

Juan Mendivelso

Ph.D. Candidate in Computer Science
M.Sc. in Computer Science
Computer Engineer

ADDRESS

National University of Colombia¹
Department of Computer Science and Industrial Engineering²
Avenida Carrera 30 # 45-03, Ciudad Universitaria
Bogotá, Colombia
Office: 453-207
Phone: +57 1 3165000 Ext. 14013
Email: jcmendivelsom@unal.edu.co
WWW: http://www.docentes.unal.edu.co/jcmendivelsom/index_en.html

RESEARCH INTERESTS

I am interested in the following areas:

- Discrete Mathematics
- Theoretical Computer Science
- Design and Analysis of Algorithms
- Data Structures
- Theory of Computation

CURRENT RESEARCH

Currently, I am working on research projects related to the following areas:

- Graph theory
- Large distributed graphs
- String matching
- Bit parallelism
- Bioinformatics

RESEARCH GROUPS

I am a member of the following research groups of the National University of Colombia:

- ALGOS-UN: Research Group on Algorithms & Combinatorics 2007 – ...
- LISI: Research Laboratory on Intelligent Systems 2007 – ...

EDUCATION

Ph.D. Candidate, Computer Science - Fourth Year 08/2010 – ...
National University of Colombia

- *Thesis Title:* “The Graph Pattern Matching Problem through Parameterized Matching”.
- *Director:* Yoan Pinzón, Ph.D. Associate Professor, National University of Colombia.
- *Co-Director:* Sameh Elnikety, Ph.D. Researcher, Microsoft Research.

¹Universidad Nacional de Colombia

²Departamento de Ingeniería de Sistemas e Industrial

- *Areas of Study:* Algorithms & combinatorics, graph isomorphism, large graphs, string matching.

M.Sc., Computer Science (with distinction) 08/2007 – 07/2010
National University of Colombia

- *Thesis Title:* “Definition and Solution of a new String Searching Variant termed $\delta\gamma$ -Parameterized Matching”.
- *Distinction:* Meritorious.
- *Director:* Yoan Pinzón, Ph.D. Associate Professor, National University of Colombia.
- *Areas of Study:* Algorithms & combinatorics, bipartite graphs, string matching, bit parallelism.
- *Graduation Date:* July 23rd, 2010.

B.Eng., Computer Engineering 02/2002 – 08/2007
National University of Colombia

- *Graduation Date:* September 11th, 2007.

DISTINCTIONS Selection as a Research Intern in Microsoft Research 02/14/2011

Microsoft, through the *Microsoft Research Latin America Internship* program, selects graduate students to do research internships in the Microsoft Research labs at Redmond, WA, USA. Specifically, Microsoft annually selects 7 outstanding students from all over Latin America. In the history of the program, only 3 Colombian students, including myself, have been selected for such internships.

Assistant Professor Scholarship 02/2011 – 11/2013

In early 2011, the Academic Directives of the National University of Colombia started to grant the *Assistant Professor Scholarship* to outstanding graduate students. The recipients of this scholarship teach two courses, in the respective department, each semester. I received it as a Ph.D. student in 2011-I and have continued to renew it until the current semester.

Best Ph.D. Research Proposal Award (2nd place) 11/22/2010

The Department of Computer Science and Industrial Engineering of the National University of Colombia carried out the academic event titled *Third DISI Symposium: Socializing Graduate Research Experiences* in late 2011. Research proposals of graduate students were presented as part of this event. I was given the *Best Ph.D. Research Proposal Award (2nd place)* distinction.

Meritorious Master’s Thesis Distinction 05/14/2010

My M.Sc. thesis, titled “Definition and Solution of a new String Searching Variant termed $\delta\gamma$ -Parameterized Matching”, was orally presented on May 14th, 2010. The assessment committee was conformed by Germán Hernández and Jonatan Gómez, Associate Professors of the National University of Colombia. They granted the *Meritorious Master’s Thesis Distinction* to my thesis.

