

# Damek Davis

## Contact

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## Interests

I am broadly interested in the mathematics of data science, particularly the interplay of optimization, signal processing, statistics, and machine learning.

## Positions

2022–	<b>Associate Professor (with tenure)</b> <i>Operations Research and Information Engineering</i>	Cornell University
2016–2022	<b>Assistant Professor</b> <i>Operations Research and Information Engineering</i>	Cornell University
Sept-Dec 2022	<b>Senior Fellow</b> <i>Program on Computational Microscopy</i>	Institute for Pure and Applied Mathematics
Aug-Oct 2017	<b>Visiting Research Scientist</b> <i>Program on Bridging Continuous and Discrete Optimization</i>	Simons Institute for the Theory of Computing
2015–2016	<b>NSF Mathematics Postdoctoral Fellow</b>	University of California, Los Angeles

## Education

2010-2015	<b>Ph.D. in Mathematics</b> Thesis: <i>On the Design and Analysis of Operator-Splitting Schemes</i> Committee: Wotao Yin (chair), Stefano Soatto (co-chair), Stan Osher, Lieven Vandenbergh	University of California, Los Angeles
2006-2010	<b>B.S. summa cum laude</b> Majoring in Mathematics	University of California, Irvine

## Honors and Awards

2023	<b>SIAM Activity Group on Optimization Best Paper Prize</b> SIAM
2020	<b>NSF CAREER Award</b> Budget: \$454,000
2020	<b>Sloan Research Fellowship in Mathematics</b> Budget: \$75,000
2019	<b>Young Researchers Prize</b> INFORMS Optimization Society
2019	<b>Finalist: Best Paper Prize for Young Researchers in Continuous Optimization (One of Four)</b> ICCOPT
2018	<b>A. W. Tucker Dissertation Prize Finalist (One of Two)</b> Mathematical Optimization Society

2015	<b>NSF Mathematics Postdoctoral Fellowship</b> Budget: \$150,000
2015	<b>Dissertation Prize</b> Pacific Journal of Mathematics
2014	<b>Student Paper Prize</b> INFORMS Optimization Society
2010	<b>NSF Graduate Research Fellowship</b> Title: <i>Generalized Washnitzer and Dagger Algebras and a More General <math>p</math>-Adic Cohomology Theory in Rigid Analysis</i>
2009	<b>Elected to Phi Beta Kappa (Junior Year)</b>

## Funding

2020	<b>NSF CAREER Award</b> Budget: \$454,000
2020	<b>Sloan Research Fellowship in Mathematics</b> Budget: \$75,000
2015	<b>NSF Mathematics Postdoctoral Fellowship</b> Budget: \$150,000

## Publications

### Preprints

- [1] *Asymptotic normality and optimality in nonsmooth stochastic approximation*  
Damek Davis, Dmitry Drusvyatskiy, and Liwei Jiang  
arXiv preprint arXiv:2301.06632 (2023) Under submission at *Annals of Statistics*.
- [2] *Computational Microscopy beyond Perfect Lenses*  
Xingyuan Lu, Minh Pham, Elisa Negrini, Damek Davis, Stanley J Osher, and Jianwei Miao  
arXiv preprint arXiv:2306.11283 (2023) Under submission at *Physical Review Letters*.
- [3] *Active manifolds, stratifications, and convergence to local minima in nonsmooth optimization*  
Damek Davis, Dmitry Drusvyatskiy, and Liwei Jiang  
arXiv preprint arXiv:2108.11832 (2022) Under submission at *Foundations of Computational Mathematics*.
- [4] *A nearly linearly convergent first-order method for nonsmooth functions with quadratic growth*  
Damek Davis and Liwei Jiang  
arXiv preprint arXiv:2205.00064 (2022) Under submission at *Foundations of Computational Mathematics*.
- [5] *Clustering a Mixture of Gaussians with Unknown Covariance*  
Damek Davis, Mateo Díaz, and Kaizheng Wang  
arXiv preprint arXiv:2110.01602 (2021) Under submission at *Bernoulli*.
- [6] *Stochastic optimization over proximally smooth sets*  
Damek Davis, Dmitry Drusvyatskiy, and Zhan Shi  
arXiv preprint arXiv:2002.06309 (2020) Under revision at *SIAM Journal on Optimization*.

