



Stephen Boyd

Samsung Professor in the School of Engineering
Electrical Engineering

CONTACT INFORMATION

- **Faculty Administrator**

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Bio

BIO

Stephen P. Boyd is the Samsung Professor of Engineering, and Professor of Electrical Engineering in the Information Systems Laboratory at Stanford University. He has courtesy appointments in the Department of Management Science and Engineering and the Department of Computer Science, and is member of the Institute for Computational and Mathematical Engineering. His current research focus is on convex optimization applications in control, signal processing, machine learning, and finance.

Professor Boyd received an AB degree in Mathematics, summa cum laude, from Harvard University in 1980, and a PhD in EECS from U. C. Berkeley in 1985. In 1985 he joined Stanford's Electrical Engineering Department. He has held visiting Professor positions at Katholieke University (Leuven), McGill University (Montreal), Ecole Polytechnique Federale (Lausanne), Tsinghua University (Beijing), Universite Paul Sabatier (Toulouse), Royal Institute of Technology (Stockholm), Kyoto University, Harbin Institute of Technology, NYU, MIT, UC Berkeley, CUHK-Shenzhen, and IMT Lucca. He holds honorary doctorates from Royal Institute of Technology (KTH), Stockholm, and Catholic University of Louvain (UCL).

Professor Boyd is the author of many research articles and four books: *Introduction to Applied Linear Algebra: Vectors, Matrices, and Least-Squares* (with Lieven Vandenbergh, 2018), *Convex Optimization* (with Lieven Vandenbergh, 2004), *Linear Matrix Inequalities in System and Control Theory* (with El Ghaoui, Feron, and Balakrishnan, 1994), and *Linear Controller Design: Limits of Performance* (with Craig Barratt, 1991). His group has produced many open source tools, including CVX (with Michael Grant), CVXPY (with Steven Diamond) and Convex.jl (with Madeleine Udell and others), widely used parser-solvers for convex optimization.

Professor Boyd has received many awards and honors for his research in control systems engineering and optimization, including an ONR Young Investigator Award, a Presidential Young Investigator Award, and the AACC Donald P. Eckman Award. In 2013, he received the IEEE Control Systems Award, given for outstanding contributions to control systems engineering, science, or technology. In 2012, Michael Grant and he were given the Mathematical Optimization Society's Beale-Orchard-Hays Award, for excellence in computational mathematical programming. He is a Fellow of the IEEE, SIAM, INFORMS, and IFAC, a Distinguished Lecturer of the IEEE Control Systems Society, a member of the US National Academy of Engineering, a foreign member of the Chinese Academy of Engineering, and a foreign

member of the National Academy of Engineering of Korea. He has been invited to deliver more than 90 plenary and keynote lectures at major conferences in control, optimization, signal processing, and machine learning.

He has developed and taught many undergraduate and graduate courses, including Signals & Systems, Linear Dynamical Systems, Convex Optimization, and a recent undergraduate course on Matrix Methods. His graduate convex optimization course attracts around 300 students from more than 20 departments. In 1991 he received an ASSU Graduate Teaching Award, and in 1994 he received the Perrin Award for Outstanding Undergraduate Teaching in the School of Engineering. In 2003, he received the AACC Ragazzini Education award, for contributions to control education, with citation: "For excellence in classroom teaching, textbook and monograph preparation, and undergraduate and graduate mentoring of students in the area of systems, control, and optimization." In 2016 he received the Walter J. Gores award, the highest award for teaching at Stanford University. In 2017 he received the IEEE James H. Mulligan, Jr. Education Medal, for a career of outstanding contributions to education in the fields of interest of IEEE, with citation "For inspirational education of students and researchers in the theory and application of optimization."

