Curriculum Vitae

1 Personal Data

Name:	Mohamed El Ghami.
Date of birth:	May 1, 1969.
Place of birth:	Tamsamane Nador, Morocco.
Status in Norway:	Permanent residence and work permit in Norway.
Citizenship :	Moroccan.
Marital status:	Married; 3 children.
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2 Education

25 October 2005 :	**Ph.D. in Applied Mathematics,** Technical University Delft. Dissertation: "New primal-dual Interior-point methods based on kernel functions". Advisor: Prof. dr. ir. C. Roos.
2002–2003:	**LNMB Diploma:** Dutch National Network for Operations Research Diploma, with a total work load of 805 hours. Utrecht University, The Netherlands.
2000–2000:	Research fellow, Technical University Delft, The Netherlands.
1995–1996:	**'C.E.A' in Mathematics,** with concentration on Non Linear Analysis and Optimization, University Mohammed V, Rabat, Morocco.
1993–1995:	**'Licence' in applied Mathematics,** with concentration on Operations Research and Statistics, University Mohammed I Oujda, Morocco.
1991–1993:	**'DEUG' in Mathematics and Physics,** University Mohammed I Oujda, Morocco.
1989–1991:	Two years of study in the area of Mechanical Engineering, at 'L'Ecole Normale D'Enseignement Technique', Rabat, Morocco.
1986–1989:	Technical secondary School (Baccalaureate) in Mechanical Engineering , Oujda, Morocco.

3 Positions

2010(November)–until now:	Guest Associate Professeur at the Department of Informatics, University of Bergen, Norway.
2010(Jun)–until 2010(October):	Associate Professeur at the Department of Informatics, University of Bergen, Norway.
2006(Jun)–2010(May):	University Postdoc, Research at the Department of Informatics, University of Bergen, Norway.
2005(December)–2006(May):	Research follow at Technical University Delft, The Netherlands.
2001(May)–2005(November):	Research Assistant at Technical University Delft, The Netherlands.
1995–1999:	Teaching mathematics at private secondary schools (Baccalaureate) Rabat, Morocco.

4 Work experience (Teaching and Research)

Teaching:

Spring 2011:	MAT016 Optimization: Linear Optimization, Simplex methods, duality. NORWEGIAN SCHOOL OF ECONOMICS (NHH), Bergen.
Fall 2009:	INF270 (Responsible for full course with exam (written exam)): Linear Optimization (Simplex methods, duality, Interior-point methods, Game theory and Network-type problems), and Introduction to Integer programming, Department of Informatics, University of Bergen.
Spring 2009:	INF379: Selected Topics in Optimization (Responsible for full course with exam (Oral exam):. Topic1: Interior-point methods for linear optimization (LO), semidefinite optimization (SDO), second order cone optimization (SOCO), and general nonlinear optimization (NLO). Topic2: LMI relaxation for pooling problems and GloptiPoly solver.
Fall 2007:	INF270 (Responsible for full course with exam (written exam)): Linear Optimization (Simplex methods, duality, Interior-point methods, Game theory and Network-type problems), and Introduction to Integer programming, Department of Informatics, University of Bergen.
Spring 2007:	INF379: Selected Topics in Optimization. Topic: Interior-point methods for linear and nonlinear programming.
Fall 2006:	INF270 (Responsible for full course with exam (written exam)): Introduction to solution methods in optimization (Simplex methods, duality, Interior-point method, Game theory and Network-type problems, Introduction to Integer programming), Department of Informatics, University of Bergen.
2004-2005:	WI 2608: Optimization (Linear Optimization and nonlinear optimization) Teaching assistant of Dr. Hans Melissen, Delft university of Technology, Delft The Netherlands.
1995–1999:	Teaching mathematics at private secondary schools (Baccalaureate) Rabat, Morocco.

Research:

2006(Jun)–2010(May):	University Postdoc, Research at the Department of Informatics, University of Bergen, Norway.
2005(December)–2006(May):	Research follow at Technical University Delft, The Netherlands.
2001(May)–2005(November):	Research Assistant at Technical University Delft, The Netherlands.

5 Master students

- Doaa Hassan Mohammed (Part time student), Interior-point methods for network flow problems, Department of Informatics, UiB, Bergen. (co-supervised with Prof. T. Steihaug). Started December, 2009 (Expected time to submit thesis June 2013).
- Samir Bouali, Optimisation Linéaire, L'approche logarithmique barrière, University Mohammed

V, Faculty of Sciences Rabat Morocco. (co-supervised with Prof. Z. Guennoun) October, 2009 (Results obtained 17 over 20).