### Articles in peer-reviewed journals

- [1] *A superlinearly convergent subgradient method for sharp semismooth problems*  
Vasileios Charisopoulos and Damek Davis  
Mathematics of Operations Research (2023). *INFORMS*.
- [2] *Stochastic algorithms with geometric step decay converge linearly on sharp functions*  
Damek Davis, Dmitriy Drusvyatskiy, and Vasileios Charisopoulos  
Mathematical Programming (2023).
- [3] *Escaping Strict Saddle Points of the Moreau Envelope in Nonsmooth Optimization*  
Damek Davis, Mateo Díaz, and Dmitriy Drusvyatskiy  
SIAM Journal on Optimization 32.3 (2022) pp. 1958–1983.
- [4] *Low-Rank Matrix Recovery with Composite Optimization: Good Conditioning and Rapid Convergence*  
Vasileios Charisopoulos, Yudong Chen, Damek Davis, Mateo Díaz, Lijun Ding, and Dmitriy Drusvyatskiy  
Foundations of Computational Mathematics (2021).
- [5] *Variance reduction for root-finding problems*  
Damek Davis  
Mathematical Programming Series A (2021).
- [6] *Conservative and semismooth derivatives are equivalent for semialgebraic maps*  
Damek Davis and Dmitriy Drusvyatskiy  
Set-Valued and Variational Analysis (2021) pp. 1–11. Springer.
- [7] *Proximal Methods Avoid Active Strict Saddles of Weakly Convex Functions*  
Damek Davis and Dmitriy Drusvyatskiy  
Foundations of Computational Mathematics (2021).
- [8] *From Low Probability to High Confidence in Stochastic Convex Optimization*  
Damek Davis, Dmitriy Drusvyatskiy, Lin Xiao, and Junyu Zhang  
Journal of Machine Learning Research 22.49 (2021) pp. 1–38.
- [9] *Composite optimization for robust rank one bilinear sensing*  
Vasileios Charisopoulos, Damek Davis, Mateo Díaz, and Dmitriy Drusvyatskiy  
Information and Inference: A Journal of the IMA (2020).
- [10] *Graphical convergence of subgradients in nonconvex optimization and learning*  
Damek Davis and Dmitriy Drusvyatskiy  
Mathematics of Operations Research (Learning Theory) (2020).
- [11] *The nonsmooth landscape of phase retrieval*  
Damek Davis, Dmitriy Drusvyatskiy, and Courtney Paquette  
IMA Journal of Numerical Analysis 40.4 (Jan. 2020) pp. 2652–2695.
- [12] *Stochastic model-based minimization of weakly convex functions*  
Damek Davis and Dmitriy Drusvyatskiy  
SIAM Journal on Optimization 29.1 (2019) pp. 207–239.
- [13] *Stochastic subgradient method converges on tame functions*  
Damek Davis, Dmitriy Drusvyatskiy, Sham Kakade, and Jason D Lee  
Foundations of Computational Mathematics (Jan. 2019).
- [14] *Proximally Guided Stochastic Subgradient Method for Nonsmooth, Nonconvex Problems*  
Damek Davis and Benjamin Grimmer  
SIAM Journal on Optimization 29.3 (2019) pp. 1908–1930. SIAM.
- [15] *Trimmed Statistical Estimation via Variance Reduction*  
Aleksandr Aravkin and Damek Davis  
Mathematics of Operations Research (2018).
- [16] *Forward-Backward-Half Forward Algorithm with non Self-Adjoint Linear Operators for Solving Monotone Inclusions*  
Luis M Briceño-Arias and Damek Davis  
SIAM Journal on Optimization 28.4 (2018) pp. 2839–2871.

