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Education

1997 Ph.D in Computational and Applied Mathematics, Rice University
1996 M.A. in Computational and Applied Mathematics, Rice University
1987 M.S. in Advanced Mathematics, Universidad Nacional, Colombia
1977 B.S. in Mathematics, Universidad del Valle, Colombia

Dissertation: *Exact and inexact Newton linesearch interior-point algorithms for nonlinear programming.*

Advisor: Noah Harding Professor Richard A. Tapia

Research Interests

To develop algorithms and software for solving large-scale optimization problems using interior-point and Krylov subspace methodologies with applications in science and engineering.

Work Experience

2001-Present Assistant Professor
Department of Mathematical Sciences, University of Texas at El Paso
2000-2001 Visiting Assistant Professor
Department of Mathematical Sciences, University of Texas at El Paso
1999-2000 Research Associate
Center for Research on Parallel Computation, Rice University

Research Grants

1. Agency: Army Research Office DAAD19-01-1-0741.
Title: On the Development of a Newton Interior-Point Trust-Region Method for Large-Scale Nonlinear Programs, Period:10/02-12/04
Pi: Miguel Argaez and Leticia Velázquez, Amount: \$400,000.
2. Agency: Army Research Office DAAD19-02-1-0243.
Title: Graduate Fellowship, Period: 10/02-12/04.
Pi: Miguel Argaez and Leticia Velázquez, Amount: \$34,722.

Publications

1. *Comparison of Bit Allocation Methods for Compressing Three-Dimensional Meteorological Data after Applying KLT* Aldo Lucero, Miguel Argáez, Sergio Cabrera, Ed Vidal Jr. and Alberto Aguirre, To appear in IEEE, 2004.

2. *An Inexact Newton Path-Following Interior-Point Algorithm for Nonlinear Programming*, Jaime Hernandez, 2004, Master Thesis, co-directed with Leticia Velázquez, University of Texas at El Paso. Paper to be submitted to Mathematical Programming A.
3. *On the Use of the Quasicentral Path for Linear Programming*. Miguel Argáez, Osvaldo Mendez, and Leticia Velázquez, 2004. Submitted to Optimization and Engineering.
4. *A Trust-Region Interior-Point Algorithm for Nonnegative Constrained Minimization*, Roberto Saenz, Master Thesis, co-directed with Leticia Velázquez, The University of Texas at El Paso, 2003. To be submitted to SIAM Optimization.
5. *On the Development of a Trust Region Interior-Point Method for Large scale Nonlinear Programs*, Miguel Argáez, Leticia Velázquez, and Maria Villalobos, Proceedings on Diversity of Computing, Association of Computing Machinery, pp. 12-13,2003.
6. *A New Primal-Dual Interior-Point Algorithm for Linear Programming*, Miguel Argáez and Leticia Velazquez, Proceedings on Diversity of Computing, Association of Computing Machinery, pp. 9-11, 2003.
7. *Numerical Comparisons of Path-Following Strategies for a Basic Interior-Point Method for Nonlinear Programming*, Miguel Argáez, Richard Tapia, Leticia Velázquez, Journal of Optimization Theory and Applications, Vol. 114(2):255-272,2002.
8. *On the Global Convergence of a Modified Augmented Lagrangian Linesearch Interior-Point Newton Method for Nonlinear Programming*, Miguel Argáez and Richard Tapia,Journal of Optimization Theory and Applications,Vol. 114(1):1-25 2002.
9. *An Interior-Point Krylov-Orthogonal Projection Method for Nonlinear Programming*, Miguel Argáez, Hector Klie, Marcelo Rame and Richard Tapia, Department of Computational and Applied Mathematics, Tech. Rep. 97-16, Rice University, 1997.

Research Workshop

Participant of Workshop: A Science-Based Case for Large-Scale Simulation, Office of Science, U.S. Department of Energy, July, 2003, Arlington, VA.

Participant of Workshop: Computational Sciences and Engineering, Mathematics, and Computer Sciences, SIAM, Department of Energy, and National Science Foundation, March, 2003, Arlington, VA.

Recent Presentations

- 2004 INFORMS Annual Meeting, Invited Talk, Denver, Colorado
- 2004 International Conference on Continuous Optimization, Invited Talk, New York
- 2004 Optimization 2004, Lisbon, Portugal
- 2003 INFORMS Annual Meeting, Chair of Session, Speaker, Atlanta, Georgia
- 2003 Tapia 2003, ACM Conference, Invited Talk, Atlanta, Georgia
- 2003 18th International Mathematical Programming, Copenhagen, The Netherlands
- 2003 SIAM Annual Meeting, Invited Talk, Montreal, Canada.