ANDRÉS SOLÍS MONTERO

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OVERVIEW

Research scientist

A data scientist with a Ph.D. in Computer Science, specializing in Computer Vision, Image Processing, Machine Learning and Deep Learning solutions with a strong mathematical, data management, and analytics background. Published author with over 1000 citations, and technical reviewer for more than nine years. My experience brings invaluable insight into analyzing, processing, and reporting meaningful reports, decisions, and visualizing data. I am a versatile researcher with a broad knowledge of programming languages, databases, and data structures.

Full-Stack Software Developer

Over 15 years of experience in software and web development. A 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. Specialized in Computer Vision, Machine Learning, Deep Learning - Convolutional Neural Networks (i.e., LeNet, AlexNet, VGG, GoogleNet, and ResNets), Object Oriented Programming, Data Structures and Algorithms, and scripting solutions. Experienced in C++, R, Python, Java, Web technologies, and SQL databases.

Teaching experience

I have taught courses in computer science, programming languages, and advanced programming concepts for over ten years at the University Level.

WORK EXPERIENCE

2020–Present
DScD, StatCan, Canada

Senior Data Scientist, Casual Position
Senior Data Scientist lead and manager of several project under the Data Science Division for clients such as Public Health Agency of Canada (PHAC), and Health Canada (HC). In charge of product production, data integration, ML modelling, and cloud integration (i.e., DAaaS platform and CAE Microsoft Azure) for the following projects: Cyclops, COVID-19 Pandemic Hubs, PPE - EPI Model, and Frontier Counts.

2016–Present
Tempo Analytics, Canada

Co-Founder, Research & Development, Software Development Engineer
Architect, team technical lead, and full-stack software developer of a server-client application to deliver the speed of service time statistics for the Quick Service Industry. In charge of building Deep Learning Neural Networks (i.e., CNN, and RestNets) and Computer Vision solutions for customer detection, people re-identification, and metric learning. Creating and designing web tools to control the applications nodes features, and display 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 a javascript engine powering UniWeb and CCV Sync. Proximify is a web-based software for academic institutions and grant agencies. Envisioning and building a research network tool for creating and maintaining your Canadian Common CVs.
2010–2011 *Dalen Design*	**Web Developer** 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 *Hegyi Geomatics international Inc*	**Software Developer** 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 *University of Ottawa, Canada*	**Research Assistant, Computer Vision Software Developer** 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 *Navaera USA LLC*	**Software Developer** 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 *University of Havana, Cuba*	**Network Administrator, Software Developer** 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 *University of Ottawa, Canada*	**Doctor of Philosophy in Computer Science** GPA: 10.0/10.0 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 *University of Ottawa, Canada*	**Master of Computer Science** GPA: 10.0/10.0 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 *University of Havana, Cuba*	**Bachelor of Computer Science** GPA: 4.56/5.0 (magna cum laude) 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.

LICENSES & CERTIFICATIONS

Coursera	Deep Learning Specialization	Cred ID: G8YPRSBRUR4X
2019	Structuring Machine Learning Projects	Cred ID: 5D9RY2485Z4G
	Sequence Models	Cred ID: GCJHGKVL6ZLL
	ConvNN (i.e., LeNet, AlexNet, GoogleNet, VGG, ResNets)	Cred ID: NQNLA6AYQ7NM
	Neural Networks and Deep Learning	Cred ID: XJPXEXXMSB8K
	Hyperparameter tuning, Regularization and Optimization	Cred ID: XFSWVLMMR4KM

PATTENTS

2017 *Tempo* *Analytics*	System and method for gathering data related to quality of service in a customer service environment. CA 3014365 — PCT/CA2017/050849 — WO2019/010557.

TEACHING EXPERIENCE

2009 – 2015 *University of* *Ottawa*	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.
	Introduction to Computing I & II (ITI 11{20 | 21} - Java),	Winter 20{14 | 13}.
	Computing Concepts for Business (CSI1306).	Fall 2009.
2006 – 2008 *University of* *Havana*	Network Administration in GNU/Linux,	Fall 200{7 | 8}
	Object Oriented Programming with Java and C#,	Summer 200{8 | 7}.
	SQL and Relational Database Model Concepts,	Fall 2005

SKILLS & EXPERTISE

Expertise	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
Markup and Programming Languages	C++ · C · Python · Java · C# · PHP · R · Matlab · JavaScript · Prolog · Perl · Bash · HTML 5 · XML · CSS 3
Software Development Tools	OpenCV · Microsoft Azure · Visual Studio · Xcode · Jupiter Labs · Docker Images · Git · SVN · make · jQuery · LaTeX · Adobe Photoshop · Adobe Illustrator · Adobe Lightroom · Adobe Dreamweaver · OpenOffice · Microsoft Office Tools

HONORS & AWARDS

2019	Best Exterior Photo, First Place, Doors Opens/Portes Ouvertes by City of Ottawa
2019	Grand Prize Winner, Canada in One City Photo Contest by @Ottawatourism
2019	Grand Prize Photography Award, Ottawa in Bloom Contest by @Ottawatourism
2018	Professional Diploma in Photography (Shawacademy EQF Level 5).
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

TECHNICAL REVIEWS - JOURNALS AND CONFERENCES

IEEE Transactions on Instrumentation & Measurement. TIM $20\{16 \mid 17 \mid 18\}$.

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 :	Native
Security Clearance	RELIABILITY : expiring 2027 · SECRET : expiring 2028	

Affiliations	ACM member · IEEE member · International High IQ Society member
Interests & Hobbies	Photography (IG: @asolism) · Motorcycle Riding · Dancing · Music · Soccer · Volleyball · Skating · Baseball · Cross-country skiing · Discovering new places and restaurants