6 Research interests

Interior point methods for conic optimization.
- Linear optimization models.
- Semidefinite optimization.
- Linear complementarity optimization problems.
- Nonlinear optimization problems.
- Develop strong semi-definite relaxations, and associated IPMs, for the pooling problem.

7 Participated in Research Project

- Application and theory of the new kernel function approach for interior point algorithms. Working project, submit to the Research Council of Norway, June 2011.
- Participate in a major research initiative (RAMONA) to optimize the gas transportation to Europe. Through the RAMONA project, we collaborate extensively with other academic institutions in Norway (NTNU and the University of Stavanger) and the Norwegian gas industry (StatoilHydro and Gassco).
- Participate with Prof. dr. ir. C. Roos and Prof. Y.Q. Bai for writing a research proposal for PhD and Postdoc "New barrier functions for cone optimization" to The Netherlands Organization for Scientific Research (NWO),(my PhD study was financed by this project September 2001 September 2005 in TU Delft). The Project leader: Prof. dr. ir. C. Roos.

8 Cooperation

8.1 Cooperation International

- ♣ Prof. dr. ir. C. Roos, Delft University of Technology P.O. Box 5031, 2600 GA Delft, The Netherlands (http://www.isa.ewi.tudelft.nl/ roos/).
  He is a Professor at the Department of Computer Science, Optimization group, at Delf University of Technology, The Netherlands. His main research interests are Interior point methods. He has published more than 150 papers in international journals, and author and coauthor of 8 books.
- ♣ Prof. dr. Yanqin Bai, Department of Mathematics, Shanghai University, Shanghai 200444, China. She is a Professor at the Department of Mathematics. She published more than 40 papers and one book in Optimization.
- ♣ Prof. G. Lesaja Department of Mathematical Sciences, Georgia Southern University, Statesboro, GA 30460-8093, U.S.A.
- ♣ Dr. Hans Melissen Delft University of Technology P.O. Box 5031, 2600 GA Delft, The Netherlands.
- ♣ Prof. dr. Trond Steihaug, Department of Informatics, University of Bergen, Thormøblensgate 55 N-5008 Bergen, Norway.

9 Scientific output

9.1 Published books

[1] M. El Ghami. A kernel function approach for interior point methods: Analysis and Implementation. *LAP Lambert Academic Publishing, Germany*, NP. 168, ISBN-NR: 978-3-8443-3333-6, 2011.

9.2 Published papers or accepted

[1] M. El Ghami, Z. A. Guennoun, S. Bouali T. Steihaug. Primal-Dual Interior-Point Methods for Linear Optimization Based on a Kernel Function with Trigonometric Barrier Term. *In Press Journal of Computational and Applied Mathematics, May, 2011.*

[2] M. El Ghami and T. Steihaug. Kernel-function Based Primal-Dual Algorithms for $P_*(\kappa)$ Linear complementarity problems. International Journal RAIRO-Operations Research, 44(3), pp. 185-205, 2010.

[3] Lennart Frimannslund, Mohamed El Ghami, Mohammed A. Alfaki and Dag Haugland. Solving the Pooling Problem with LMI Relaxations. Proceedings of TOGO2010, pp. 51–54, 2010.

[4] M. El Ghami, T. Steihaug and C. Roos. A Generic Primal-Dual IPMS for Semidefinite based on Kernel Functions. *Optimization Methods and Software; Volume 25, No. 3, pp. 387-403, 2010.*

[5] M. El Ghami and T. Steihaug. Interior Point Methods for Self-dual Linear Optimization problems Based on Kernel Functions. *Mathematica Balkanica; Volume 23.(3-4) pp. 229-248, 2009.*

[6] M. El Ghami, and T. Steihaug. An Implementation of Interior-Point Methods Based on Kernel Functions for Linear Optimization. *Proceedings of Norsk Informatikkonferanse, NIK 2009. Tapir Akademisk Forlag 2009 ISBN 978-82-519-2491-7, pp. 159-170, 2009.*

[7] M. El Ghami, I. D. Ivanov, and T. Steihaug. Primal Dual Interior-point Methods Solver Based on Kernel Functions for Linear Optimization. *Proceedings of the International Multiconference on Computer Science and Information Technology. Volume: 4, pp. 741–747, 2009 (IMCSIT 2009).*

[8] M. El Ghami, Y. Q. Bai and C. Roos. Kernel Function Based Algorithms for Semidefinite Optimization. *International Journal RAIRO-Operations Research, 43(2), 189-199, 2009.*

[9] M. El Ghami, I. D. Ivanov, J.B.M. Melissen, C. Roos and T. Steihaug. A Polynomial-time Algorithm for Linear Optimization Based on a New Class of Kernel Functions. *Journal of Computational and Applied Mathematics, 224(2), 500–513,2009.*

[10] M. El Ghami, I. D. Ivanov, J.B.M. Melissen, C. Roos and T. Steihaug. Primal-Dual Algorithm for Linear Optimization Problems Based on a New Class of Kernel Functions. *Proceedings of IEEE ISCC 2008 and in the IEEE digital library,pp,722-729, Digital Object Identifier: 10.1109/ISCC.2008.4625640* July, 2008.

