

# Curriculum Vitae



Baha Alzalg, PhD  
Chairman and Associate Professor  
Department of Mathematics | The University of Jordan

*Last update: September 09, 2016*

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## **I. PERSONAL AND CONTACT INFORMATION**

- FULL NAME: Baha Mahmoud Nahar Alzalg.
- CITIZENSHIP: Jordanian.
- PLACE AND YEAR OF BIRTH: Ajloun – Jordan, 1982.
- GENDER AND MARITAL STATUS: Male, Married with one daughter.
- WORK PHONE: 00962-6-5355000 Ext. 22100 or 22089. FAX: 00962-6-5348932.
- EMAIL: b.alzalg@ju.edu.jo , or baha2math@gmail.com
- PERSONAL WEBSITE: <https://sites.ju.edu.jo/sites/alzalg>
- WORK ADDRESS: Mathematics Building (Rooms 201 & 317),  
Department of Mathematics, The University of Jordan, Amman 11942, Jordan.
- HOME ADDRESS: Faculty Housing, The University of Jordan, Amman 11942, Jordan.

## **II. EDUCATIONAL BACKGROUND**

- 2011: Ph.D. in Mathematics, Washington State University, Pullman, Washington, USA.  
Specialization: Optimization. Advisor: Prof. K. A. Ariyawansa.  
Dissertation title: Optimization over symmetric cones under uncertainty.
- 2007: M.Sc. in Mathematics, Yarmouk University, Irbid, Jordan.  
Specialization: Fuzzy Logic. Advisor: Dr. Mohammad Shakhatreh.  
Thesis title: Fuzzy logic and its applications.
- 2005: B.Sc. in Mathematics, Yarmouk University, Irbid, Jordan.

## **III. ADMINISTRATIVE POSITIONS**

- Chairman, Department of Mathematics <sup>1</sup>, School of Science, the University of Jordan,  
Sept. 2016 – present.
- Representative of the Department of Mathematics to the School of Science Board, the  
University of Jordan, Sept. 2013 – Sept. 2014.

<sup>1</sup>The Department of Mathematics at the University of Jordan is the oldest and biggest math department in the state of "Jordan" and is the only department offering a Ph.D. degree in Mathematics among all other math departments in Jordan, this in addition to B.Sc. & M.Sc. degrees in Mathematics. There are 37 full-time faculty members in the department (16 Full Professors, 10 Associate Professors, 6 Assistant Professors and 5 Instructors) specialized in the different areas of Mathematics and Statistics and have done their graduate studies in well reputed universities.

**IV. ACADEMIC POSITIONS**

- Associate Professor, Dept of Mathematics, The University of Jordan, Sept. 2016 – present.
- Assistant Professor, Dept of Mathematics, University of Jordan, Sept. 2012 – Sept. 2016.
- Research Assistant Professor, Dept of Mathematical Sciences, University of Colorado, Denver, CO, Fall 2012.
- Postdoctoral Research Associate, Dept of Electrical and Computer Engineering, Univ. of California, Davis, CA, 2011/2012.
- Research and Teaching Assistant, Dept of Math., Washington State University, 2010/2011.
- Teaching Assistant, Dept of Math., University of Wisconsin, Milwaukee, WI, Fall 2009.

**V. RESEARCH INTERESTS****Main Interests**

Convex optimization  
 Interior point methods  
 Stochastic conic optimization  
 Second-order cone programming  
 Semidefinite optimization  
 Large-scale optimization

**Other Interests**

Mathematical modeling  
 Graph theory (Ramsey number)  
 Network Topology  
 Combinatorial mathematics  
 Numerical methods for fractional ODEs  
 Cyber security

**VI. PUBLICATIONS**

- Refereed Journal Publications<sup>2</sup>:

1. **Baha Alzalg.** The Jordan algebraic structure of the circular cone. To appear in *Operators and Matrices* **ISI (IF: 0.583)**.
2. **Baha Alzalg.** Volumetric barrier decomposition algorithms for stochastic quadratic second-order cone programming. *Applied Mathematics & Computation*. 256, 494–508 (2015) **ISI (IF: 1.600)**.
3. **Baha Alzalg.** Homogeneous self-dual algorithms for stochastic second-order cone

<sup>2</sup>ISI means that the journal is listed in Thomson Reuters ISI Web of Knowledge, and the Acronym IF stands for the impact factor for the journal according to the most recent released journal ISI citation report.