4th Place in the Admission to B.Eng., Computer Engineering 02/2002

I obtained the 4th place, among 3500 applicants, in the results of the admission process to the program *B.Eng., Computer Engineering* in 2002-I at the National University of Colombia.

LANGUAGES English and Spanish (native)

English Classes Taken:

Centro Colombo Americano

Saturday English Program (500 contact hours) 02/10/1996 – 06/16/2001

Saturday Advanced Courses (110 contact hours) 07/14/2001 – 06/16/2003

English Tests Taken:

TOEFL Institutional Test 05/2012

Overall Assessment: 593

International Test of English Proficiency – iTEP 08/2010

Overall Assessment: Level 5 (out of 6). Equivalent to C1 of the Common European Framework of Reference for Languages – CEFR.

TEACHING EXPERIENCE National University of Colombia 02/2008 – ...
Department of Computer Science and Industrial Engineering

I have been the professor of the following courses:

- **Object-Oriented Programming** 08/05/2013 – ...

Course Code: 2016375

Semesters: 2013–II

Groups: 7 and 8

Contact Hours: 8 hours per week (4 per group)

- **Algorithms** 02/22/2012 – 06/03/2013

Course Code: 2016696

Semesters: 2013–I, 2012–II y 2012–I

Groups: 1 and 2

Contact Hours: 8 hours per week (4 per group)

- **Data Structures** 02/23/2009 – 11/30/2011

Course Code: 2016699

Semesters: 2011–II, 2011–I, 2010–II, 2009–II y 2009–I

Groups: 3 and 4

Contact Hours: 8 hours per week (4 per group)

- **Linear Programming and Graphs** 02/15/2008 – 12/20/2008

Course Code: 2001856

Semesters: 2008–II y 2008–I

Groups in 2008–II: 10 and 11

Group in 2008–I: 11

Contact Hours: 4 hours per week and per group

- **Research Methods** 02/15/2008 - 06/14/2008

Course Code: 2001400

Semester: 2008–I

Group: 1

Contact Hours: 4 hours per week and per group

OTHER WORK EXPERIENCE Microsoft Research 05/16/2011 – 08/05/2011
Position: Research Intern at the Microsoft Research labs in Redmond, WA, USA.

Contact Hours: Full time

Type of Experience: Research

Description: I worked in a research project to solve the sub-graph isomorphism problem, on large graphs, using string matching techniques.

Planning Office, National University 12/14/2010 – 02/02/2011

Position: Consultant

Contact Hours: 16 hours per week

Type of Experience: Professional

Description: I participated in a project whose goal was the conceptual study of the processes developed at the National University of Colombia to efficiently allocate the academic spaces.

CTP – Consultoría, Tecnología y Procesos 07/21/2008 – 07/20/2009

Position: Web Developer and Consultant

Contact Hours: 24 hours per week

Type of Experience: Professional

Description: I was one of the members of the development and consultant team of the Colombian Stock Exchange's³ new Web portal. We used TIBCO PortalBuilder software.

Faculty of Engineering, National University 06/12/2007 – 10/12/2007

Position: Assistant in Research Projects of Bioinformatics

Contact Hours: 20 hours per week

Type of Experience: Research

Description: I provided assistance in research and software development for bioinformatics projects. Furthermore, I performed maintenance of the Web pages and administration of the systems.

Enlace Virtual de las Américas – EVA 01/01/2007 – 09/30/2007

Position: Support Engineer

Contact Hours: 2 hours per week

Type of Experience: Professional

Description: I performed administration and maintenance of all the systems of the company, including the Web applications.

Prisma Direct LTDA 08/15/2006 – 10/03/2007

Position: Web Developer

Contact Hours: 24 hours per week

Type of Experience: Professional

Description: I developed J2EE Web applications to manage the information related to clients and products of the company.