ACADEMIC APPOINTMENTS

- Professor, Electrical Engineering
- Member, Bio-X
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)
- Affiliate, Precourt Institute for Energy
- Member, Institute for Computational and Mathematical Engineering (ICME)

ADMINISTRATIVE APPOINTMENTS

- Chair, Department of Electrical Engineering, (2018- present)

HONORS AND AWARDS

- Foreign member, National Academy of Engineering of Korea (2020)
- Athanasios Papoulis Society Award, European Association for Signal Processing (EURASIP) (2019)
- Foreign member, Chinese Academy of Engineering (2017)
- Honorary PhD, University Catholique de Louvain (2017)
- James H. Mulligan, Jr. Education Medal, IEEE (2017)
- Fellow, INFORMS (2016)
- Walter J. Gores teaching award, Stanford (2016)
- Fellow, SIAM (2015)
- Member, National Academy of Engineering (2014)
- Saul Gass Award, INFORMS (2014)
- Control Systems Award, IEEE (2013)
- Beal-Orchard-Hays Prize, Mathematical Optimization Society (2012)
- Honorary PhD, Royal Institute of Technology (KTH), Stockholm (2006)
- Section lecture, International Congress of Mathematicians (2006)
- John R. Ragazzini Award, Automatic Control Council (2003)
- Fellow, IEEE Control Systems Society (1999)
- Hugo Schuck Award, IEEE Control Systems Society (1999)
- Perrin Award for Undergraduate Teaching, Stanford University (1994)
- Distinguished Lecturer, IEEE Control System Society (1993)

- Donald P. Eckman Award, IEEE Control Systems Society (1992)
- Graduate Teaching Award, ASSU (1991)
- Presidential Young Investigator Award, National Science Foundation (1986)

PROFESSIONAL EDUCATION

- PhD, UC Berkeley , EECS (1985)
- BA, Harvard University , Mathematics (1980)

LINKS

- Research web page: <https://web.stanford.edu/~boyd>
- Google scholar: <https://scholar.google.com/citations?user=GExyiRkAAAAJ&hl=en>
- Papers: <https://web.stanford.edu/~boyd/papers.html>
- Books: <https://web.stanford.edu/~boyd/books.html>

Teaching

COURSES

2022-23

- Convex Optimization I: CME 364A, EE 364A (Win)

2021-22

- Convex Optimization I: CME 364A, EE 364A (Win)
- Introduction to Matrix Methods: ENGR 108 (Aut)

2020-21

- Introduction to Matrix Methods: ENGR 108 (Aut)

Publications

PUBLICATIONS

- **Confidence Bands for a Log-Concave Density** *JOURNAL OF COMPUTATIONAL AND GRAPHICAL STATISTICS*
Walther, G., Ali, A., Shen, X., Boyd, S.
2022; 31 (4): 1426-1438
- **Computing tighter bounds on the n-queens constant via Newton's method** *OPTIMIZATION LETTERS*
Nobel, P., Agrawal, A., Boyd, S.
2022
- **Covariance prediction via convex optimization** *OPTIMIZATION AND ENGINEERING*
Barratt, S., Boyd, S.
2022
- **A general optimization framework for dynamic time warping** *OPTIMIZATION AND ENGINEERING*
Deriso, D., Boyd, S.
2022
- **Multi-period liability clearing via convex optimal control** *OPTIMIZATION AND ENGINEERING*
Barratt, S., Boyd, S.
2022
- **Confidence Bands for a Log-Concave Density** *JOURNAL OF COMPUTATIONAL AND GRAPHICAL STATISTICS*
Walther, G., Ali, A., Shen, X., Boyd, S.

