ANDRÉS SOLÍS MONTERO

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OVERVIEW

Professional Summary

A creative leader and lead data scientist with a Ph.D. in Computer Science, specializing in Computer Vision, Image Processing, Machine Learning and Deep Learning solutions with a solid mathematical, data management, and analytics background. Published author with over 1000 citations and technical reviewer for over nine years. My experience brings invaluable insight into analyzing, processing, and reporting meaningful reports and decisions and visualizing data. I am a versatile researcher with a broad knowledge of programming languages, databases, and data structures. I have taught courses in computer science, programming languages, and advanced programming concepts for over ten years at the University Level.

Management / Team Lead

Over eight years of management experience and team leader who performs and delegates multiple duties while motivating staff, making sound decisions, and working with managers and staff at all levels of responsibility. Excellent communication skills with a creative mindset. I like encouraging collaborative work environments, stimulating group creativity and promoting knowledge sharing. I have extensive experience delivering technology products from conception to delivery while allocating resources and timelines successfully.

Full-Stack Software Developer & Applied AI & DevOps

Over 15+ years of experience as a full-stack software developer with vast experience in Cyber Security, DevOps, and Cloud Native Solutions. A developer who enjoys simplicity in creative design code with a creative eye for UX and UI design. I am a seasoned programmer with experience in multiple programming paradigms, data structures and algorithms. I have architected, led, and deployed various AI Cloud solutions and products from conception to delivery. I specialized in Computer Vision, Machine Learning, Deep Learning, CNN, Business Analytics, and Information Extraction. I have deployed products with the following tech stack: Python, C++, Java, Web technologies, OAuth, SQL and NoSQL databases, Azure Cloud, Kubernetes, and Containerization (i.e., Docker).

WORK EXPERIENCE

Business Analyst / Lead Data Scientist

As a Blank Page Review Business Analyst and Team Lead Data Scientist, I am responsible for spearheading the evaluation and improvement of data operations across StatCan, while also assisting our clients in shaping and revolutionizing data processes within the organization. Through comprehensive program reviews and the implementation of value-driven plans, I strive to enhance efficiency and effectiveness, integrate modern open-source tooling and system solutions, champion ML and data science initiatives, drive automation, build capacity, and align with the One Plan strategy. My ultimate goal is to improve methodologies and processes to propel data program growth and optimize operational processes.

- Lead the evaluation and enhancement of data operations across StatCan, aligning with the One Plan strategy for modernization.

- Collaborate with stakeholders to understand business requirements and shape data processes accordingly.

- Develop and implement value-driven plans to enhance efficiency, effectiveness, and alignment with organizational objectives.

- Integrate modern tooling, open-source solutions, and system solutions to optimize data operations and drive automation.

- Conduct comprehensive program reviews to identify areas for improvement and develop actionable recommendations.

- Spearhead ML initiatives to extract insights, identify trends, and drive informed decision-making within the organization.

- Drive capacity building initiatives to empower teams with the necessary skills and knowledge to optimize data processes.

- Champion the adoption of cutting-edge methodologies and technologies to drive data program growth. Serve as a subject matter expert in data operations, processes, and ML initiatives, providing guidance and support to internal teams and clients.

- Monitor and evaluate the effectiveness of implemented solutions, making adjustments as necessary to ensure alignment with organizational goals.

Lead Data Scientist

Technical and Project Lead of several multi-million projects under the Data Science and Innovation Division / Product Delivery Section for clients such as Public Health Agency of Canada (PHAC), Health Canada (HC), Employment and Social Development Canada (ESD), and internal Statistics Canada (StatCan) divisions.

- Led multiple agile data science and engineers teams, fostering a collaborative environment that increased team efficiency and facilitated the successful development of machine learning models for predictive analytics.

- Developed and deployed ML operations and data models for predictive analytics, contributing to an increase in accuracy and operational efficiency and a reduced manual labor by 80%. Mostly in the fields of NLP, Information Extraction, and Computer Vision

- Integrated DevOps principles, establishing CI/CD pipelines that reduced deployment time by 40% and improved overall software reliability. Seamlessly pushing Docker images to container registries, fostering a scalable and efficient deployment strategy.

- Implemented robust cybersecurity measures within the data science workflow, ensuring compliance with data protection regulations and safeguarding sensitive information.

- Implemented OpenAuth for secure authentication and authorization of RestAPI and dashboards, fortifying data access and ensuring compliance with security standards.

- Orchestrated the migration of data science applications to Kubernetes, optimizing resource utilization and scalability while implementing Helm charts for streamlined deployment.

- Implemented and enforced pre-commit hooks, code review processes, automated static code analysis, enhancing code quality and collaboration within the data science team.

- Automated testing procedures within the CI/CD and git hook pipelines to guarantee the quality of Java and Python packages before deployment.

- Designed and maintained interactive visualizations and dashboards using tools such as DJango, Kibana, and Power BI, providing stakeholders with real-time insights into key performance metrics.

- Implemented automated pipelines for encoding/decoding of big data files using PKCS7, streamlining data transfer processes and enhancing the security of sensitive information.

- Collaborated with cross-functional teams, providing technical leadership and mentorship to foster a culture of continuous learning and innovation.

- Conducted regular training sessions on data science best practices, DevOps methodologies, and cybersecurity awareness for team members.

2016–Present
Tempo Analytics, Canada

Co-founder, CTO & Project Manager, Research & Development
Architect, team technical lead in charge of developing a server-client cloud application to deliver the speed of service time statistics for the Quick Service Industry. In charge of conceptualizing and building novel computer vision products using machine learning and deep learning neural networks for customer detection, people re-identification, and metric learning. Allocating resources, tasks and defining timelines and milestones while communicating results to our stockholders and clients. Manage a team of software engineers, Master, and Ph.D. candidates to build the right solutions for our product. Systematically generating progress reports and analytics tools to produce business intelligence for stakeholders and clients.

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 cloud-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 a GIS framework related to the forest industry. In charge of creating Image analysis tools of forest stands using high resolution and Landsat imagery to monitor change, identify problems and perform forecasting. Analysis and visualizations were displayed on top of the NASA WorldWind 3D mapping application.
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 Laganière. 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 Laganière. 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 Laganière, 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

LF 2022	Kubernetes Certified Application Developer (CKAD)	Cred ID: LF-dw7drkok9g
Udemy 2022	Kubernetes Certified Application Developer (CKAD) UC-5b25a18-34bf-446d-800f-26c3e7d97821	Cred ID:
Coursera 2019	Deep Learning Specialization	Cred ID: G8YPRSBRUR4X
	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	Agile Management · Computer Vision · Image Processing · Machine Learning Data Structure & Algorithms · Object-Oriented Programming · RDMS (i.e., MSQL, MySQL, Postgres, and SQLite) · Non-SQL · Networking · Cloud Deployment · Containerization · 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 · Power BI · Kubernetes · Docker · 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

2022	Award of Excellence: Innovation. Statistics Canada
2020	Outstanding Contribution Award. Statistics Canada
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 | 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

Citizenship   CANADIAN

Languages   ENGLISH : Fluent
           SPANISH : Native
           FRENCH : Beginner

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