

Yousra Lembachar

CONTACT INFORMATION	Paris 13 University Laboratoire d'Informatique de Paris Nord	yousra.lembachar@lipn.paris13-univ.fr http://www.cs.ucr.edu/~ylemb001
RESEARCH INTERESTS	Testing and Verification Techniques, Algorithm Design, Data Structures, and Decision Diagrams, Programming Languages, Compilers, and Software Evolution.	
EDUCATION	University of California, Riverside , Riverside, CA. USA M.S, Computer Science, 2012 <ul style="list-style-type: none">• Advisor: Prof. Gianfranco Ciardo• Research area: Software Verification and Model Checking.• GPA: 3.855/4.0 Mohammadia Engineering School , Rabat, Morocco. B.S, Computer Science & Software Engineering, 2009	
HONORS AND AWARDS	Fulbright Award covering two years of academic and living expenses in California granted by the Moroccan-American Commission for Educational and Cultural Exchange. 2010-2012. <u>ACM-W</u> sholarship granted by the Association for Computing Machinery (ACM) to attend the 12th International Workshop on Automated Verification of Critical Systems (AVoCS'12). Fall 2012. Graduate Student Research Assistantship. Summer 2011. Travel grants to attend the <u>First & Second Summer Schools on Formal Techniques</u> . Spring 2011/2012. Exemption from the oral exams in the national exams leading to entrance to engineering schools known as " <u>le concours national commun d'admission aux grandes ecoles d'ingenieurs</u> ".	
ACADEMIC EXPERIENCE	Paris 13 University, Laboratoire d'Informatique de Paris Nord , Paris, France <i>Scientific researcher</i> September, 2012 - January 2013 Scientific research advised by Prof. Laure Petrucci Currently working on the integration of MODGRAPH, IMITATOR, and HELENA, a set of verification tools, to the CosyVerif platform. University of California, Riverside , Riverside, CA. USA <i>Graduate Student</i> September, 2010 - August, 2012 M.S research advised by Prof. Gianfranco Ciardo Worked on the design and the implementation of a C++ pointer-based decision diagrams library that provides a wide range of operations to manipulate Binary Decision Diagrams and a large set of their extensions such as Multiway Decision Diagrams, Interval Decision Diagrams, Terminal Valued Decision Diagrams and Edge-Valued Decision Diagrams. Worked on a Petri-net based approach to analyze the Event-Condition-Action (ECA) rules describing a Cyber-Physical System and its integration to the verification tool <u>SMART</u> to verify fundamental correctness properties such as termination and confluence. Worked on BDDL, a sound type system for Binary Decision Diagrams that extends lambda calculus	

with support for BDD operations and that can express BDD structural properties and semantics. BDDL uses a type system based on refinement types to statically check BDD manipulation and can prevent incorrect operations on BDDs at compile-time.

INVITED PAPERS Yousra Lembachar, Ryan Rusich, Iulian Neamtiu and Gianfranco Ciardo. 2012. Who Watches the Watchers: Toward Provably-correct Decision Diagram Code. Invited paper at the 21st International Workshop on Logic and Synthesis (IWLS'12).

POSTERS Yousra Lembachar, Ryan Rusich, Iulian Neamtiu and Gianfranco Ciardo. 2011. BDDL, a Type System for Decision Diagrams. Poster at SoCal Programming Languages and Systems Workshop'11.

PROFESSIONAL EXPERIENCE **Cap Gemini Technology Services**, Casablanca, Morocco.
Junior Consultant Grade A **October, 2009 - July 2010**
Collaborated with technical architects, participated in software design and implementation, developed and run software applications, wrote tests sets for software applications and maintained delivered software products

SIS-Consultants, Rabat, Morocco.
Intern **February, 2009 - June 2010**
Designed and implemented a management system for job and internship applications. The final system allows on-line recruiting, identifies potential applicants and allows applications processing, filtering and monitoring; integrated the final system into the Human Resource Management System of the company.

TECHNICAL SKILLS **Programming Languages and Compilers**
Programming languages: C++ & Java (Strong programming skills) C, C#, VB.NET, ASP.NET, and O'CamI (I worked on at least one project where I had to use each of these programming languages).
Compilers: I implemented a lexical analyzer and parser for a subset of the C language using C++ and other compilers for small languages using Flex and Bison.

Operating Systems, Distributed systems, and Databases
Operating Systems: I am familiar with Microsoft Windows and Unix-like systems.
Distributed Systems: I designed and implemented a distributed storage system that tunes to different applications workloads (Java project).
Databases: I worked with MySQL, Oracle, PostGreSql and BerkeleyDB. I have theoretical knowledge on B-trees, R-trees and other efficient databases indexing methods. I also implemented the Fagin's and NRA Top-k algorithms (C++ project).

Computer Networks
I have theoretical knowledge on LAN, WAN, TCP/IP and IPv6 and I implemented several applications using sockets, CORBA and JavaNIO.

Platforms and Web development
J2EE, .NET, HTML, CSS, Javascript, JSP, JSF, XML

String Processing
I implemented a generalized suffix tree C++ class and a space efficient algorithm to find the maximal unique matches between two long strings.

LANGUAGES Native-level fluency in Arabic, French, and English. Good translation skills from and to Arabic, French and English. Paper reviewer (QEST'12 and Petri Nets'12).