[11] M. El Ghami, and C. Roos. Generic Primal-dual Interior Point Methods Based on a New Kernel Function. *International Journal RAIRO-Operations Research, 42(2), pp. 199-213, 2008.*

[12] M. El Ghami, I. D. Ivanov, C. Roos and T. Steihaug. A Polynomial-time Algorithm for LO Based on Generalized Logarithmic Barrier Functions. *International Journal of Applied Mathematics (IJAM),* 21(1), pp. 99-115, 2008.

[13] Y.Q. Bai, G. Lesaja, C. Roos, G.Q. Wang and M. El Ghami. A Class of Large- and Small-update Primal-dual Interior-point Algorithms for Linear Optimization. *Journal Of Optimization Theory and Applications (JOTA),138(3), pp. 341–359* 2008.

[14] M. El Ghami, T. Steihaug, and C. Roos. Primal-dual IPMS for semidefinite optimization based on finite barrier functions. *Confrence scientific conjointe en Recherche Opratione lle et Aide la Dcision FRANCORO V / ROADEF 2007. Grenoble: Presses universitaires de Grenoble 2007. ISBN 978-2-7061-1397-0, pp. 69-82*

[15] M. El Ghami, and C. Roos. Primal-dual Interior Point Methods Based on a New Kernel Function. *In A. Benchakroun and A. Mansouri, editors, Proceedings of the International Conference in Operations Recherch CIRO'05, Theory and applications, pages 15–29, Rabat, Morocco, December 2005. Impression Kawtar Print.*

[16] Y.Q. Bai, M. El Ghami, and C. Roos. A comparative study of new barrier functions for primal-dual interior-point algorithms in linear optimization. *SIAM Journal on Optimization,* 15(1), pp. 101–128, 2005.

[17] Y.Q. Bai, M. El Ghami, and C. Roos. A new efficient large-update primal-dual interior-point method based on a finite barrier. *SIAM Journal on Optimization, 13(3), pp. 766-782, 2003.*

[18] Y.Q. Bai, C. Roos, and M. El Ghami. A primal-dual interior-point method for linear optimization based on a new proximity function. *Optimization Methods and Software,* 17(6), pp. 985–1008, 2002.

9.3 Submitted papers

[1] M. El Ghami. Primal-Dual Algorithms for $P_*(\kappa)$ Linear Complementarity Problems based on Kernel-function with Trigonometric Barrier Term. Submitted to Springer Proceedings in Mathematics (PROM), 2012.

[2] J.B.M. Melissen and M. El Ghami. A sequence of sharp trigonometric inequalities. *Submitted to International Journal IJPAM.*

9.4 Working papers

[1] M. El Ghami and T. Steihaug. Generic Primal-Dual IPMS for Second Order Cone Optimization based on a new Kernel Functions *2010.*

[2] L. Frimannslund, M. El Ghami, M. Alfaki and D. Hougland. Solving the Pooling problem by using Semidefinite Relaxations. *Manuscript, 2010 (extended draft of TOGO2010 proceeding paper).*

[3] M. El Ghami. A Polynomial-Time Interior-point Algorithm Based on Trigonometric Barrier Functions. *2009.*

9.5 Thesis

[1] M. El Ghami New Primal-dual Interior-point Methods Based on Kernel Functions. *Technical University Delft, The Netherlands, October 2005* (Ph.D. Thesis)

[2] M. El Ghami. Condition necessaires d'optimalite de promiere ordere en optimisation non reguliere. *University Mohammed V, Rabat, December, 1996* (CEA Report Available in French only).

9.6 Conferences (Some selected talks)

[1] Interior-Point Methods for Linear Optimization Based on a Kernel function with Trigonometric Barrier Term. International Congress on Computational and Applied Mathematics in Leuven Belgium (ICCAM2010), July 05-09, 2010.

[2] Generic Primal-Dual IPMS for SOCO based on Kernel Functions. The Fifth International Conference on Operations Research in Marrakech Morocco. (CIRO'10), May 24-28, 2010.