- [17] *Subgradient methods for sharp weakly convex functions*  
 Damek Davis, Dmitriy Drusvyatskiy, Kellie J MacPhee, and Courtney Paquette  
 Journal of Optimization Theory and Applications 179.3 (2018) pp. 962–982. Springer.
- [18] *A Three-Operator Splitting Scheme and its Optimization Applications*  
 Damek Davis and Wotao Yin  
 Set-Valued and Variational Analysis 25.4 (Dec. 2017) pp. 829–858.
- [19] *Faster convergence rates of relaxed Peaceman-Rachford and ADMM under regularity assumptions.*  
 Damek Davis and Wotao Yin  
 Mathematics of Operations Research 42.3 (2017) pp. 783–805.
- [20] *Beating level-set methods for 3D seismic data interpolation: a primal-dual alternating approach*  
 Rajiv Kumar, Oscar López, Damek Davis, Aleksandr Y. Aravkin, and Felix J. Herrmann  
 IEEE Transactions on Computational Imaging (2017).
- [21] *Convergence Rate Analysis of Primal-Dual Splitting Schemes*  
 Damek Davis  
 SIAM Journal on Optimization 25.3 (2015) pp. 1912–1943.
- [22] *Convergence Rate Analysis of the Forward-Douglas-Rachford Splitting Scheme*  
 Damek Davis  
 SIAM Journal on Optimization 25.3 (2015) pp. 1760–1786.
- [23] *Tactical Scheduling for Precision Air Traffic Operations: Past Research and Current Problems*  
 Douglas R. Isaacson, Alexander V. Sadovsky, and Damek Davis  
 Journal of Aerospace Information Systems 11.4 (2014) pp. 234–257. American Institute of Aeronautics and Astronautics.
- [24] *Efficient Computation of Separation-Compliant Speed Advisories for Air Traffic Arriving in Terminal Airspace*  
 Alexander V. Sadovsky, Damek Davis, and Douglas R. Isaacson  
 Journal of Dynamic Systems, Measurement, and Control 136.4 (2014) p. 041027. American Society of Mechanical Engineers.
- [25] *Separation-compliant, optimal routing and control of scheduled arrivals in a terminal airspace*  
 Alexander V. Sadovsky, Damek Davis, and Douglas R. Isaacson  
 Transportation Research Part C: Emerging Technologies 37 (2013) pp. 157–176.
- [26] *Factorial and Noetherian subrings of power series rings*  
 Damek Davis and Daqing Wan  
 Proceedings of the American Mathematical Society 139.3 (2011) pp. 823–834.

## Articles in peer-reviewed conferences

- [1] *Aiming towards the minimizers: fast convergence of SGD for overparametrized problems*  
 Chaoyue Liu, Dmitriy Drusvyatskiy, Mikhail Belkin, Damek Davis, and Yi-An Ma  
 Neural Information Processing Systems, 2023.
- [2] *A gradient sampling method with complexity guarantees for Lipschitz functions in high and low dimensions*  
 Damek Davis, Dmitriy Drusvyatskiy, Yin Tat Lee, Swati Padmanabhan, and Guanhao Ye  
 Neural Information Processing Systems (ORAL,  $\approx$  top 1%), 2022.
- [3] *High probability guarantees for stochastic convex optimization*  
 Damek Davis and Dmitriy Drusvyatskiy  
 Proceedings of Thirty Third Conference on Learning Theory, 2020.
- [4] *Global Convergence of the EM Algorithm for Mixtures of Two Component Linear Regression*  
 Jeongyeol Kwon, Wei Qian, Constantine Caramanis, Yudong Chen, and Damek Davis

*Proceedings of the Thirty-Second Conference on Learning Theory*, 2019.

- [5] ***The Sound of APALM Clapping: Faster Nonsmooth Nonconvex Optimization with Stochastic Asynchronous PALM***  
Damek Davis, Brent Edmunds, and Madeleine Udell  
*Neural Information Processing Systems*, 2016.
- [6] ***Multi-View Feature Engineering and Learning***  
Jingming Dong, Nikolaos Karianakis, Damek Davis, Joshua Hernandez, Jonathan Balzer, and Stefano Soatto  
*The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2015.
- [7] ***Asymmetric Sparse Kernel Approximations for Large-scale Visual Search***  
Damek Davis, Jonathan Balzer, and Stefano Soatto  
*The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2014.

## Book chapters

- [1] **Convergence rate analysis of several splitting schemes**  
Damek Davis and Wotao Yin  
*Splitting Methods in Communication and Imaging*, Science and Engineering, 2016.