2022

- **Fitting feature-dependent Markov chains** *JOURNAL OF GLOBAL OPTIMIZATION*
Barratt, S., Boyd, S.
2022
- **Operator splitting for adaptive radiation therapy with nonlinear health dynamics** *OPTIMIZATION METHODS & SOFTWARE*
Fu, A., Xing, L., Boyd, S.
2022
- **Allocation of fungible resources via a fast, scalable price discovery method** *MATHEMATICAL PROGRAMMING COMPUTATION*
Agrawal, A., Boyd, S., Narayanan, D., Kazhamiaka, F., Zaharia, M.
2022
- **Minimizing oracle-structured composite functions** *OPTIMIZATION AND ENGINEERING*
Shen, X., Ali, A., Boyd, S.
2022
- **Embedded Code Generation With CVXPY** *IEEE CONTROL SYSTEMS LETTERS*
Schaller, M., Banjac, G., Diamond, S., Agrawal, A., Stellato, B., Boyd, S.
2022; 6: 2653-2658
- **PORTFOLIO PERFORMANCE ATTRIBUTION VIA SHAPLEY VALUE** *JOURNAL OF INVESTMENT MANAGEMENT*
Moehle, N., Boyd, S., Ang, A.
2022; 20 (3): 33-52
- **Model-Based Deep Learning: On the Intersection of Deep Learning and Optimization** *IEEE ACCESS*
Shlezinger, N., Eldar, Y. C., Boyd, S. P.
2022; 10: 115384-115398
- **A Certainty Equivalent Merton Problem** *IEEE CONTROL SYSTEMS LETTERS*
Moehle, N., Boyd, S.
2022; 6: 1478-1483
- **Stochastic Control With Affine Dynamics and Extended Quadratic Costs** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*
Barratt, S., Boyd, S.
2022; 67 (1): 320-335
- **Pareto Optimal Projection Search (POPS): Automated Radiation Therapy Treatment Planning by Direct Search of the Pareto Surface** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
Huang, C., Yang, Y., Panjwani, N., Boyd, S., Xing, L.
2021; 68 (10): 2907-2917
- **Learning Convex Optimization Models** *IEEE-CAA JOURNAL OF AUTOMATICA SINICA*
Agrawal, A., Barratt, S., Boyd, S.
2021; 8 (8): 1355-1364
- **Convex restrictions in physical design.** *Scientific reports*
Angeris, G., Vuckovic, J., Boyd, S.
2021; 11 (1): 12976
- **Dirty Pixels: Towards End-to-end Image Processing and Perception** *ACM TRANSACTIONS ON GRAPHICS*
Diamond, S., Sitzmann, V., Julca-Aguilar, F., Boyd, S., Wetzstein, G., Heide, F.
2021; 40 (3)
- **Extracting a low-dimensional predictable time series** *OPTIMIZATION AND ENGINEERING*
Dong, Y., Qin, S., Boyd, S. P.
2021
- **Fitting Laplacian regularized stratified Gaussian models** *OPTIMIZATION AND ENGINEERING*
Tuck, J., Boyd, S.

2021

- **Tax-Aware Portfolio Construction via Convex Optimization** *JOURNAL OF OPTIMIZATION THEORY AND APPLICATIONS*
Moehle, N., Kochenderfer, M. J., Boyd, S., Ang, A.
2021
- **Optimal representative sample weighting** *STATISTICS AND COMPUTING*
Barratt, S., Angeris, G., Boyd, S.
2021; 31 (2)
- **Heuristic methods and performance bounds for photonic design** *OPTICS EXPRESS*
Angeris, G., Vuckovic, J., Boyd, S.
2021; 29 (2): 2827–54
- **Eigen-stratified models** *OPTIMIZATION AND ENGINEERING*
Tuck, J., Boyd, S.
2021
- **Minimum-Distortion Embedding** *FOUNDATIONS AND TRENDS IN MACHINE LEARNING*
Agrawal, A., Ali, A., Boyd, S.
2021; 14 (3): 211-378
- **A Distributed Method for Fitting Laplacian Regularized Stratified Models** *JOURNAL OF MACHINE LEARNING RESEARCH*
Tuck, J., Barratt, S., Boyd, S.
2021; 22
- **Sample Efficient Reinforcement Learning with REINFORCE**
Zhang, J., Kim, J., O'Donoghue, B., Boyd, S., Assoc Advancement Artificial Intelligence
ASSOC ADVANCEMENT ARTIFICIAL INTELLIGENCE.2021: 10887-10895
- **CVXR: An R Package for Disciplined Convex Optimization** *JOURNAL OF STATISTICAL SOFTWARE*
Fu, A., Narasimhan, B., Boyd, S.
2020; 94 (14)
- **Bounds for Scattering from Absorptionless Electromagnetic Structures** *PHYSICAL REVIEW APPLIED*
Trivedi, R., Angeris, G., Su, L., Boyd, S., Fan, S., Vuckovic, J.
2020; 14 (1)
- **Automatic repair of convex optimization problems** *OPTIMIZATION AND ENGINEERING*
Barratt, S., Angeris, G., Boyd, S.
2020
- **Least squares auto-tuning** *ENGINEERING OPTIMIZATION*
Barratt, S. T., Boyd, S. P.
2020
- **SWIFTCORE: a tool for the context-specific reconstruction of genome-scale metabolic networks.** *BMC bioinformatics*
Tefagh, M., Boyd, S. P.
2020; 21 (1): 140
- **Minimizing a sum of clipped convex functions** *OPTIMIZATION LETTERS*
Barratt, S., Angeris, G., Boyd, S.
2020
- **Disciplined quasiconvex programming** *OPTIMIZATION LETTERS*
Agrawal, A., Boyd, S.
2020
- **Network optimization for unified packet and circuit switched networks** *OPTIMIZATION AND ENGINEERING*
Yin, P., Diamond, S., Lin, B., Boyd, S.

