

Curriculum Vita
Hadi El-Amine

Department of Systems Engineering and Operations Research
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APPOINTMENTS:

Assistant Professor *August 2016 - Present*
George Mason University, Department of Systems Engineering and Operations Research.

Visiting Scholar *Summers 2018, 2019*
American University of Beirut, Department of Industrial Engineering and Management.

EDUCATION:

Ph.D. in Industrial and Systems Engineering *May 2016*
Virginia Tech, Grado Department of Industrial and Systems Engineering.
Concentration: Operations Research.
Dissertation title: Robust Post-donation Blood Screening under Limited Information (advisors: Profs. Ebru K. Bish and Douglas R. Bish.)

M.Sc. in Engineering Management *February 2012*
American University of Beirut, Engineering Management Program.
Concentration: Financial Engineering.

B.Sc. in Electrical and Computer Engineering *February 2009*
American University of Beirut, Department of Electrical and Computer Engineering.

RESEARCH INTERESTS:

Stochastic modeling and optimization with applications in public policy and medical decision-making, healthcare operations, in addition to military operations

PUBLICATIONS: (* indicates a student)

REFEREED JOURNAL PAPERS:

1. Perry, M.* and **H. El-Amine**. Computational efficiency in multivariate adversarial risk analysis models. To appear in **Decision Analysis**.
2. **El-Amine, H.**, E.K. Bish, and D.R. Bish (2018). Robust post-donation blood screening under prevalence rate uncertainty. **Operations Research**, 66(1).
3. **El-Amine, H.**, E.K. Bish, D.R. Bish (2017). Optimal post-donation nucleic acid testing of donated blood considering viral load growth curves and donor characteristics. **IIE Transactions on Healthcare Systems Engineering**, 7(1), 15-29.

4. Bish, E.K., E.D. Moritz, **H. El-Amine**, D.R. Bish, and S.L. Stramer (2015). Cost-effectiveness of Babesia microti antibody and nucleic acid blood donation screening using results from prospective investigational studies. **Transfusion**, 55(9), 2256-2271.
5. Bish, E.K., E.D. Moritz, **H. El-Amine**, D.R. Bish, and S.L. Stramer (2015). Cost-effectiveness of a Babesia microti blood donation intervention based on real-time prospective screening in endemic areas of the United States. **Transfusion**, 56(3), 775-777.
6. Bish, E.K., **H. El-Amine**, L.A. Steighner, and A.D. Slonim (2014). A socio-technical, probabilistic risk assessment model for surgical site infections in ambulatory surgery centers. **Infection Control and Hospital Epidemiology**, 35(S3), S133-S141.
7. Artail, H., **H. El-Amine**, and F. Sakkal (2008). SQL query space and time complexity estimation for multidimensional queries. **International Journal of Intelligent Information and Database Systems**, 2(4), 460-480.

BOOK CHAPTERS:

1. Bish, E.K., **H. El-Amine**, D.R. Bish, S.L. Stramer, and A.D. Slonim. Optimal selection of assays for detecting infectious agents in donated blood. Forthcoming as a book chapter in **Disease Prevention and Treatment**, Eds. N. Kong and S. Zhang, Wiley.

PAPERS IN PREPARATION/UNDER REVISION:

1. Aprahamian H. and **H. El-Amine**. Optimal test selection for the screening of heterogeneous populations. Under second round of revision with **INFORMS Journal on Computing**.
2. Park, J.*, **H. El-Amine**, and N. Mutlu. An exact algorithm for large-scale continuous nonlinear resource allocation problems with minimax regret objectives. Under review with **INFORMS Journal on Computing**.
3. Aprahamian H. and **H. El-Amine**. Optimal clustering of frequency data with application to disease risk categorization. Under review with **Operations Research**.
4. **El-Amine, H.** and H. Aprahamian, On the existence of optimal consecutive partitions with no empty sets in the bivariate set partitioning problem. Under review with **Operations Research**.
5. Mutlu, N., **H. El-Amine**, and O. Sahin. Experiential retailing and pricing mechanisms. To be submitted to **Management Science**.
6. Aprahamian H. and **H. El-Amine**. High performance heuristic solutions for a class of multivariate set partitioning problems with an application to the classification of heterogeneous populations for multiple binary attributes. To be submitted to **INFORMS Journal on Computing**.
7. Shams Eddin, M.*, **H. El-Amine** and H. Aprahamian. Robust multi-period group testing.