## Lecture notes

- [1] **Lecture Notes for Mathematical Programming I (ORIE 6300)**  
Damek Davis  
URL: <https://people.orie.cornell.edu/dsd95/ORIE6300Fall12019notes.pdf>

## Newletters

- [1] **Subgradient methods under weak convexity and tame geometry**  
Damek Davis and Dmitriy Drusvyatskiy  
*SIAG/OPT Views and News vol. 28.1 (2020) pp. 1–10.*  
URL: <https://people.orie.cornell.edu/dsd95/ViewsAndNews-28-1.pdf>
- [2] **Convergence Rate Analysis of Several Splitting Schemes**  
Damek Davis  
*INFORMS OS Today vol. 5.1 (2015) pp. 20–25.*  
URL: <https://people.orie.cornell.edu/dsd95/OStoday0515.pdf>

## Invited Talks

- |               |   |                            |
|---------------|---|----------------------------|
| November 2023 | <b>Leveraging “partial” smoothness for faster convergence in nonsmooth optimization</b><br>UPenn Optimization Seminar   | Philadelphia, Pennsylvania |
| August 2023   | <b>Leveraging “partial” smoothness for faster convergence in nonsmooth optimization</b><br>Rob Freund’s birthday workshop   | Cambridge, Massachusetts   |
| June 2023     | <b>A nearly linearly convergent first-order method for nonsmooth functions with quadratic growth</b><br>Continuous Optimization Workshop, Foundations of Computational Mathematics 2023 | Paris, France              |
| June 2023     | <b>A nearly linearly convergent first-order method for nonsmooth functions with quadratic growth</b><br>SIAM conference on optimization   | Seattle, Washington        |

June 2023	<b>Stochastic model-based minimization of weakly convex functions</b>	Seattle, Washington
	SIAM conference on optimization (prize lecture)	
April 2023	<b>Leveraging ``partial'' smoothness for faster convergence in nonsmooth optimization</b>	Seattle, Washington
	Distinguished Seminar in Optimization & Data, University of Washington	
February 2023	<b>Leveraging ``partial'' smoothness for faster convergence in nonsmooth optimization</b>	Pasadena, California
	CMX Lunch Seminar, Caltech	
Fall 2022	<b>Leveraging ``partial'' smoothness for faster convergence in nonsmooth optimization</b>	Los Angeles, California
	Level Set Seminar, UCLA	
Fall 2022	<b>Leveraging ``partial'' smoothness for faster convergence in nonsmooth optimization</b>	Los Angeles, California
	Seminar, IPAM workshop on computational microscopy	
Fall 2022	<b>Leveraging ``partial'' smoothness for faster convergence in nonsmooth optimization</b>	Los Angeles
	Seminar, UCLA Department of Computer Science	
Fall 2022	<b>Leveraging "partial" smoothness for faster convergence in nonsmooth optimization</b>	Palo Alto, California
	ISL seminar, Stanford	
Fall 2022	<b>Leveraging ``partial'' smoothness for faster convergence in nonsmooth optimization</b>	Evanston, Illinois
	Seminar, Northwestern University Department of Statistics and Data Science	
Nov 2022	<b>A nearly linearly convergent first-order method for nonsmooth functions with quadratic growth</b>	Virtual
	OPTML++ seminar, MIT	
July 2022	<b>A nearly linearly convergent first-order method for nonsmooth functions with quadratic growth</b>	Lehigh, Pennsylvania
	International Conference on Continuous Optimization	
May 2022	<b>Avoiding saddle points in nonsmooth optimization</b>	Erice, Italy
	Workshop on Robustness and Resilience in Stochastic Optimization and Statistical Learning: Mathematical Foundations	
	Ettore Majorana Foundation And Centre For Scientific Culture	
February 2022	<b>Avoiding saddle points in nonsmooth optimization</b>	Virtual
	Theoretical Computer Science Seminar, University at Illinois, Chicago	
Dec 2021	<b>Plenary Talk: Avoiding saddle points in nonsmooth optimization</b>	Virtual
	OPT2021 NeurIPS Workshop	
Nov 2021	<b>Avoiding saddle points in nonsmooth optimization</b>	Virtual
	One World Optimization Seminar	
July 2021	<b>Avoiding saddle points in nonsmooth optimization</b>	Virtual
	SIAM Optimization Conference	
Nov 2020	<b>Nonconvex Optimization for Estimation and Learning: Dynamics, Conditioning, and Nonsmoothness</b>	Montreal, Quebec, Canada
	CRM Applied Math Seminar, McGill University	
June 2020	<b>Proximal methods avoid active strict saddles of weakly convex functions</b>	Vancouver, Canada
	Foundations of Computational Mathematics (Cancelled due to COVID)	