2020; 21 (1): 159–80

- **OSQP: an operator splitting solver for quadratic programs** *MATHEMATICAL PROGRAMMING COMPUTATION*
Stellato, B., Banjac, G., Goulart, P., Bemporad, A., Boyd, S.
2020
- **ON THE CONVERGENCE OF MIRROR DESCENT BEYOND STOCHASTIC CONVEX PROGRAMMING** *SIAM JOURNAL ON OPTIMIZATION*
Zhou, Z., Mertikopoulos, P., Bambos, N., Boyd, S. P., Glynn, P. W.
2020; 30 (1): 687–716
- **Proinflammatory IgG Fc structures in patients with severe COVID-19** *Nature Immunology*
Chakraborty, S., Gonzales, J., Edwards, K., Mallajosyulla, V., Buzzanco, A. S., Sherwood, R., Buffone, C., Kathale, N., Providenza, S., Xie, M. M., Andrews, J. R., Blish, C. A., Singh, et al
2020
- **ANDERSON ACCELERATED DOUGLAS-RACHFORD SPLITTING** *SIAM JOURNAL ON SCIENTIFIC COMPUTING*
Fu, A., Zhang, J., Boyd, S.
2020; 42 (6): A3560–A3583
- **GLOBALLY CONVERGENT TYPE-I ANDERSON ACCELERATION FOR NONSMOOTH FIXED-POINT ITERATIONS** *SIAM JOURNAL ON OPTIMIZATION*
Zhang, J., O'Donoghue, B., Boyd, S.
2020; 30 (4): 3170–97
- **A simple effective heuristic for embedded mixed-integer quadratic programming** *INTERNATIONAL JOURNAL OF CONTROL*
Takapoui, R., Moehle, N., Boyd, S., Bemporad, A.
2020; 93 (1): 2–12
- **VARIABLE METRIC PROXIMAL GRADIENT METHOD WITH DIAGONAL BARZILAI-BORWEIN STEPSIZE**
Park, Y., Dhar, S., Boyd, S., Shah, M., IEEE
IEEE.2020: 3597–3601
- **Fitting a Kalman Smoother to Data**
Barratt, S. T., Boyd, S. P., IEEE
IEEE.2020: 1526–31
- **Optimal Operation of a Plug-in Hybrid Vehicle with Battery Thermal and Degradation Model**
Kim, J., Park, Y., Fox, J. D., Boy, S. P., Dally, W., IEEE
IEEE.2020: 3083–90
- **Solution refinement at regular points of conic problems** *COMPUTATIONAL OPTIMIZATION AND APPLICATIONS*
Busseti, E., Moursi, W. M., Boyd, S.
2019; 74 (3): 627–43
- **Multi-period portfolio selection with drawdown control**
Nystrup, P., Boyd, S., Lindstrom, E., Madsen, H.
SPRINGER.2019: 245–71
- **Infeasibility Detection in the Alternating Direction Method of Multipliers for Convex Optimization** *JOURNAL OF OPTIMIZATION THEORY AND APPLICATIONS*
Banjac, G., Goulart, P., Stellato, B., Boyd, S.
2019; 183 (2): 490–519
- **A Distributed Method for Optimal Capacity Reservation** *JOURNAL OF OPTIMIZATION THEORY AND APPLICATIONS*
Moehle, N., Shen, X., Luo, Z., Boyd, S.
2019; 182 (3): 1130–49
- **Learning Probabilistic Trajectory Models of Aircraft in Terminal Airspace From Position Data** *IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS*
Barratt, S. T., Kochenderfer, M. J., Boyd, S. P.
2019; 20 (9): 3536–45