TECHNICAL SKILLS

Some of my technical skills in different areas are:

- *Programming:* C, C++, C#, J2SE, J2EE, PL-SQL, JavaScript, HTML, CSS
- *DBMS:* Oracle, MySQL, Microsoft Access
- *Applications:* L^AT_EX, Microsoft Office, CorelDRAW

³Bolsa de Valores de Colombia – BVC

- *Operating Systems*: Microsoft Windows 2000/XP/Vista/7, Linux

PUBLICATIONS My publications are listed next:

- Juan Mendivelso, Sunghwan Kim, Sameh Elnikety, Yuxiong He, Seung-Won Hwang and Yoan Pinzón
“Solving Graph Isomorphism using Parameterized Matching”
Proceedings of the 20th International Symposium on String Processing and Information Retrieval (SPIRE 2013). O. Kurland, M. Lewenstein and E. Porat (Eds.), Lecture Notes in Computer Science, Springer-Verlag Berlin Heidelberg. Jerusalem, Israel. 2013.
- Juan Mendivelso, Inbok Lee and Yoan J. Pinzón
“Approximate Function Matching under δ - and γ distances”
Proceedings of the 19th International Symposium on String Processing and Information Retrieval (SPIRE 2012). L. Calderón-Benavides, C. González-Caro, E. Chávez and N. Ziviani (Eds.), Lecture Notes in Computer Science, Vol. 7608, Springer-Verlag Berlin Heidelberg, pp 348-359, ISSN 0302-9743, e-ISSN 1611-3349, ISBN 978-3-642-34108-3, e-ISBN 978-3-642-34109-0. Cartagena, Colombia. 2012.
- David Becerra, Juan Mendivelso and Yoan J. Pinzón
“A Multiobjective Approach to the Weighted Longest Common Subsequence Problem”
Proceedings of the Prague Stringology Conference 2012 (PSC 2012). J. Holub and J. Žďárek (Eds.), Czech Technical University in Prague, pp 64-74, ISBN 978-80-01-05095-8. Prague, Czech Republic. 2012.
- Inbok Lee, Juan Mendivelso and Yoan J. Pinzón
“ $\delta\gamma$ -Parameterized Matching”
Proceedings of the 15th International Symposium on String Processing and Information Retrieval (SPIRE 2008). A. Amir, A. Turpin and A. Moffat (Eds.), Lecture Notes in Computer Science, Vol. 5280, Springer-Verlag, Berlin, pag 236-248, ISSN 0302-9743, ISBN-10 3-540-89096-3, ISBN-13 978-3-540-89096-6. Melbourne, Australia. 2008.
- Juan Mendivelso
“Definition and Solution of a new String Searching Variant termed $\delta\gamma$ -Parameterized Matching”
 Master’s Thesis in Computer Science. National University of Colombia. Bogotá, Colombia. 2010.
- David Becerra, Juan Mendivelso and Yoan Pinzón
“An Algorithm for the Weighted Longest Common Subsequence Problem”
Memorias del Quinto Congreso Colombiano de Computación (5CCC). ISBN 978-958-8387-40-6. Cartagena, Colombia. 2010.
- Juan Mendivelso and Yoan Pinzón
“Revisión de Diferentes Tipos de Búsqueda de Patrones en Cadenas con Énfasis en la Parametrizada y en la (δ, γ, α) ”

Memorias del Encuentro Nacional de Investigación y Desarrollo 2010 (ENID 2010). ISBN 978-958-719-571-2. Bogotá, Colombia. 2010.

- Juana Córdoba, Juan C. Mendivelso and Luis F. Niño
Búsqueda de Secuencias Microsatelitales en Fríjol Común (Phaseolus Vulgaris L.)
Memorias del Tercer Congreso Colombiano de Computación (3CCC). ISBN 978-958-8256-85-6. Medellín, Colombia. 2008

REFEREEING AND PROGRAM COMMITTEES

- Program Committee Member of the *2013 International Conference on Reliable And Convergent Systems* (ACM RACS 2013).
- External Reviewer of the *16th International Symposium on String Processing and Information Retrieval* (SPIRE 2009).
- External Reviewer of the *Prague Stringology Conference 2009* (PSC 2009).