8. Park, J.* and **H. El-Amine**. Robust weapon assignment problem under target information uncertainty.
9. **El-Amine, H.** and M. Perry*. The impact of imperfect testing on the design of personalized treatment strategies.
10. **El-Amine, H.** and V. Sokolov. Deep branch and bound.
11. **El-Amine, H.**, L. Schultz, and V. Sokolov. Optimal design of computational graph models.
12. **El-Amine, H.** , B. Maddah, and W. Nasr. Cycle stealing and truncation for reducing delay in heavy-tailed queues.

AWARDS AND HONORS:

IISE Pritsker Doctoral Dissertation Award (2nd place) *May 2017*

INFORMS Bonder Scholar for Applied Operations Research in Health Services
August 2015 - August 2016

Awarded based on excellence, innovation, preparation, and likelihood of successfully contributing to the field of applied Operations Research in healthcare systems.

INFORMS Pierskalla Award *October 2015*

Finalist for the paper:

El-Amine, H., E.K. Bish, and D.R. Bish (2014). Robust post-donation blood screening under prevalence rate uncertainty. Forthcoming, **Operations Research**.

Grado GTA for the 2015-2016 Academic Year *August 2015 - May 2016*

Awarded based on excellent performance in academic work, teaching, and GTA duties in the Ph.D program in the Grado Department of Industrial and Systems Engineering at Virginia Tech.

Distinguished Young Alumnus Award *December 2015*

Awarded by the Faculty of Engineering and Architecture of the American University of Beirut.

INFORMS Washington D.C. Chapter Student Excellence Award *April 2014*

Finalist for the paper:

El-Amine, H., E.K. Bish, and D.R. Bish (2014). Robust post-donation blood screening under prevalence rate uncertainty. Forthcoming, **Operations Research**.

NSF Travel Grant for Health Systems Optimization Workshop *September 2014*
 Chicago, IL.

FUNDED PROPOSALS:

1. EAGER: ISN: Network analysis and opportunities for disruption of organ trafficking (2018). National Science Foundation. PI: Naoru Koizumi, Co-PIs: Guadalupe Correa-Cabrera, Monica Gentili, Monir Moniruzzaman, Amit Patel.

SUPERVISED STUDENTS:

Mehdi Nayebpour (doctoral committee member)
 Marwan Shams Eddin (doctoral advisor)
 Michael Perry (doctoral advisor)
 Junggho Park (doctoral advisor)
 Mercedeh Tariverdi (doctoral committee member)
 Denis Avila (doctoral committee member)
 Bahar Shahverdi (Master's committee member)

TALKS:

Invited seminar - University of Maryland Baltimore County, Baltimore, MD (Nov. 2019)
 Invited seminar - GMU Schar School of Policy and Government (Nov. 2019)
 Invited seminar - U.S. Naval Academy, Annapolis, MA (April 2019)
 2019 INFORMS Annual Meeting - Seattle, WA (2 invited talks)
 2018 INFORMS Annual Meeting - Phoenix, AZ (2 invited talks)
 2017 INFORMS Annual Meeting - Houston, TX (2 invited talks)
 2017 INFORMS Healthcare Conference - Rotterdam, the Netherlands (1 invited talk)
 2017 INFORMS Computing Society Conference - Austin, TX (1 invited talk)
 2016 INFORMS Annual Meeting - Nashville, TN (1 invited talk)
 2015 INFORMS Annual Meeting - Philadelphia, PA (3 invited talks)
 2015 INFORMS Healthcare Conference - Nashville, TN (1 invited talk)
 2014 INFORMS Annual Meeting - San Francisco, CA (2 invited talks)

TEACHING:

George Mason University (# students, teaching/course ratings)

