




ANDRÉS SOLÍS MONTERO

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OVERVIEW

- Software Developer** Over 15 years of experience in software and web development. Specialized in Computer Vision, Machine Learning, Object Oriented Programming, Data Structures and Algorithms, and scripting solutions. Developer who enjoys simplicity in design, creative code, innovation, with an eye for designing and developing Graphical User Interfaces. Encourages collaborative work environments, stimulates group creativity and promotes sharing of knowledge. Experienced in C++, Python, Java, Web technologies, and SQL databases.
- Research scientist** Strong background in Computer Vision, Image Processing, Machine and Deep Learning solutions applied to shape analysis, object detection, tracking, people re-identification and metric learning applications. Published over 10 publications with 500+ citation, and technical reviewer for 8+ years.
- Teaching experience** Taught computer science, programming languages, and advance programming concepts for over 10 years. Taught over 10 courses and 10 programming languages at the University level.

WORK EXPERIENCE

- 2016–Present*
Tempo Analytics, Canada
Co-Founder, Research & Development, Software Engineer
Architect, team technical lead, and full stack software developer of a server-client application to deliver speed of service time statistics for the Quick Service Industry. Creating deep learning and computer vision solutions for customer detection, people re-identification, and metric learning. Designing and developing web tools to control the application's nodes and display the customer analytics.
- 2010–2016*
University of Ottawa, Canada
Research Assistant, Computer Vision Software Developer
Responsible for writing research papers, presenting research findings, and develop computer vision and machine learning software to test and validate the results. Research on shape analysis, object detection and tracking solutions for augmented reality, robot localization, and surveillance applications.
- 2011–2012*
Proximify
Senior Web Developer
Design and development of the javascript template engine powering UniWeb and CCV Sync. A web-based software for academic institutions and grant agencies, a research network builder and a tool for creating and maintaining your Canadian Common CVs.

- 2010–2011 **Web Developer**
Dalen Design Development and maintenance of the e-commerce website: [Hot Tub Covers Canada](#).
 Processing electronic payments, showcasing products, accessories, descriptions, managing reviews and comments.
- 2009–2010 **Software Developer**
Hegyí Geomatics international Inc Design and development of tools for the forest industry. Image analysis of forest stands using high resolution and Landsat imagery (Java, and C++).
- 2008–2010 **Research Assistant, Computer Vision Software Developer**
University of Ottawa, Canada Responsible for writing research papers, presenting research findings, and develop computer vision software to test and validate the results. Research on image processing techniques to extract relevant features from images.
- 2006–2008 **Software Developer**
Navaera USA LLC Creating a web crawler and multi-platform tools for automatic clustering of documents from the web based on their content and metadata (Java, C#, and Python).
- 2006–2008 **Network Administrator, Software Developer**
University of Havana, Cuba IT Team leader for the main building of the University of Havana. Design, development, and validation of network administration tools for user monitoring, domain login, email access, and internet quota management. Provided network support and IT services.

EDUCATION

- 2010-2016 **Doctor of Philosophy in Computer Science** GPA: 10.0/10.0
University of Ottawa, Canada Thesis: *Efficient Feature extraction for Shape Analysis, Object Detection and Tracking*
 Robust feature representations to aid shape analysis, object detection and tracking.
Supervisors: Prof. Jochen Lang & Prof. Robert Laganière
- 2009-2010 **Master of Computer Science** GPA: 10.0/10.0
University of Ottawa, Canada Thesis: *Towards Feature Detection based on Morphology of Objects on Images*
 Extracting lines and corners from images based on the morphology of objects.
Supervisor: Prof. Amiya Nayak
- 2001-2006 **Bachelor of Computer Science** GPA: 4.56/5.0 (magna cum laude)
University of Havana, Cuba Thesis: *Diskless Cluster: Parallel and Distributed Systems*
 Bootable Cluster LiveCD based on Debian GNU/Linux distribution.
Supervisor: Prof. Joel de la Noval

PUBLICATIONS

- 2016 Matej Kristan, Andrés Solís Montero et al. The Visual Object Tracking VOT2016 Challenge Results. *The European Conference on Computer Vision (ECCV) Workshops*, Springer, 2016.
- 2016 Matej Kristan, Andrés Solís Montero et al. The Thermal Infrared Visual Object Tracking VOT-TIR2016 Challenge Results. *The European Conference on Computer Vision (ECCV) Workshops*, Springer, 2016.
- 2015 Andrés Solís Montero, Jochen Lang, Robert Laganire. Scalable Kernel Correlation Filter With Sparse Feature Integration. *The IEEE International Conference on Computer Vision (ICCV 2015), VOT Challenge*, pages 24-31, Dec. 2015.
- 2015 Matej Kristan, Andrés Solís Montero et al. The Visual Object Tracking VOT2015 Challenge Results. *The IEEE International Conference on Computer Vision (ICCV) Workshops*, pages 1-23, Dec. 2015.
- 2015 Michael Felsberg, Andrés Solís Montero et al. The Thermal Infrared Visual Object Tracking VOT-TIR2015 Challenge Results. *The IEEE International Conference on Computer Vision (ICCV) Workshops*, pages 76-88, Dec. 2015.
- 2015 Andrés Solís Montero, Jochen Lang, Robert Laganire. A General Framework for Fast 3D Object Detection and Localization Using an Uncalibrated Camera. *IEEE Winter Conference on Applications of Computer Vision (WACV 2015)*, pages 884-891, Jan. 2015.
- 2012 Andrés Solís Montero, Hicham Sekkati, Jochen Lang, Robert Laganire, Jeremy James. Framework for Natural Landmark-based Robot Localization. *Proceedings of the 9th International Conference on Computer and Robot Vision (CRV)*, pages 131-138, April 2012.
- 2012 Andrés Solís Montero, Jochen Lang. Skeleton pruning by contour approximation and the integer medial axis transform. *Computers & Graphics*, 36(5), pages 477-487, March 2012.
- 2010 Milos Stojmenovic, Andres Solis Montero, Amiya Nayak. Colour and texture based pyramidal image segmentation. *IEEE International Conference on Audio Language and Image Processing (ICALIP)*, pages 778-786, Nov. 2010.
- 2010 Andres Solis Montero, Milos Stojmenovic, Amiya Nayak. Robust detection of corners and corner-line links in images. *IEEE 10th International Conference on Computer and Information Technology (CIT)*, pages 495-502, Jun. 2010.
- 2010 Milos Stojmenovic, Andres Solis Montero, Amiya Nayak. Co-parent selection for fast region merging in pyramidal image segmentation. *IEEE 2nd International Conference on Image Processing Theory Tools and Applications (IPTA)*, pages 243-248, July 2010.
- 2009 Andres Solis Montero, Amiya Nayak, Milos Stojmenovic, Nejib Zaguia. Robust Line Extraction Based on Repeated Segment Directions on Image Contours. *IEEE Symposium: Computational Intelligence for Security and Defence Applications (CISDA)*, pages 1-7, July 2009.
- 2009 Milos Stojmenovic, Andres Solis Montero, Amiya Nayak. Link Shifting Based Pyramid Segmentation for Elongated Regions. *Signal Processing, Image Processing and Pattern Recognition*, Springer Berlin Heidelberg, pages 141-152, 2009.

