

Lalla Mouatadid

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Education

- University of Toronto (U of T)
Ph.D, Computer Science 2014 - 2018 (expected)
Advisors: Professors Derek Corneil & Allan Borodin
- M.Sc., Computer Science** 2012 - 2014
Advisors: Professors Derek Corneil & Allan Borodin
- Vancouver Island University (VIU)
Bachelor of Science, Computer Science (Honours) 2006 - 2010
Minor: Mathematics
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Publications

- **Maximum Induced Matching Algorithms via Vertex Ordering Characterizations**
Michel Habib & Lalla Mouatadid
International Symposium on Algorithms and Computation (ISAAC), 2017. To appear.
Invited to a Special Issue of Algorithmica.
Preliminary results presented at STOC 2017 - Poster Presentation.
- **A New Graph Parameter To Measure Linearity**
Pierre Charbit, Michel Habib, Lalla Mouatadid, and Reza Nasrasr
International Conference on Combinatorial Optimization and Applications (COCOA), 2017. To appear.
- **A Linear Time Algorithm to Compute a Maximum Weighted Independent Set on Cocomparability Graphs**
Ekkehard Köhler, Lalla Mouatadid
Information Processing Letters, Volume 116, Issue 6, Pages 391-395, 2016.
- **Linear Time LexDFS on Cocomparability Graphs.**
Ekkehard Köhler, Lalla Mouatadid
Symposium and Workshops on Algorithm Theory (SWAT), 2014.

Other manuscripts [Available upon request]

- A De Bruijn-Erdős Theorem for Asteroidal-Triple Free Graphs.
Lalla Mouatadid
In submission.
 - Path Graphs, Cliques Trees, and Flowers.
Lalla Mouatadid, Robert Robere
In submission.
 - The LexDFS Structure of Posets.
Derek Corneil, Lalla Mouatadid, and Gara Pruesse
In preparation.
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Awards, Honors, & Fellowships

- NSERC Post Graduate Scholarship - Doctoral. \$21,000/year 2015 - 2018
- Doctoral Completion Award. \$5400 2017 - 2018
- Graduate Student Fellowship, Department of Computer Science, U of T.
\$22,000/year 2012 - 2017
- ACM-Women sponsorship for the Grace Hopper Conference. Full sponsorship. 2014
- **First Prize winner** of Best Poster at ONCWIC. \$1000 2013
Now the The ACM Canadian Celebration of Women in Computing for the *Linear Time Algorithm to Compute a Maximum Weighted Independent Set on Cocomparability Graphs*

- Dean's Honour List, Vancouver Island University 2006 - 2010
- Mathematical Association of America sponsorship for MAA Mathfest Conference to present my undergraduate thesis *Efficient Generation of the Ideals of a Poset* 2009
- VIU Academic Excellence Award & VIU Ina Roelants Memorial Award. \$1000 2008
- VIU International Education Academic Excellence Scholarship. \$1000 2007
- David Jones Scholarship for Leadership and Volunteer Work, VIU. \$500 2007

Other Projects

- **Generation of Ideals of Crown Posets in a Gray Code Manner, in Constant Amortized Time.**
Undergraduate Research Thesis.
Presented at MAA Mathfest 2009. [Slides]
- **fMRI Classification of Cognitive States Across Multiple Subjects.**
We train a neural network and a RBF SVM to come up with one classifier (of cognitive states) across multiple subjects; succeeding in doing so allows us to associate brain activities to cognitive states independently from the anatomy of the brain. Previous work focused on training one classifier per subject.
- **Characterization of complex genetic disease using exomic SNVs and gene expression data.**
We explored combining both exome sequences and gene expression in order to identify harmful genes and to characterize the mechanism, that when disrupted, can cause a disease.