MATH/OR 411 - Deterministic Operations Research (15, 4.67/4.13)	<i>Spring 2019</i>
SYST 473 - Decision and Risk Analysis (41, 4.43/4.72)	<i>Fall 2018</i>
OR 750 - Stochastic Optimization (6, 4.83/4.50)	<i>Spring 2018</i>
SYST 473 - Decision and Risk Analysis (39, 4.11/3.91)	<i>Fall 2017</i>
MATH/OR 411 - Deterministic Operations Research (24, 4.29/4.46)	<i>Spring 2017</i>
SYST 473 - Decision and Risk Analysis (60, 4.45/4.50)	<i>Fall 2016</i>

Virginia Tech

ISE 3424 - Deterministic Operations Research II	<i>Summer I 2015</i>
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PROFESSIONAL SERVICE:

University Service

Seminar Committee	<i>2016-present</i>
Graduate Curriculum Committee, MS/OR	<i>2016-present</i>

Refereeing

Omega	
Service Science	
Annals of Operations Research	
International Transactions in Operational Research	
NSF panelist	<i>2016, 2017</i>

Organized Conferences

Co-organizer of NSF conference on Disrupting Operations of Illicit Supply Network to be held in February 2019.

Technical chair for the 2018 Andrew P. Sage Memorial Systems Engineering Capstone Design Invitational Competition

Conference Session Chair

2019 INFORMS Annual Meeting
 2018 INFORMS Annual Meeting
 2017 INFORMS Annual Meeting
 2015 INFORMS Annual Meeting

PROFESSIONAL MEMBERSHIPS:

Institute for Operations Research and the Management Sciences (INFORMS)
 Health Applications Society (current secretary of the society)
 Decision Analysis Society
 Computing Society

Institute of Industrial and Systems Engineers (IISE)

OTHER RESEARCH AND TEACHING EXPERIENCES:

Research Assistant

Virginia Tech, Department of Industrial and Systems Engineering.	<i>2012 - 2016</i>
American University of Beirut, Engineering Management Program.	<i>2011 - 2012</i>
American University of Beirut Medical Center, Beirut, Lebanon.	<i>2010 - 2011</i>

Work involved the development of a simulation model for the Evidence-Based Healthcare Management Unit at the American University of Beirut Medical Center in order to minimize patient waiting time.

Teaching Assistant

Virginia Tech, Department of Industrial and Systems Engineering.	<i>2009 - 2015</i>
American University of Beirut, Engineering Management Program.	

Courses: ISE 4984 - Operations Research for Humanitarian and Public Sector Applications,
 ISE 4984 - Supply Chain and Operations Engineering,
 ISE 4424 - Logistics,
 ISE 3434 - Deterministic Operations Research II,
 ISE 3414 - Probabilistic Operations Research,
 ENMG 624 - Financial Engineering I.

DEVELOPMENT ACTIVITIES:

INFORMS Doctoral Student Colloquium *October 2015*
 Philadelphia, PA.

NVIDIA GPU Computing Workshop *August 2013*
 Virginia Tech.
 Two-day workshop on HokieSpeed (GPU-accelerated supercomputing cluster consisting of 204 compute nodes), OpenACC compiler directives, and CUDA programming.

GTA Training Workshop *August 2012*
 Virginia Tech.
 Three-day workshop on teaching, communication, and interpersonal skills.

NON-ACADEMIC EXPERIENCE:

Sales Engineer *July 2011 - July 2012*
 Beydoun Fire and Security, Beirut, Lebanon.

Design and sales of fire and security systems (addressable and conventional fire alarm systems, intrusion, CCTV, and access control systems), and queue management systems. Work included review of project specifications, design, preparation of quotations and bid documents, preparation of presentations, testing and commissioning of systems, and delivery to clients.

Electrical Engineer *March 2009 - May 2011*
 Dar Al-Handasah (Shair and partners), Beirut, Lebanon.

Worked in the design of low-voltage, medium-voltage, infrastructures, lighting, and street lighting design for projects in Lebanon, Qatar, Jordan, Nigeria, and Angola.

SKILLS:

Programming: Python, Java, C/C++, C#, VBA.

Other: Matlab, Mathematica, Mathcad, CPLEX, Gurobi, AMPL, Arena, L^AT_EX.

Languages: Fluent in English, French, and Arabic.