

**CONTACT INFORMATION** Tepper School of Business, Ph.D. Program  
Carnegie Mellon University  
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**RESEARCH INTERESTS**

My goal is to solve practical optimization problems through the development of new models and theoretical and methodological tools. For example, I am interested in:

- Building general-purpose methods for solving mixed-integer programs, with prior research focusing on cutting plane theory and implementation
- Improving applications of discrete optimization, such as within computational social choice, including optimization of organ transplants (e.g., kidney exchange) and fair division of indivisible goods
- Analyzing stochastic models to incorporate data uncertainty, particularly to understand stability of solutions with respect to perturbations in underlying data

My future research agenda includes continued work on mixed-integer linear programming, but also to:

- Enhance methodology for non-linear optimization, especially extending insights from the linear setting
- Integrate machine learning and optimization techniques to develop both novel theory and methods
- Apply optimization methodology to generate adaptive, data-driven solutions for allocating resources in humanitarian contexts and other problems related to social good

**EDUCATION**

**Carnegie Mellon University**, Tepper School of Business, Pittsburgh, PA, USA *August 2011–Present*

M.S. in Algorithms, Combinatorics, and Optimization

Candidate for Ph.D. in Algorithms, Combinatorics, and Optimization

Selected Course Work:

Linear Programming	Graduate Algorithms	Discrete Mathematics	Convex Analysis
Integer Programming	Machine Learning Theory	Performance Modeling	Real Analysis
Graph Theory	Algorithmic Game Theory	Random Graphs	Lebesgue Measure
Networks & Matchings	A Theorist's Toolkit	Mixed-Integer Nonlinear Programming	

**Cornell University**, College of Engineering, Ithaca, NY, USA

*May 2011*

B.S. in Operations Research and Engineering with Honors, *Magna Cum Laude*

Selected Course Work:

Engineering Stochastic Processes	Engineering Probability and Statistics I/II	Decision Theory
Simulation Modeling and Analysis	Heuristic Methods for Optimization	Game Theory

**PUBLICATIONS**

- [1] P.I. Frazier and A.M. Kazachkov, “Guessing Preferences: A New Approach to Multi-Attribute Ranking and Selection,” *Winter Simulation Conference*, 2011.
- [2] J. Karp, A.M. Kazachkov, and A.D. Procaccia, “Envy-Free Division of Sellable Goods,” *AAAI Conference on Artificial Intelligence*, 2014.
- [3] J.P. Dickerson, A.M. Kazachkov, A.D. Procaccia, and T. Sandholm. “Small Representations of Big Kidney Exchange Graphs,” *AAAI Conference on Artificial Intelligence*, 2017.

Also appears at:

- Workshop on AI and OR for Social Good (AIORSocGood), AAAI 2017
- Exploring Beyond the Worst Case in Computational Social Choice (EXPLORE) Workshop, AAMAS 2016

**SUBMITTED**

- [4] A.M. Kazachkov, S. Nadarajah, E. Balas, and F. Margot. “Partial Hyperplane Activation for Generalized Intersection Cuts,” under revision.

**WORKING  
PAPERS**

- [5] “ $\mathcal{V}$ -Polyhedral Cuts,” in preparation.
- [6] “Cutting Planes by Tilting,” in preparation.
- [7] “Dynamic Fair Division of Indivisible Goods,” in preparation.

**CONFERENCE  
PRESENTATIONS**

- INFORMS 2017, Invited Talk, “ $\mathcal{V}$ -Polyheral Cuts”
- NemFest 2017, Poster, “ $\mathcal{V}$ -Polyhedral Cuts”
- Aussois Combinatorial Optimization Workshop 2017, “From Final Point Cuts to  $\mathcal{V}$ -Polyhedral Cuts”
- INFORMS 2016, Invited Talk, “Final Point Generalized Intersection Cuts”
- EURO 2016, “Final Point Generalized Intersection Cuts”
- MIP 2016, Poster, “Cutting Planes by Tilting”
- IOS 2016, “Final Point Generalized Intersection Cuts”
- INFORMS 2015, Invited Talk, “Feasible Versus Infeasible Intersection Points for Cut Generation”
- ISMP 2015, “Partial Hyperplane Activation for Generalized Intersection Cuts”
- INFORMS 2014, Invited Talk, “Computational Investigation of Generalized Intersection Cuts”
- MIP 2014, Poster, “Computational Investigation of Generalized Intersection Cuts”