Conference Talks, Invited Workshops, Forums, & Summer Schools

- **Princeton University** 2017
Talk: *"Efficient Algorithms on Cocomparability Graphs"*
- **Workshop on Graph Classes, Optimization, and Width Parameters** 2017
Talk: *"Maximum Induced Matching on Cocomparability Graphs"*
GROW 2017 - Invitation Only
- **Summer School on Random Graphs & Probabilistic Methods** 2017
The Fields Institute
- **Workshop on Graph Searching, Theory and Applications** 2017
GRASTA 2017 - Invitation Only [Could not attend.]
- **The 4th Heidelberg Laureate Forum** 2016
Poster: *"Graph Searches on Structured Families of Graphs"*
Invited by laureate Professor Stephen Cook
- **Search Games: Theory and Algorithms** 2016
Talk: *"Graph Searches on Structured Families of Graphs"*
Lorentz Center - Invitation Only
- **Workshop on Graph Classes, Optimization, and Width Parameters** 2015
Talk: *"Path Graphs, Clique Trees, and Flowers"*
GROW 2015 - Invitation Only
- **Institut Henri Poincaré, Struco Meeting: Graph Theory & Sparse Structures** 2015
- **University Paris Diderot, IRIF** 2015
Talk: *"Path Graphs, Clique Trees, and Flowers"*
- **Brandenburgische Technische Universität, Math Department** 2015
Talk: *"Path Graphs, Clique Trees, and Flowers"*
- **SWAT 2014** 2014
Talk: *"Linear Time LexDFS on Cocomparability Graphs"*
- **SICCGC 2014, Track: Structured Families of Graphs: Mathematical and Algorithmic Aspects** 2014
Talk: *"Linear Time LexDFS on Cocomparability Graphs"*

Academic & Extra-Curricular Service

- **Program Committee Member** - GROW 2017 2017
- **Girls in STEM Workshop**, U of T 2017
Organizing and running the workshop for girls grade 6 to 9. A collaboration with the U of T Math Department.
- **Reviewer** 2013 - Present
Journal of Graph Theory (JGT)
SIAM Journal on Discrete Mathematics (SIDMA)
Journal of Combinatorics (JOC)
Discrete Mathematics & Theoretical Computer Science (DMTCS)
Discrete Applied Mathematics (DAM)
Information Processing Letter (IPL)
International Workshop on Graph-Theoretic Concepts in Computer Science (WG)
- **Lead Mentor**, U of T 2016
The Undergraduate Summer Research Program, UGSRP
Mentoring and guiding undergraduate students in their summer projects.
- **Course Instructor**, U of T, 100+ students 2014 & 2016
CSC 373: Algorithm Design, Analysis, & Complexity (2nd offering)
CSC 373: Algorithm Design, Analysis, & Complexity (1st offering)
- **Teaching Assistant**, U of T 2012 - Present
CSC2404: Computability & Logic (**Graduate course**).
CSC2420: Algorithm Design, Analysis, & Theory (**Graduate course**).
CSC 473: Advanced Algorithm Design.
CSC 373: Algorithm Design, Analysis, & Complexity.
CSC 263: Data Structures and Analysis.
CSC 236: Introduction to Theory of Computation.
CSC165: Mathematical Expression and Reasoning for Computer Science.

Work Experience

- **NISA** NANAIMO BC, CANADA
Database Developer 2009 - 2012
Designed, implemented, and maintained customized PHP and MySQL- based solutions for clients.
In my last year at NISA, I was the *sole* lead developer for one of NISA's biggest projects: Canadian-Nanny.ca. My responsibilities included, but were not limited to the redesign and implementation of the client's database, the creation and integration of new features, working with project managers to establish roadmaps and timelines, and working with designers to do a complete visual update of the web interface.
- **Pelican Software** NANAIMO BC, CANADA
Java Analyst - Summer Coop 2008
Designed and implemented automated tests using Selenium with JMeter WebDriver.

Skills

- **Technical expertise:**
C, C++, MATLAB, Java, PHP, MySQL, JavaScript, jQuery, HTML, L^AT_EX.
- **Languages:**
Fluent in English & French.

Research References

Derek Corneil
Professor - University of Toronto, Canada
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Allan Borodin
Professor - University of Toronto, Canada
bor@cs.toronto.edu

Michel Habib
Professor - University of Paris - Diderot & IRIF, France
Habib@irif.fr

Ekkehard Köhler
Professor - Technical University of Cottbus, Germany
ekkehard.koehler@b-tu.de

Teaching References

Karen Reid
Associate Professor - University of Toronto, Canada
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Francois Pitt
Associate Professor & Undergraduate Computer Science Chair - University of Toronto, Canada
fpitt@cs.toronto.edu