- programming. *Journal of Optimization Theory & Applications* 163(1), 148–164 (2014) **ISI (IF: 1.509)**.
4. **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 (2014) **ISI (IF: 1.119)**.
  5. **Baha Alzalg**. The algebraic structure of the arbitrary-order cone. *Journal of Optimization Theory & Applications*. 169(1), 32–49 (2016) **ISI (IF: 1.509)**.
  6. **Baha Alzalg**. Decomposition-based interior point methods for stochastic quadratic second-order cone programming. *Applied Mathematics & Computation*. 249, 1–18 (2014) **ISI (IF: 1.600)**.
  7. **Baha Alzalg**. Stochastic second-order cone programming: Application models. *Applied Mathematical Modelling* 36, 5122–5134 (2012) **ISI (IF: 2.158)**.
  8. **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).
  9. 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)*. Article in Press. **ISI (IF: 0.34)**.
  10. Anwar Zeb, Gul Zaman, Vedat Erturk, **Baha Alzalg**, Faisal Yousafzai, Madad Khan. Approximating a giving up smoking dynamic on adolescent nicotine dependence in fractional order. *PLOS ONE*. Article in Press. doi:10.1371/journal.pone.0103617. **ISI (IF: 3.234)**.
  11. 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) **ISI (IF: 0.355)**.
  12. M. Jaradat, **Baha Alzalg**. The cycle-complete graph Ramsey number  $r(C_8, K_8)$ . *SUT Journal of Mathematics* 43(1), 85–98 (2007) **ISI (IF: 0.355)**.

13. 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).

□ Conference Publications:

1. **Baha Alzalg**. Optimal search in a multi-component hypothesis testing. *Proc. 3rd Annual Int. Conf. Oper. Res. Stat.* 115–121 (2013).
2. **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).
3. **Baha Alzalg**, K. A. Ariyawansa. Stochastic mixed integer second-order cone programming: A new modeling tool for stochastic mixed integer optimization. *Proc. Int. Conf. Scientific Computing.* 315–321 (2011).

## VII. CONFERENCE PRESENTATIONS

- *The circular cone: A new paradigm for symmetric cones*, 17–20, December, 2015.  
Presentation at the 5th Int'l Conf. Matrix Analysis and Appl., **Fort Lauderdale, Florida**.
- *Stochastic second-order cone programming: Applications and algorithms*, 20–22 April 2015.  
Presentation at the Operational Research Practice in Africa Conf., **Algiers, Algeria**.
- *Optimal search in a multi-component hypothesis testing*, 22–24 April 2013.  
Presentation at the Annual Int'l Conf. Operations Research and Statistics, **Singapore**.
- *A comp. analysis of the optimal power flow problem*, 20–23 May 2012.  
Presentation at the IEEE Int'l Symp. on Circuits and Systems, **Seoul, South Korea**.
- *On recent trends in stochastic conic optim.*, 13–16 Nov. 2011.  
Presentation at the 2011 INFORMS Ann. Meeting (Invited), **Charlotte, North Carolina**.
- *The Optimal power flow prob.: Network topology*, 7–12 Aug. 2011.  
Presentation on Mathematical Modeling in Industry XV, IMA, **Minneapolis, Minnesota**.
- *Stochastic symmetric programs over integers*, 18–21 July 2011.  
Presentation at the 2011 Int'l Conf. on Scientific Comp. (Invited), **Las Vegas, Nevada**.
- *Chance-Constrained Second-Order Cone Programming*, 4–7 April 2011.

Presentation at the Young Operational Research Conference, **Nottingham, England.**

- *Stochastic Mixed Integer Second-Order Cone Prog.*, 3–6 Jan. 2011.

Presentation at the 2nd Int'l Conf. on Numerical Analysis and Optim., **Muscat, Oman.**

- *Stochastic Second-Order Cone Prog.: A Def.*, 16–20 Aug. 2010.

Presentation at the 12th Int'l Conference on Stochastic Programming, **Halifax, Canada.**

- *An Introduction to Stochastic Semidefinite Programs*, 26–29 July 2010.

Presentation at the Int'l Conference on Continuous Optimization. **Santiago, Chile.**

### VIII. PRESENTATIONS IN SEMINARS

- *Stochastic Symmetric Programming*, 1 June 2015.

