DAVID PHILLIPS

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Assistant Professor
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EDUCATION

Ph.D. **Columbia University.** New York, NY. February 2007. *Operations Research.*

M.S. **Columbia University.** New York, NY. Feb. 2003. *Operations Research.*

B.A. **Oberlin College.** Oberlin, OH. May 1997. *Mathematics.*

ACADEMIC POSITIONS

Assistant Professor. Mathematics Department and Computational Operations Research, College of William & Mary. August 2006-present. *on leave from August 2007-June 2008.*

Visiting Assistant Professor. Industrial Engineering and Operations Research Department, Columbia University. August 2007-June 2008.

Columbia University Teaching/Research Assistantship. Fall 2004-August 2006.

COURSES TAUGHT

Introduction to Operations Research, Fall 2006, Fall 2007

Linear Programming, Fall 2006, Fall 2008

Nonlinear Programming, Spring 2007

Network Optimization, Spring 2007

Scheduling, Spring 2008

Integer Programming, Spring 2008

Calculus I, Fall 2008

FELLOWSHIPS AND GRANTS

NSF CSUMS Senior Staff. Fall 2007-Summer 2010.

William & Mary Summer Grant. Summer 2007, Summer 2008.

NSF GK12 Fellow. Fall 2001-Spring 2004.

RESEARCH

Refereed publications

"Bidding strategically with budget-constraints in sequential auctions." joint work with G. Iyengar and C. Stein. Proceedings of BIS. 2007.

"Approximation algorithms for semidefinite packing problems with applications to MAXCUT and graph coloring," joint work with G. Iyengar and C. Stein. Proceedings of IPCO XI (2005).

"Scheduling an Industrial Production Facility," joint work with E. Asgeirsson, J. Berry, C. A. Phillips, C. Stein, and J. Wein. Proceedings of IPCO X (2004). 116 - 131.

"Closed on-line bin packing," joint work with E. Asgeirsson, U. Ayesta, E. Coffman, J. Etra, P. Momčilović, V. Vokhshoori, Z. Wang, and J. Wolfe. Acta Cybernetica 15 (2002), no. 3. 361–367.

Presentations

"Experimental Behavior of Algorithms for Semidefinite Relaxations," INFORMS Annual meeting, November 2005.

"Semidefinite packing, a lower bound," INFORMS Annual meeting, November 2005.

"Approximating semidefinite packing problems," IPCO XI, June 2005.

"Scheduling an industrial facility," INFORMS Annual meeting, November 2003.

Working papers

"Scheduling Magnetic Resonance Imaging patients," joint work with A. Carpenter, L. Leemis and G. Phillips. In preparation.

"Approximating the asymmetric traveling salesman and minimum latency problems using semidefinite programming," joint work G. Iyengar and C. Stein. Working paper. In preparation.

PROFESSIONAL ACTIVITIES

Referee for Math. Programming, Math. of OR, SODA, and Journal of Algorithms.

Member of INFORMS and SIAM.

Member of Computational Optimization Research Center (CORC), Columbia University

PROFESSIONAL EXPERIENCE

PA Consulting

February 1999 - June 2000. Analyst. Implemented and documented statistical and operations research models using programming languages and applications including C/C++, Fortran, Visual Basic, SAS, MatLab, and Excel. Some projects include:

- **Lead programmer on Project Spreader**, an energy plant valuation model incorporating Monte Carlo simulation, dynamic programming, linear programming, and finance spread option modeling techniques.
- **Lead programmer for the Generation Reliability model**, which determines the Loss-of-Load Expectation (LOLE) of a given set of power plants subject to planned

outage constraints. Program uses a greedy algorithm to schedule planned outages and convolves forced outage probabilities to calculate LOLE.

The Lewin Group

August 1997 - February 1999. Research Assistant. Analyzed several data sets and implemented microsimulation, regression analysis, and operations research models using programming languages and applications including Fortran, Visual Basic, SAS, and Excel. Some projects include:

- Wrote and modified Fortran code implementing a microsimulation which forecasts health care expenditures among Medicare recipients using the Medicare Current Beneficiary Survey data-set. Wrote SAS code used to estimate coefficients used in the simulation.
- Implemented microsimulation in SAS analyzing impact of the 1997 Balanced Budget Amendment upon Home-care agencies.
- Developed a software guideline in Visual Basic language to assist doctors in diagnosing and treating community-acquired pneumonia.