May 2020	<b>Stochastic Algorithms with Geometric Step Decay Converge Linearly on Sharp Functions</b> Cincinnati, Ohio SIAM Mathematics of Data Science (sessions cancelled due to COVID)
Nov 2019	<b>Stochastic model-based minimization of weakly convex functions</b> Seattle, Washington INFORMS Optimization Society Young Researchers Award Presentation
Nov 2019	<b>Low-rank matrix recovery with composite optimization: good conditioning and rapid convergence</b> Seattle, Washington INFORMS Annual Meeting
Nov 2019	<b>Stochastic subgradient method converges on tame functions</b> Seattle, Washington INFORMS Annual Meeting
August 2019	<b>Stochastic subgradient method converges on tame functions</b> Berlin, Germany ICCOPT Best Paper Prize for Young Researchers in Continuous Optimization Finalist
April 2019	<b>Nonsmooth and nonconvex optimization under statistical assumptions</b> Princeton, New Jersey Operations Research and Financial Engineering Optimization Seminar, Princeton University
Sept 2018	<b>Stochastic Methods for Non-smooth Non-convex Optimization</b> Urbana-Champaign, Illinois Annual Allerton Conference on Communication, Control, and Computing
Aug 2018	<b>Algorithmic Foundations of Huge-Scale Nonsmooth, NonConvex Optimization with Applications in Data Science</b> Arlington, Virginia AFOSR Optimization and Discrete Math Program Review
Aug 2018	<b>Stochastic Methods for Non-smooth Non-convex Optimization</b> Lehigh, Pennsylvania TRIPODS/MOPTA Conference
July 2018	<b>Convergence rates of stochastic methods for nonsmooth nonconvex problems</b> Bordeaux, France International Symposium on Mathematical Programming (ISMP) (cancelled due to illness)
June 2018	<b>Stochastic Methods for Non-smooth Non-convex Optimization</b> Seattle, Washington DIMACS Workshop on ADMM and Proximal Splitting Methods in Optimization (cancelled due to illness)
May 2018	<b>Stochastic Methods for Non-smooth Non-convex Optimization</b> Seattle, Washington West Coast Optimization Meeting
April 2018	<b>Recent progress on nonsmooth nonconvex optimization under statistical assumptions</b> Cambridge, Massachusetts Operations Research Center Seminar, MIT
Nov 2017	<b>Proximally Guided Stochastic Subgradient Method for Nonsmooth, Non-convex Problems</b> Houston, Texas INFORMS Annual Meeting
July 2017	<b>Trimmed Statistical Estimation via Variance Reduction</b> Montreal, Quebec, Canada EUROPT continuous optimization working group of EURO (The Association of European Operational Research Societies)