PARTICIPATION IN EVENTS

- Speaker and participant at the “*20th International Symposium on String Processing and Information Retrieval*” (SPIRE 2013). Octubre 7-9 (talleres: Octubre 10), 2013. **Jerusalén, Israel.**
- Speaker and participant at the “*19th International Symposium on String Processing and Information Retrieval*” (SPIRE 2012). Octubre 21-25, 2012. **Cartagena, Colombia.** Dentro de este evento, asistí a los siguientes talleres y tutoriales:
 - “*Workshop on Compression, Text, and Algorithms 2012*” (WCTA 2012).
 - “*Workshop on the Algorithmic Analysis of Biological Data*” (WAABD 2012).
 - Tutorial en diseminación de la información en redes sociales por el Dr. Aristides Gionis.
 - Tutorial en estructuras de datos con manejo eficiente de espacio por el Dr. Francisco Claude y el Dr. Gonzalo Navarro.
- Ponente y asistente en “*Prague Stringology Conference 2012*” (PSC 2012). Agosto 27-28, 2012. **Praga, República Checa.**
- Ponente y asistente en el “*Tercer Simposio DISI: Socializando Experiencias Investigativas de Posgrado*”. Noviembre 22, 2010. **Bogotá, Colombia.**
- Asistente al curso “*Procesamiento del Lenguaje Natural*” por el Dr. Alexander Gelbukh. Octubre 4-29, 2010. **Bogotá, Colombia.**
- Ponente y asistente en el “*Encuentro Nacional de Investigación y Desarrollo 2010*” (ENID 2010). Septiembre 22-24, 2010. **Bogotá, Colombia.**
- Ponente y asistente en el “*Quinto Congreso Colombiano de Computación*” (5CCC). Abril 14-16, 2010. **Cartagena, Colombia.**
- Ponente y asistente en “*15th International Symposium on String Processing and Information Retrieval*” (SPIRE 2008). Noviembre 10-12, 2008. **Melbourne, Australia.**
- Ponente y asistente en el “*Tercer Congreso Colombiano de Computación*” (3CCC). Abril 23-25, 2008. **Medellín, Colombia.**

REFERENCES

Yoan Pinzón, Ph.D.

National University of Colombia
Associate Professor
Phone: +57 1 3165000 Ext. 14078
E-mail: ypinzon@unal.edu.co
WWW: <http://dis.unal.edu.co/profesores/ypinzon/>

Luis Fernando Niño, Ph.D.

National University of Colombia
Research Director of the Bogotá Campus
Associate Professor
Phone: +57 1 3165000 Ext. 18115, 14079
E-mail: lfminov@unal.edu.co
WWW: <http://www.dib.unal.edu.co/contactos/direccion.html>

Germán Hernández, Ph.D.

National University of Colombia. Associate Professor
University of Memphis. Adjunct Professor
Phone: +57 1 3165000 Ext. 14079
E-mail: gjhernandezp@unal.edu.co
WWW: <http://disi.unal.edu.co/gjhernandezp/>

Fabio González, Ph.D.

National University of Colombia
Associate Professor
Phone: +57 1 3165000 Ext. 14077/11
E-mail: fagonzalezo@unal.edu.co
WWW: <http://dis.unal.edu.co/fgonza/>

Sameh Elnikety, Ph.D.

Microsoft Research
Researcher
Phone: +1 425 5382234
E-mail: samehe@microsoft.com
WWW: <http://research.microsoft.com/en-us/people/samehe/>

Yuxiong He, Ph.D.

Microsoft Research
Researcher
E-mail: yuxhe@microsoft.com
WWW: <http://research.microsoft.com/en-us/people/yuxhe/>

Seung-won Hwang, Ph.D.

POSTECH
Associate Professor
E-mail: swhwang@postech.ac.kr
WWW: <http://www.postech.ac.kr/swhwang/>

Inbok Lee, Ph.D.
Korea Aerospace University
Assistant Professor
E-mail: inboklee@kau.ac.kr