[3] Primal-Dual Interior-Point Methods Solver Based on Kernel Functions for Linear Optimization. International Multiconference on Computer Science and Information Technology October 1214, 2009. Mragowo, Poland.

[4] Primal Dual Interior-point Methods Solver Based on Kernel Functions for Linear Optimization. *23rd European Conference on Operational Research Bonn, July 5 - 8, 2009.*

[5] Primal-Dual Interior-Point Methods for Linear Optimization Based on a Kernel Function with Trigonometric Barrier Term. *7th EUROPT Workshop Advances in Continuous Optimization,3-4 July, 2009, Remagen, Germany.*

[6] Primal-Dual Algorithm for Linear Optimization Problems Based on a New Class of Kernel Functions. *IEEE Symposium on Computers and Communications (ISCC'08) July 6 - 9, 2008, Marrakech, Morocco.*

[7] Kernel-function Based Primal-Dual Algorithms for $P_*(\kappa)$ Linear complementarity problems. *Deuxime dition des journes d'informatique et de mathmatiques dcisionnelles (JIMD'2)ENSA, Rabat Morocco July, 3-5, 2008 .*

[8] A Polynomial-time Algorithm for Linear Optimization Based on a New Class of Kernel Functions. *ORP3 Meeting, Guimares, Portugal. September 12-15,* 2007.

[9] A Generic Primal-dual Interior-point Algorithm for Cone Optimization Based on Kernel Functions. 22^{nd} *European Conference On Operational Research, Prague, July 8–11, 2007*

[10] Primal-Dual IPMS for $P_*(k)$ Linear complementarity problems Based on Kernel Functions. *Joint EUROPT-OMS Meeting 2007,* 2^{nd} *Conference on Optimization Methods and Software and* 6^{th} *EUROPT Workshop on Advances in Continuous Optimization, July 4-7, 2007, in Prague, Czech Republic*

[11] Primal-Dual IPMS for semidefinite optimization based on finite barrier functions. *Confrence scientific conjointe en Recherche Oprationelle et Aide la Dcision FRANCORO V / ROADEF Grenoble france 20 au 23 février 2007.*

[12] A Comparative Study of kernel Functions for Primal-dual Interior-point Algorithms in Semidefinite Optimization. *VOCAL International conference, in Veszprem, Hungary (13-15/12/2006).*

[13] New Primal-dual Interior Point Methods Based on Kernel Functions. *Bergen University, Norway 5/10/2006).*

[14] Primal-dual Interior Point Methods Based on a New Kernel Function. *International conference of O. R., (CIRO), in Marrakech, Morocco (22-26/5/2005).*

[15] New primal-dual interior-point methods based on kernel functions. *VOCAL International conference, in Veszprem, Hungary (13-15/12/2004).*

[16] A new class of barrier functions for primal-dual interior-point method in linear optimization. *LNMB International conference in The Netherlands Lunteren (13-15/1/2004).*

[17] Primal-Dual Interior-Point Methods Based on new class of barrier functions Term. *ISMP 2003 International conference, Copenhagen Denmark (18-22 August 2003).*

9.7 Reviewed articles for scientific journals:

- ♣ European Journal of Operational Research.
- ♣ International Journal of Computer Mathematics.
- ♣ Journal of Mathematical Modeling and Analysis.
- ♣ Journal of applied mathematics and computing (JAMC).
- ♣ Journal of Computational and Applied Mathematics.
- ♣ Numerical Algorithms.

9.8 Scientific meetings

- ✓ Member of the Scientific Committee for The Fifth International Conference on Operations Research (CIRO'10), Marrakech, Morocco, from 24 to 27 May 2010.
- ✓ Program committee member of the "2^{eme} Journées d'Informatique et Mathematiques Décisionnelles" (JIMD'2) held in Rabat, Morocco, 3-5 July 2008.

10 Computing skills

Programming language:	Basic knowledge in Pascal, C, and C^{++}.
Web language:	HTML.
Operating systems:	Microsoft Windows.
Softwares:	Good knowledge of LATEX, MATLAB, Maple.

11 Language

Arabic:	Very good knowledge.
English:	Good knowledge, specially technical English.
French:	Good knowledge.
Dutch:	School knowledge. Basic knowledge certificate in reading understanding writing and speaking (2004).
Norwegian :	Norwegian language for student and employees at UIB (Level 2). Basic knowledge certificate in reading understanding writing and speaking (2007–2008).
Tamazight:	Mother language Berber(Rif).

12 Interests

Reading, Swimming, Football.

13 References

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