

Zaiwen Wen
Department of Industrial Engineering and Operations Research
Columbia University
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EDUCATION

- * *Columbia University, New York, NY*
Ph.D in Operations Research **May 2009 (expected)**
Thesis: "Algorithms for Infinite Dimensional Optimization and their Applications"
- * *Academy of Mathematics and System Sciences, Chinese Academy of Sciences, China*
M.S in Computational Mathematics **June 2004**
Thesis: "Least Squares and their Applications"
- * *Shanghai Jiaotong University, Shanghai, China*
B.S in Applied Mathematics **June 2001**

RESEARCH INTEREST

- * Nonlinear programming and its applications
 - Convex and nonconvex optimization, Line search methods and trust region methods, Interior points methods, Software development for large scale optimization, Applications in image processing and compressive sensing
- * Multigrid/Multilevel methods for infinite dimensional optimization and PDE-constrained optimization
- * Robust optimization, portfolio optimization

ACADEMIC EXPERIENCE

- * Teaching Assistant, Department of Industrial Engineering and Operations Research
Columbia University **2005-2007**
 - Optimization I (Ph.D core course), Prof. Donald Goldfarb, **Fall 2007, 2006, 2005**
 - Nonlinear Programming, Prof. Katya Scheinberg, **Spring 2007**
 - Convex Optimization, Prof. Donald Goldfarb **Spring 2006**
- * Research Assistant, Department of Industrial Engineering and Operations Research
Columbia University **2005-2007**
Advisor: Prof. Donald Goldfarb
 - Multigrid/Multilevel methods for infinite dimensional optimization **2006-2007**
 - Minimizing p-harmonic flow on sphere and applications to image processing **2006-2007**
 - Solving parameter identification problems with total variation regularization **2005-2006**
- * Research Assistant, Institute of Computational Math. and Sci./Eng. Computing
Chinese Academy of Sciences **2001-2004**
Advisor: Prof. Yaxiang Yuan
 - Subspace techniques for nonlinear optimization **2003-2004**
 - Least square methods for time-limited Signal Reconstruction **2003-2004**
 - Trust region methods for image restoration **2002-2003**

INDUSTRIAL EXPERIENCE

- * *Siemens Corporate Research, Princeton, NJ*
Part-time Technical Employee **6/2007-9/2007**

PUBLICATIONS

1. Zaiwen Wen and Donald Goldfarb. A line search multigrid method for large-scale convex optimization. Technical report, Dept of IEOR, Columbia University, 2007
2. Zaiwen Wen and Donald Goldfarb. Line search multigrid methods for large-scale nonconvex optimization. Technical report, Dept of IEOR, Columbia University, 2007

3. Zaiwen Wen, Donald Goldfarb, and Wotao Yin. A curvilinear search method for the p-harmonic flow on sphere. Technical report, Dept of IEOR, Columbia University, 2007
4. Zaiwen Wen, Donald Goldfarb, and Shiqian Ma. A trust region method for l1 regularized minimization, 2007. working paper
5. Lifeng Chen, Donald Goldfarb, Andreas Waechter, and Zaiwen Wen. On the implementation of an interior-point penalty method for large scale nonlinear programming. Technical report, Dept of IEOR, Columbia University, 2006
6. Zaiwen Wen and Donald Goldfarb. Lagrange-newton methods for parameter identification using total variation regularization. Technical report, Dept of IEOR, Columbia University, 2006
7. Yanfei Wang, Zaiwen Wen, Zuhair Nashed, and Qiyun Sun. Direct fast method for time-limited signal reconstruction. *Applied Optics*, 45(13), 2006
8. Zaiwen Wen and Yanfei Wang. A new trust region algorithm for image restoration. *Sci. China Ser. A*, 48(2):169–184, 2005. ISSN 1006-9283
9. Zhouhong Wang, Yaxiang Yuan, and Zaiwen Wen. A subspace trust region method for large scale unconstrained optimization. In Y.Yuan, editor, *Numerical Linear Algebra and Optimization (Science Press, 2004)*, 2004

RECENT AND INCOMING PRESENTATIONS

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|---|------------------|
| * A Curvilinear Search Method for the p-Harmonic Flow on Sphere 2008 SIAM Conference on Image Science, San Diego, California | 7/-/2008 |
| * Line search Multigrid Methods for Large-Scale Unconstrained Nonconvex Optimization 2008 SIAM Conference on Optimization, Boston, Massachusetts | 5/-/2008 |
| * A Curvilinear Search Method for the p-Harmonic Flow into Sphere INFORMS Annual Meeting, Seattle, WA | 11/7/2007 |
| * A Line search Multigrid Method for Large-Scale Unconstrained Convex Optimization Second Mathematical Programming Society International Conference on Continuous Optimization, McMaster University, Canada | 8/15/2007 |
| * A Trust Region Lanczos Method for Image Restoration The 2003 International Conference On Numerical Optimization and Numerical Linear Algebra, Guilin, China | 10/9/2003 |

FUNDING

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| * Special innovation fund for graduate students of Chinese Academy of Science, 8,000 Yuan | 2003-2004 |
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PROFESSIONAL SERVICE

- * Chair for the Nonlinear Programming II Session at INFORMS 07' Annual Meeting
- * Reviewer for Computational Optimization and Applications

HONORS AND AWARDS

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| * Graduate Full Scholarship, Columbia University | 2004-2009 |
| * Distinguished Presidential Prize of Academy of Mathematics and System Sciences | 2003-2004 |
| * Excellent Undergraduate Thesis Award, Shanghai Jiaotong University | 7/2001 |

COMPUTER SOFTWARE

- * C++ Codes of An Interior-Point Penalty Method for Nonlinear Programming (with A. Waechter and L. Chen), developed within the software package Ipopt, 2006