July 2017	<b>A SMART Stochastic Algorithm for Nonconvex Optimization with Applications to Robust Machine Learning</b> Google Brain Seminar	New York, New York
May 2017	<b>A SMART Stochastic Algorithm for Nonconvex Optimization with Applications to Robust Machine Learning</b> Applied Mathematics Colloquium, UCLA	Los Angeles, California
May 2017	<b>A SMART Stochastic Algorithm for Nonconvex Optimization with Applications to Robust Machine Learning</b> SIAM Optimization Conference	Vancouver, Canada
July 2016	<b>Fast Algorithms for Robust Machine Learning</b> Google Internal Seminar	New York, New York
June 2016	<b>SMART: The Stochastic Monotone Aggregated Root-Finding Algorithm</b> Waikoloa, Hawaii INFORMS International Meeting	
May 2016	<b>A Three-Operator Splitting Scheme and its Optimization Applications</b> Albuquerque, New Mexico SIAM Conference on Imaging Science	
Feb 2016	<b>SMART: The Stochastic Monotone Aggregated Root-Finding Algorithm</b> Madison, Wisconsin Systems, Information, Learning and Optimization (SILO) Seminar, University of Wisconsin, Madison	
Oct 2015	<b>A Three-Operator Splitting Scheme and its Optimization Applications</b> Seattle, Washington TOPS Optimization Seminar, University of Washington	
July 2015	<b>A Three-Operator Splitting Scheme and its Optimization Applications</b> Pittsburgh, Pennsylvania International Symposium on Mathematical Programming (ISMP)	
June 2015	<b>Decentralized Optimization via Operator Splitting</b> Bell Labs Prize Innovathon @ Alcatel-Lucent	Murray Hill, New Jersey
May 2015	<b>A Three-Operator Splitting Scheme and its Optimization Applications</b> Stanford, California Linear Algebra and Optimization Seminar, Stanford University	
Feb 2015	<b>The Design and Analysis of Large-scale Operator-splitting Schemes</b> Madison, Wisconsin Wisconsin Institute for Discovery Colloquium, University of Wisconsin, Madison	
Jan 2015	<b>The Design and Analysis of Large-scale Operator-splitting Schemes</b> Waterloo, Ontario, Canada Combinatorics and Optimization Seminar, University of Waterloo	

## Service

### Editorial

2022-	<b>Associate Editor</b> Mathematical Programming
2023-	<b>Associate Editor</b> Foundations of Computational Mathematics



## Conference/Workshop/Seminar organization

2022-	<b>Stream co-chair for Nonsmooth Optimization</b> International Conference on Continuous Optimization	Lehigh University
2020-	<b>Cluster co-chair for Continuous Optimization</b> International Symposium on Mathematical Programming	Beijing, China
2019-2020	<b>Track co-chair for Optimization in Data Science</b> INFORMS Optimization Society 2020 Meeting	Clemson University
2016	<b>OPT2016 Program Committee Member</b> Neural Information Processing Systems	Barcelona, Spain

## Departmental Service

2023	<b>ORIE Director Appointment Committee</b> Operations Research and Information Engineering	Cornell University
2021	<b>ORIE Director Reappointment Committee</b> Operations Research and Information Engineering	Cornell University
2018-2019	<b>COR-OPT Optimization Seminar</b> Operations Research and Information Engineering	Cornell University
2018-2020, 2022, 2024	<b>Graduate Admissions Committee</b> Operations Research and Information Engineering	Cornell University
2016, 2021, 2022	<b>Masters of Engineering Admissions Committee</b> Operations Research and Information Engineering	Cornell University
2017-2018	<b>Colloquium Co-organizer</b> Center for Applied Math	Cornell University
2016, 2020	<b>Colloquium Co-organizer</b> Operations Research and Information Engineering	Cornell University

## Reviews

2020, 2021	<b>Proposal Reviewer</b> NSF Division of Mathematical Sciences
2014-	<b>Article Reviewer</b> <i>Mathematical Programming Series A/B,</i> <i>SIAM Journal on Optimization,</i> <i>Foundations of Computational Mathematics,</i> <i>Mathematics of Operations Research,</i> <i>Transactions of the American Mathematical Society,</i> <i>Set-Valued and Variational Analysis,</i> <i>Journal of Optimization Theory and Applications,</i> <i>IEEE Transactions on Automatic Control,</i> <i>IEEE Signal Processing Magazine</i>