- **Greedy Gaussian segmentation of multivariate time series** *ADVANCES IN DATA ANALYSIS AND CLASSIFICATION*
Hallac, D., Nystrup, P., Boyd, S.
2019; 13 (3): 727–51
- **Disciplined geometric programming** *OPTIMIZATION LETTERS*
Agrawal, A., Diamond, S., Boyd, S.
2019; 13 (5): 961–76
- **Real-Time Radiation Treatment Planning with Optimality Guarantees via Cluster and Bound Methods** *INFORMS JOURNAL ON COMPUTING*
Ungun, B., Xing, L., Boyd, S.
2019; 31 (3): 544–58
- **Computational Bounds for Photonic Design** *ACS PHOTONICS*
Angeris, G., Vuckovic, J., Boyd, S. P.
2019; 6 (5): 1232–39
- **Quantitative flux coupling analysis** *JOURNAL OF MATHEMATICAL BIOLOGY*
Tefagh, M., Boyd, S. P.
2019; 78 (5): 1459–84
- **A convex optimization approach to radiation treatment planning with dose constraints** *OPTIMIZATION AND ENGINEERING*
Fu, A., Ungun, B., Xing, L., Boyd, S.
2019; 20 (1): 277–300
- **Distributed Majorization-Minimization for Laplacian Regularized Problems** *IEEE-CAA JOURNAL OF AUTOMATICA SINICA*
Tuck, J., Hallac, D., Boyd, S.
2019; 6 (1): 45–52
- **Differentiable Convex Optimization Layers**
Agrawal, A., Amos, B., Barratt, S., Boyd, S., Diamond, S., Kolter, J., Wallach, H., Larochelle, H., Beygelzimer, A., d'Alche-Buc, F., Fox, E., Garnett, R.
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2019
- **Quantitative flux coupling analysis.** *Journal of mathematical biology*
Tefagh, M., Boyd, S. P.
2018
- **Fitting jump models** *AUTOMATICA*
Bemporad, A., Breschi, V., Piga, D., Boyd, S. P.
2018; 96: 11–21
- **End-to-end Optimization of Optics and Image Processing for Achromatic Extended Depth of Field and Super-resolution Imaging** *ACM TRANSACTIONS ON GRAPHICS*
Sitzmann, V., Diamond, S., Peng, Y., Dun, X., Boyd, S., Heidrich, W., Heide, F., Wetzstein, G.
2018; 37 (4)
- **A semidefinite programming method for integer convex quadratic minimization** *OPTIMIZATION LETTERS*
Park, J., Boyd, S.
2018; 12 (3): 499–518
- **Saturating Splines and Feature Selection** *JOURNAL OF MACHINE LEARNING RESEARCH*
Boyd, N., Hastie, T., Boyd, S., Recht, B., Jordan, M.
2018; 18
- **A general system for heuristic minimization of convex functions over non-convex sets** *OPTIMIZATION METHODS & SOFTWARE*
Diamond, S., Takapoui, R., Boyd, S.
2018; 33 (1): 165-193
- **Prediction error methods in learning jump ARMAX models**
Breschi, V., Bemporad, A., Piga, D., Boyd, S., IEEE
IEEE.2018: 2247–52