TEACHING EXPERIENCE

<i>2009 – 2015</i> <i>University of</i> <i>Ottawa</i>	Teaching Assistant:	
	Programming Paradigms. (CSI2120),	Winter 20{15 11}.
	Operative Systems (CSI 3131),	Summer 2015.
	Advanced Programming Concepts in C++{11} (CSI 2372).	Fall 20{14 12 10}.
	Introduction to Computing I & II (ITI 11{20 21} - Python),	Fall 2015.
<i>2006 – 2008</i> <i>University of</i> <i>Havana</i>	Introduction to Computing I & II (ITI 11{20 21} - Java),	Winter 20{14 13}.
	Computing Concepts for Business (CSI1306).	Fall 2009.
	Network Administration in GNU/Linux,	Fall 20{7 8}
	Object Oriented Programming with Java and C#,	Summer 20{8 7}.
	SQL and Relational Database Model Concepts,	Fall 2005

SKILLS & EXPERTISE

<i>Expertise</i>	Computer Vision · Image Processing · Machine Learning Data Structure & Algorithms · Object-Oriented Programming · RDMS (i.e., MSQl, MySQL, Postgres, and SQLite) · Networking · Web Development/Design · e-Commerce · GIS · MVC
<i>Markup and Programming Languages</i>	C++ · C · C# · Java · PHP · Python · Matlab · JavaScript · Prolog · Perl · Bash · JavaScript · Haskel · HTML 5 · XML · CSS 3
<i>Software Development Tools</i>	OpenCV · Eclipse · Visual Studio · Xcode · Git · SVN · make · jQuery · L ^A T _E X · Adobe Photoshop · Adobe Illustrator · Adobe Dreamweaver · OpenOffice · Microsoft Office Tools

HONORS & AWARDS

- 2016* NSERC Engage Grant Program with Ross Video.
- 2015* Best real-time tracking method VOT Challenge 2015, Chile
- 2015* NSERC Engage Grant Program with Thales Canada.
- 2014* NSERC Engage Grant Program with You.i labs.
- 2012* NSERC Engage Grant Program with Cohort Systems Inc.
- 2011* NSERC CRD Grant with Pulse Microsystems Ltd.
- 2010* International Admission Scholarship from University of Ottawa.
- 2010* Ontario Centres of Excellence Grant with Hegyi Geomatics International Inc. Project: Green Earth (GIS).
- 2009* Excellence Scholarship from University of Ottawa.
- 2009* Ontario Centres of Excellence Grant with Hegyi Geomatics International Inc. Project: Green Earth (GIS).
- 2009* MITACS Accelerate Internship Program for graduate and postdoctoral fellows. Project: Advanced Tools for Forest Inventory and Management.

- 2006 Magma cum laude graduate as Bachelor in Computer Science
- 2004 Creator of "linUHx" GNU/Linux distribution adopted by three Cuban Universities: University of Havana, CUJAE, and UCI.
- 2004 2nd position at 10th International Convention "Informática 2004, Cuba."
Project: Electronic Magazine "E-zines".

TECHNICAL REVIEWS - JOURNALS AND CONFERENCES

IEEE Transactions on Instrumentation & Measurement. *TIM* 20{16 | 17 | 18}.

IEEE Transactions on Image Processing. *TIP* 2015.

IEEE International Conference on Multimedia and Expo. *ICME* 2013.

IEEE International Conference on Robotics and Automation. *ICRA* 2013.

IEEE International Conference on Multimedia and Expo. *ICME* 2012.

IEEE International Conference on Multimedia and Expo. *ICME* 2011.

7th IEEE International Conference on Mobile Ad-hoc and Sensor Systems. *MASS* 2010.

ADDITIONAL INFORMATION

Languages **ENGLISH** : Fluent
SPANISH : Mother tongue

Security Clearance **RELIABILITY** : expiring 2027
SECRET : pending

Affiliations ACM member · IEEE member · International High IQ Society member

Interests & Hobbies Motorcycle Riding · Dancing · Music · Soccer · Volleyball · Skating · Baseball
· Cross-country skiing · Discovering new places and restaurants