# Teaching

## Courses

Fall 2023	<b>ORIE 6300 Mathematical Programming I</b> Dept: Operations Research and Information Engineering Lecture notes available at the following link: <a href="https://people.orie.cornell.edu/dsd95/ORIE6300Fall12019notes.pdf">https://people.orie.cornell.edu/dsd95/ORIE6300Fall12019notes.pdf</a>	Cornell University
Fall 2023	<b>Engineering 1050</b> Dept: Operations Research and Information Engineering	Cornell University
Spring 2022	<b>ORIE 4740 Statistical Data Mining</b> Dept: Operations Research and Information Engineering	Cornell University
Fall 2021	<b>ORIE 7391 Selected Topics in Mathematical Programming</b> Dept: Operations Research and Information Engineering	Cornell University
Spring 2021	<b>ORIE 6340 Mathematics of Data Science</b> Dept: Operations Research and Information Engineering Course materials available at the following link: <a href="https://www.dropbox.com/sh/bvxav1pc2nr5n6x/AABn7gEfuYY7qD_ZxUQzJwpma?dl=0">https://www.dropbox.com/sh/bvxav1pc2nr5n6x/AABn7gEfuYY7qD_ZxUQzJwpma?dl=0</a>	Cornell University
Fall 2020	<b>ORIE 3300 Optimization I</b> Dept: Operations Research and Information Engineering	Cornell University
Fall 2020	<b>Engineering 1050</b> Dept: Operations Research and Information Engineering	Cornell University
Spring 2020	<b>ORIE 4740 Statistical Data Mining</b> Dept: Operations Research and Information Engineering	Cornell University
Fall 2019	<b>ORIE 6300 Mathematical Programming I</b> Dept: Operations Research and Information Engineering Lecture notes available at the following link: <a href="https://people.orie.cornell.edu/dsd95/ORIE6300Fall12019notes.pdf">https://people.orie.cornell.edu/dsd95/ORIE6300Fall12019notes.pdf</a>	Cornell University
Fall 2018	<b>ORIE 3300 Optimization I</b> Dept: Operations Research and Information Engineering	Cornell University
Spring 2018	<b>Math 2940 Linear Algebra for Engineers</b> Dept: Mathematics	Cornell University
Spring 2017	<b>ORIE 4350 Introduction to Game Theory</b> Dept: Operations Research and Information Engineering	Cornell University
Fall 2016	<b>ORIE 6300 Mathematical Programming I</b> Dept: Operations Research and Information Engineering	Cornell University

## Advising

### Current PhD Students

2021–	<b>Tao Jiang</b> <i>Operations Research and Information Engineering</i> Status: Q Exam Passed	Cornell University
2020–	<b>Liwei Jiang</b> <i>Operations Research and Information Engineering</i> Status: A Exam Passed	Cornell University

### Former PhD Students

2018–2023	<b>Vasileios Charisopoulos</b> <i>Operations Research and Information Engineering</i> Status: Degree Obtained Next Position: Postdoc (w/ Becca Willet at Univ. of Chicago)	Cornell University
2016–2021	<b>Mateo Diaz</b> <i>Computational and Applied Mathematics</i> Status: Degree Obtained Next Positions: Postdoc (w/ V. Chandrasekaran and J. Tropp) Asst. Prof. at Johns Hopkins (Applied Math)	Cornell University
2017–2021	<b>Benjamin Grimmer</b> <i>Operations Research and Information Engineering</i> (Co-adviser: J. Renegar (primary)) Status: Degree Obtained Next Position: Asst. Prof. at Johns Hopkins (Applied Math)	Cornell University

#### Doctoral Supervising Committee Member:

Si Yi (Cathy) Meng (ORIE), Song (Sam) Zhou (ORIE), Qinru Shi (CAM), Calvin Wylie (ORIE), Miaolan Xie (ORIE), Tonghua Tian (ORIE), Tam Le (Toulouse 1 University Capitole)

#### Former MEng Students (ORIE Capstone Project)

2016–2017	<b>Kendrick Cancio, Karen Cronk, Alexis Rouge Carrassat</b> Co-adviser: D. Shmoys Industry Sponsor: MITRE	Cornell University
Fall 2017	<b>Henry Zhou, Juan Duran-Vara, Elijah Huang</b> Putnam Investments Co-adviser: J. Renegar	Cornell University
2017-2018	<b>Anne Ng, Antong Su, Charlotte Wang, Umut Yildiz</b> Industry Sponsor: Equifax	Cornell University
2018-2019	<b>Chenxin Guo, Dajun Luo, Liyang Du, Zuolin Shen</b> Industry Sponsor: Equifax	Cornell University
2019-2020	<b>Percy Zhao, Iris Zhao, Foster Zhen, Betsy Fu</b> Industry Sponsor: Equifax	Cornell University
2020-2021	<b>Yixiao He, Xiaoxiang Ma, Yuke Wu, Jiaqi Zhang</b> Industry Sponsor: Pitney Bowes	Cornell University