- **Infeasibility Detection in the Alternating Direction Method of Multipliers for Convex Optimization**
Banjac, G., Goulart, P., Stellato, B., Boyd, S., IEEE
IEEE.2018: 340
- **OSQP: An Operator Splitting Solver for Quadratic Programs**
Stellato, B., Banjac, G., Goulart, P., Bemporad, A., Boyd, S., IEEE
IEEE.2018: 339
- **Introduction to Applied Linear Algebra – Vectors, Matrices, and Least Squares**
Boyd, S., Vandenberghe, L.
Cambridge University Press.2018
- **Saturating Splines and Feature Selection.** *Journal of machine learning research : JMLR*
Boyd, N. n., Hastie, T. n., Boyd, S. n., Recht, B. n., Jordan, M. I.
2018; 18
- **Embedded Mixed-Integer Quadratic Optimization Using the OSQP Solver**
Stellato, B., Naik, V. V., Bemporad, A., Goulart, P., Boyd, S., IEEE
IEEE.2018: 1536–41
- **Dynamic Resource Allocation for Energy Efficient Transmission in Digital Subscriber Lines** *IEEE TRANSACTIONS ON SIGNAL PROCESSING*
Zhang, N., Yao, Z., Liu, Y., Boyd, S. P., Luo, Z.
2017; 65 (16): 4353-4366
- **Network Inference via the Time-Varying Graphical Lasso.** *KDD : proceedings. International Conference on Knowledge Discovery & Data Mining*
Hallac, D., Park, Y., Boyd, S., Leskovec, J.
2017; 2017: 205–13
- **Toeplitz Inverse Covariance-Based Clustering of Multivariate Time Series Data.** *KDD : proceedings. International Conference on Knowledge Discovery & Data Mining*
Hallac, D., Vare, S., Boyd, S., Leskovec, J.
2017; 2017: 215–23
- **Stochastic Matrix-Free Equilibration** *JOURNAL OF OPTIMIZATION THEORY AND APPLICATIONS*
Diamond, S., Boyd, S.
2017; 172 (2): 436-454
- **Linear Convergence and Metric Selection for Douglas-Rachford Splitting and ADMM** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*
Giselsson, P., Boyd, S.
2017; 62 (2): 532-544
- **SnapVX: A Network-Based Convex Optimization Solver** *JOURNAL OF MACHINE LEARNING RESEARCH*
Hallac, D., Wong, C., Diamond, S., Sharang, A., Susic, R., Boyd, S., Leskovec, J.
2017; 18
- **Toeplitz Inverse Covariance-Based Clustering of Multivariate Time Series Data**
Hallac, D., Vare, S., Boyd, S., Leskovec, J., ACM
ASSOC COMPUTING MACHINERY.2017: 215-223
- **Network Inference via the Time-Varying Graphical Lasso**
Hallac, D., Park, Y., Boyd, S., Leskovec, J., ACM
ASSOC COMPUTING MACHINERY.2017: 205-213
- **Stochastic Mirror Descent in Variationally Coherent Optimization Problems**
Zhou, Z., Mertikopoulos, P., Bambos, N., Boyd, S., Glynn, P., Guyon, Luxburg, U. V., Bengio, S., Wallach, H., Fergus, R., Vishwanathan, S., Garnett, R.
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2017
- **Learning the Network Structure of Heterogeneous Data via Pairwise Exponential Markov Random Fields.** *Proceedings of machine learning research*
Park, Y. n., Hallac, D. n., Boyd, S. n., Leskovec, J. n.
2017; 54: 1302–10