Seminar & Workshop on Applied Math, Univ. of Tabouk (Invited), **Tabuk, KSA.**

- *Some Applications of Stochastic Conic Programs*, 12 December 2012.

Mathematics Seminar, University of Jordan (Invited), **Amman, Jordan.**

- *An Introduction to Stochastic Conic Programs*, 25 September 2012.

OR Seminar, University of Colorado Denver (Invited), **Denver, Colorado.**

- *On Cycle-Complete graphs Ramsey Numbers*, 9 September 2011.

UC Davis Electrical Engineering Seminar (Invited), **Davis, California.**

- *Stochastic Symmetric Optimization*, 1 September 2011.

OR Seminar, Naval Postgraduate School (Invited), **Monterey, California.**

- *The Optimal power flow problem: Contingency constraints*, 8 August 2011.

Mathematical Modeling in Industry XV, IMA, **Minneapolis, Minnesota.**

- *From Linear Programming to Multi-Order Cone Programming*, 24 February 2011.

WSU Mathematics Colloquium, **Pullman, Washington.**

### IX. TEACHING EXPERIENCE

I began teaching in 2007 for students of diverse backgrounds of many undergraduate courses in Mathematics and Engineering at 7 academic institutions in Wisconsin, Washington, Colorado, KSA, and currently in Jordan. Responsibilities included all aspects of teaching the course, including developing course materials/syllabus, creating specific as-

signments, preparing slide lectures, writing and administering exams, performing classroom instruction, lecturing, and grading. Below is a list of courses that I have taught. English is the language of instruction at all the schools listed below.

INSTITUTION AND LOCATION	COURSES TAUGHT	SEMESTER
<b>AT ARABIAN UNIVERSITIES:</b>		
The University of Jordan Amman, Jordan	Math 0301472: Numerical Methods	First 2015/2016
	Math 0301371: Linear Programming	Second 2013/2014
	Math 0301302: Engineering Mathematics II	First 2014/2015
	Math 0301221: Ordinary Differential Equations I	Second 2013/2014
	Math 0301212: Real Analysis	First 2015/2016
	Math 0301202: Engineering Mathematics I	First 2013/2014
	Math 0301102: Calculus II	Summ. 2012/2013
University of Tabuk Tabuk, KSA	Math 241: Linear Algebra	Second 2014/2015
	Math 204: Differential Equations	Second 2014/2015
Yarmouk University Irbid, Jordan	Math 102: Calculus II	First 2008/2009
	Math 101: Calculus I	Summ. 2007/2008
Jordan Univ. of Science and Tech Irbid, Jordan	Math 102: Calculus II	Second 2007/2008
	Math 101: Calculus I	First 2008/2007
<b>AT AMERICAN UNIVERSITIES:</b>		
University of Colorado Denver, CO	Math 3301: Intro to Operations Research I	First 2012/2013
	Math 2411: Calculus II	First 2012/2013
Washington State University Pullman, WA	Math 201: Finite Mathematics for Business	Summ. 2009/2010
	Math 140: Mathematics for Life Scientists	Second 2009/2010
University of Wisconsin Milwaukee, WI	Math 231: Calculus and Analytic Geometry	First 2008/2009

## IX. HONORS AND AWARDS

- Listed in *Who's Who in Sciences Higher Education*, AcademicKeys (2013).
- **Sidney G. and Evelyn Hacker Graduate Research Award**; a highly 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, Irbid, Jordan (2003–2005).
- **Royal Hashemite Diwan Scholarship,** B.Sc. degree, Yarmouk University, Jordan (2001–2005).
- **Postdoctoral Scholarship in Electrical Engineering;** 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–present).
- **Three teaching assistantships with tuition waiver and stipend;** awarded by Washington State University (Spring 2010, Summer 2010), University of Wisconsin—Milwaukee (Fall 2009), and Yarmouk University (2005–2007).
- **Upwards of 12 travel and accommodation awards;** to present papers in international conferences and workshops in North America and overseas. These awards have been awarded by the following institutions: University of Jordan, Washington State University, US Department of Defense (Army Research office), Sultan Qaboos University, University of Minnesota (Institute for Mathematics and its Applications), Naval Postgraduate School, University of California at Davis, and University of California at LA.

#### X. WORKSHOPS AND SUMMER SCHOOLS

- Workshop on Teaching & Developing a Confident Work Environment.  
September 2013 @ University of Jordan in Amman, Jordan.
- The Essentials of Teaching.

