scientific Research at Univ. of Jordan (Award No. 2017-2016/34). Apr. 2017 – May 2018.
- **Optimizing power generation and delivery in smart electrical grids** (PI: Chai Wu, IBM Research). IMA, University of Minnesota, 8/2011. Project description available at: ima.umn.edu/2010-2011/MM8.3-12.11.

CURRENT AND PAST ASSOCIATION MEMBERSHIPS

- Mathematical Optimization Society.
- American Mathematical Society.
- Society for Industrial and Applied Mathematics (SIAM) [Activity groups: Optimization, Computation].
- Mathematical Association of America.
- Institute of Operations Research and the Management Sciences (INFORMS).
- The Operational Research Sociaty.
- American Society for Engineering Education.
- New York Academy of Sciences.
- Association for Computing Machinery.
- Jordan Society for Scientific Research.
- Jordan Computer Society.
- The Jordanian Society for Desertification Control and Badia Development.
- Jordanian Society for Sensory Evaluation of Food.
- Jordanian society For Organic Farming.

COMPUTER SKILLS

- Experience with Modelling/Optimization/Simulation software such as AMPL, CPLEX, MOSEK, SDPT3.
- Comfortable with C, C++, MATLAB, MAPLE.
- Familiarity with Unix/Linux,Windows, LaTeX.
- Experience with HTML programming and web designing.

REFERENCES

References are available upon request.