- **Disciplined Multi-Convex Programming**
Shen, X., Diamond, S., Udell, M., Gu, Y., Boyd, S., IEEE
IEEE.2017: 895–900
- **Dynamic Energy Management with Scenario-Based Robust MPC**
Wytock, M., Moehle, N., Boyd, S., IEEE
IEEE.2017: 2042–47
- **Embedded Code Generation Using the OSQP Solver**
Banjac, G., Stellato, B., Moehle, N., Goulart, P., Bemporad, A., Boyd, S., IEEE
IEEE.2017
- **SnapVX: A Network-Based Convex Optimization Solver.** *Journal of machine learning research : JMLR*
Hallac, D., Wong, C., Diamond, S., Sharang, A., Susic, R., Boyd, S., Leskovec, J.
2017; 18 (1): 110–14
- **Antagonistic control** *SYSTEMS & CONTROL LETTERS*
Lipp, T., Boyd, S.
2016; 98: 44-48
- **Optimizing Stereotactic Radiosurgery Treatment of Multiple Brain Metastasis Lesions With Individualized Rotational Arc Trajectory**
Dong, P., Ungun, B., Boyd, S., Locke, C., Bush, K., Xing, L.
ELSEVIER SCIENCE INC.2016: S228
- **Optimization of rotational arc station parameter optimized radiation therapy.** *Medical physics*
Dong, P., Ungun, B., Boyd, S., Xing, L.
2016; 43 (9): 4973-?
- **Risk-Constrained Kelly Gambling** *JOURNAL OF INVESTING*
Busseti, E., Ryu, E. K., Boyd, S.
2016; 25 (3): 118-134
- **Variations and extension of the convex-concave procedure** *OPTIMIZATION AND ENGINEERING*
Lipp, T., Boyd, S.
2016; 17 (2): 263-287
- **Conic Optimization via Operator Splitting and Homogeneous Self-Dual Embedding** *JOURNAL OF OPTIMIZATION THEORY AND APPLICATIONS*
O'Donoghue, B., Chu, E., Parikh, N., Boyd, S.
2016; 169 (3): 1042-1068
- **Bounding duality gap for separable problems with linear constraints** *COMPUTATIONAL OPTIMIZATION AND APPLICATIONS*
Udell, M., Boyd, S.
2016; 64 (2): 355-378
- **MIMO PID tuning via iterated LMI restriction** *INTERNATIONAL JOURNAL OF ROBUST AND NONLINEAR CONTROL*
Boyd, S., Hast, M., Astrom, K. J.
2016; 26 (8): 1718-1731
- **CVXPY: A Python-Embedded Modeling Language for Convex Optimization.** *Journal of machine learning research : JMLR*
Diamond, S., Boyd, S.
2016; 17
- **A PRIMER ON MONOTONE OPERATOR METHODS SURVEY** *APPLIED AND COMPUTATIONAL MATHEMATICS*
Ryu, E. K., Boyd, S.
2016; 15 (1): 3-43
- **Introduction** *FOUNDATIONS AND TRENDS IN MACHINE LEARNING*
Udell, M., Horn, C., Zadeh, R., Boyd, S.
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- **CVXPY: A Python-Embedded Modeling Language for Convex Optimization** *JOURNAL OF MACHINE LEARNING RESEARCH*
Diamond, S., Boyd, S.
2016; 17
- **Maximum Torque-per-Current Control of Induction Motors via Semidefinite Programming**
Moehle, N., Boyd, S., IEEE
IEEE.2016: 1920-1925
- **Line Search for Averaged Operator Iteration**
Giselsson, P., Falt, M., Boyd, S., IEEE
IEEE.2016: 1015-1022
- **Disciplined Convex-Concave Programming**
Shen, X., Diamond, S., Gu, Y., Boyd, S., IEEE
IEEE.2016: 1009-1014
- **A New Architecture for Optimization Modeling Frameworks**
Wytock, M., Diamond, S., Heide, F., Boyd, S., IEEE
IEEE.2016: 36-44
- **Optimal Resource Allocation for Energy Efficient Transmission in DSL**
Zhang, N., Yao, Z., Liu, Y., Boyd, S., Luo, Z., IEEE
IEEE.2016
- **Matrix-Free Convex Optimization Modeling** *OPTIMIZATION AND ITS APPLICATIONS IN CONTROL AND DATA SCIENCES: IN HONOR OF BORIS T. POLYAK'S 80TH BIRTHDAY*
Diamond, S., Boyd, S., Goldengorin, B.
2016; 115: 221-264
- **A Differential Equation for Modeling Nesterov's Accelerated Gradient Method: Theory and Insights** *JOURNAL OF MACHINE LEARNING RESEARCH*
Su, W., Boyd, S., Candes, E. J.
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- **Metric selection in fast dual forward-backward splitting** *AUTOMATICA*
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- **A perspective-based convex relaxation for switched-affine optimal control** *SYSTEMS & CONTROL LETTERS*
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- **Extensions of Gauss Quadrature Via Linear Programming** *FOUNDATIONS OF COMPUTATIONAL MATHEMATICS*
Ryu, E. K., Boyd, S. P.
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- **Network Lasso: Clustering and Optimization in Large Graphs.** *KDD : proceedings. International Conference on Knowledge Discovery & Data Mining*
Hallac, D., Leskovec, J., Boyd, S.
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- **Approximate dynamic programming via iterated Bellman inequalities** *INTERNATIONAL JOURNAL OF ROBUST AND NONLINEAR CONTROL*
Wang, Y., O'Donoghue, B., Boyd, S.
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- **Optimal current waveforms for brushless permanent magnet motors** *INTERNATIONAL JOURNAL OF CONTROL*
Moehle, N., Boyd, S.
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- **Model predictive control for wind power gradients** *WIND ENERGY*
Hovgaard, T. G., Boyd, S., Jorgensen, J. B.
2015; 18 (6): 991-1006

- **TH-AB-BRB-02: Enabling Web-Based Treatment Planning Using a State-Of-The-Art Convex Optimization Solver.** *Medical physics*
Ungun, B., Folkerts, M., Bush, K., Boyd, S., Xing, L.
2015; 42 (6): 3704-?
- **Linear Models Based on Noisy Data and the Frisch Scheme.** *SIAM review. Society for Industrial and Applied Mathematics*
Ning, L., Georgiou, T. T., Tannenbaum, A., Boyd, S. P.
2015; 57 (2): 167-197
- **Linear Models Based on Noisy Data and the Frisch Scheme** *SIAM REVIEW*
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