**TEACHING  
EXPERIENCE**

- Instructor, 70-460 Mathematical Models for Consulting, business undergraduate elective, CMU *2014*
- Teaching Assistant, CMU
  - 47-861 Convex Polyhedra, Ph.D. elective *2016*
  - 47-836 Networks and Matchings, Ph.D. core course *2015*
  - 47-830 Integer Programming, Ph.D. core course *2015, 2017*
  - 21-366 Combinatorial Optimization, mathematics undergraduate elective *2014*
  - 45-750 Probability and Statistics, MBA core course *2013*
  - 47-831 Advanced Integer Programming, Ph.D. core course *2013, 2015, 2017*
  - 47-835 Graph Theory, Ph.D. core course *2012, 2015*
- Recitation Leader, 45-751 Optimization, MBA core course, CMU *2012–2013*
- Teaching Assistant, Operations Research Core Courses, Cornell *2010*
- Facilitator, Academic Excellence Workshop for Calculus I for Engineers, Cornell *2008*

**PROFESSIONAL  
EXPERIENCE**

- Operations Research Intern** *Summer 2010*  
*ZS Associates*, Princeton, NJ, USA
  - Evaluated downsizing and restructuring a company’s sales force based on cost savings, minimizing disruption to past account relationships, and constructing a balanced and practical alignment
  - Established models for accurate, fair, and motivational sales goals for a 300 person sales force
  - Created and maintained an online portal to assist target planning by tracking account information

- IES Abroad Intern** *Spring 2009*  
*Office of International Relations*, Siena, Italy

- Translated official documents from Italian into English and Russian
- Provided guidance to foreign students and processed study abroad applications for Italian students

- Program Assistant & Resident Advisor, Internship for Building Community** *Summer 2008*  
*Columbia University*, New York, NY, USA

- Graded assignments and led class discussions as teaching assistant for two thirty-student classes
- Assisted development of student community and led trips around New York for high school students
- Oversaw and provided daily guidance for eight resident students

<b>SELECTED HONORS AND AWARDS</b>	Honorable Mention Poster Prize at the Mixed Integer Programming Workshop 2016	2016
	Most Visionary Paper Award for “Small Representations of Big Kidney Exchange Graphs” (with Dickerson, Procaccia, and Sandholm) at the EXPLORE Workshop at AAMAS 2016	2016
	Best Poster Prize at the Mixed Integer Programming Workshop 2014	2014
	Student Travel Support Award at the Mixed Integer Programming Workshop 2014	2014
	Zoltners Fellowship	2011–2013
	William Larimer Mellon Fellowship	2011–2016
	Omega Rho Honor Society	2010
	Engineering Global Fellow	2009
	Robert C. Byrd Scholarship	2007
	The New York State Society of Professional Engineers Scholarship	2007
Toshiba ExploraVision National Competition Honorable Mention	2004	

**SERVICE**

<b>General Chair:</b> YinzOR Student Conference 2017	
<b>Program Committee:</b> EXPLORE Workshop at AAMAS 2017	
<b>Reviewer:</b> Mathematical Programming Computation (2016), CPAIOR (2015)	
INFORMS Annual Meeting, Session Chair	2017
INFORMS Student Affairs Committee	2016–2018
INFORMS Chapters/Fora Committee	2016
INFORMS Subdivision Council, Student Chapter Representative	2015–2016
<ul style="list-style-type: none"> <li>• Subcommittees: Diversity (2015), INFORMS Connect (2016), Chapter Health (2016)</li> </ul>	
ISMP Conference in Pittsburgh, PA, Session Chair	2015
ISMP Conference in Pittsburgh, PA, Volunteer	2015
CMU INFORMS Student Chapter, Founder	
<ul style="list-style-type: none"> <li>• President (2014–2015), Consulting Board (2015–Present)</li> <li>• INFORMS Chapter Award: Magna Cum Laude Recognition</li> <li>• INFORMS Chapter Award: Summa Cum Laude Recognition</li> </ul>	2017 2016
Cornell Omega Rho Honor Society, President	2010–2011
Cornell Jewish-Russian Club, Treasurer	2008–2011
Net Impact Conference at Cornell University, Volunteer	2009

**OTHER**

**Technical Skills:** C++, Java, Matlab, Mathematica, Python, Excel RiskSolver, AMPL, C, R  
**Languages:** Fluent in English, native speaker in Russian, advanced in Italian, beginner in French  
**Professional Societies:** INFORMS, MOS, SIAM  
**Citizenship:** USA

**REFERENCES**

Egon Balas  
 eb17@andrew.cmu.edu

François Margot  
 fmargot11@gmail.com

Ariel Procaccia  
 arielpro@cs.cmu.edu