August 2012 @ University of Colorado Denver in Denver, Colorado.

- Adv. in Scientific Computing, Imaging Sc. & Optimization.

April 2012 @ University of California Los Angeles in Los Angeles, California.

- Math. 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 in Nottingham, United Kingdom.

- A PhD level workshop on stochastic programming.

August 2010 @ Dalhousie University in Nova Scotia, Canada.

- A School on Continuous Optimization for young researchers.

July 2010 @ Universidad de Chile in Santiago, Chile.

## XI. RESEARCH PROJECTS

- **Optimizing power generation and delivery in smart electrical grids** (led by Chai Wu, IBM Research), Institute for Mathematics and its Applications, August 3–12, 2011 (participants selected based on application) Project description available at: [www.ima.umn.edu/2010-2011/MM8.3-12.11/abstracts](http://www.ima.umn.edu/2010-2011/MM8.3-12.11/abstracts).
- **A new definition for fractional derivative** (led by Baha Alzalg), Tabuk University, Spring 2015 (participants are undergraduate math students).

## XII. GRADUATE STUDENT ADVISEES

- Khaled Badarneh (Master Student, University of Jordan, August 2015 – August 2016).
- Arwa Jebrel (Master Student, University of Jordan, August 2015 – present).

## XIII. PROFESSIONAL ACTIVITIES

### □ Editorial Board Membership:

I am an editorial board member of two international journals, namely:

1. International Journal of Applied & Experimental Mathematics.
2. International Journal of Business Analytics.

**□ Journal Peer Reviewer:**

I have served as a peer reviewer to some international journals, namely:

1. Mathematical Reviews (MathSciNet), American Mathematical Society.
2. Journal of Optimization Theory and Applications, Springer.
3. Journal of Computational and Applied Mathematics, Elsevier.
4. Journal of Supercomputing, Springer.
5. Arabian Journal of Mathematics, Springer.
6. Applied Mathematics & Information Sciences.

**□ Session Chair:**

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

**XIV. COMMITTEE MEMBERSHIPS IN THE UNIVERSITY OF JORDAN****□ At Faculty Level:**

- 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 Departmental Level:**

- Member of the Scientific Research Committee, 2014/2015, 2015/2016.
- Member of the Study Plan Committee, 2014/2015, 2015/2016.
- Member of the Conference Committee, 2015/2016.
- Member of the the Screening/Interviewing Committee for Math Position, 2014/2015.
- Member of the Student Union Election Committee, 2012/2013 and 2013/2014.

**XV. CURRENT AND PAST ASSOCIATION MEMBERSHIPS**

- Mathematical Optimization Society.
- American Mathematical Society.

- The Operational Research Society.
- Mathematical Association of America.
- New York Academy of Sciences.
- Institute of Operations Research and the Management Sciences (INFORMS).
- Society for Industrial and Applied Mathematics (SIAM).
- Association for Computing Machinery.
- Jordan Society for Scientific Research.
- Jordan Computer Society.
- Jordanian Society for Sensory Evaluation of Food.
- Jordanian society For Organic Farming.

#### **XVII. GOVERNMENTAL VISITS**

I conducted several governmental visits to the Kingdom of Saudi Arabia in the second semester of the academic year 2014/2015 and particularly to the University of Tabuk based on agreement between it and the University of Jordan for the purpose of improving, supporting and upgrading different aspects of the quality of work (especially teaching and research) in Mathematics Department at University of Tabuk.

#### **XVIII. PUBLICATION CITATION SUMMARY**

❑ **On Scopus:** Total Citations: 16. h-index: 2.

*Scopus profile:* <http://www.scopus.com/authid/detail.url?authorId=55053569300>

❑ **On Google Scholar:** Total Citations: 51. h-index: 4.

*Google scholar profile:* <http://scholar.google.com/citations?user=ij9bAXYAAAAJ>

❑ **On Research Gate:** RG Score: 14.20. Impact Points: 11.56.

*Research gate profile:* [https://www.researchgate.net/profile/Baha\\_Alzalg3](https://www.researchgate.net/profile/Baha_Alzalg3)

#### **XIX. COMPUTER SKILLS**

- Comfortable with C, C++, MATLAB, MAPLE, AMPL.
- Familiarity with Unix/Linux, Windows, L<sup>A</sup>T<sub>E</sub>X.
- Professionalism in HTML programming and web designing.

**XX. REFERENCES**

*References are available upon request.*