Academic Curriculum Vitae

Dr. Matias Valdenegro Toro

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General Information

Full Name	Matias Alejandro Valdenegro Toro
Pen Name	Matias Valdenegro-Toro
Date and Place of Birth	October 23, 1984, Santiago (Chile)
Nationality	Chilean
Marital Status	Single, No Children
Professional Title	Computer Engineer (August 2009).
Academic Degrees	Doctor of Philosophy in Electrical Engineering (June 2019) Master of Science in Autonomous Systems (November 2014) Bachelor of Science in Engineering (December 2007)
Postal Address	Rijksuniversiteit Groningen, Bernoulli Institute Nijenborgh 9, 9747 AG Groningen, The Netherlands
Email Address	m.a.valdenegro.toro@rug.nl

Research Interests

Robot Vision	Object Detection, Segmentation, Pose Estimation, Real-Time Implementations Robust Perception, Scene Understanding
Learning Systems	Interpretable AI, Reinforcement Learning, Deep Neural Networks
Uncertainty Quantification	Bayesian Neural Networks, UQ for Robot Vision

Online Presence

Website	http://mvaldenegro.github.io and http://www.github.com/mvaldenegro
Google Scholar	https://scholar.google.de/citations?user=Fm0Ax7YAAAAJ&hl=en Google Scholar reports that my publications have been cited 682 times with an h-index of 12 (Accessed January 17, 2023)
DBLP	https://dblp.org/pid/185/4072
ORCID	https://orcid.org/0000-0001-5793-9498
Stack Overflow	https://stackoverflow.com/users/349130/dr-snoopy

Currently over 49K reputation (top 0.02% of all users) and 3.3 million people reached through answers (Accessed May 11, 2021).

1 Educational Background

1.1 Degree Education

June 2019	**Doctor of Philosophy in Electrical Engineering**. Heriot-Watt University, Edinburgh, Scotland Thesis: Deep Neural Networks for Marine Debris Detection in Sonar Images. Available online on arXiv:1905.05241 Advisor: Prof. David Lane Thesis defense (Viva) held on November 2018. Evaluators were Dr. Alan Hunter and Prof. Dr. Michael Chantler
November 2014	**Master of Science in Autonomous Systems**, Bonn-Rhein-Sieg University of Applied Sciences, Sankt Augustin, Germany GPA: 1.0 (Scale from 5.0 to 1.0, 1.0 is the highest grade) Thesis: Fast Text Detection for Road Scenes, supervised by Prof. Dr Paul Plöger, Prof. Dr. Gerhard Kraetzschmar, and Dr. Stefan Eickeler.
August 2009	**Computer Engineering Degree**, Technological Metropolitan University, Santiago, Chile Original Text: Ingenieria Civil en Computacion mencion Informatica GPA: 5.6 (Scale from 1.0 to 7.0, Ranked first in class) Thesis: Real Time Procedural Textures, supervised by Prof. Hector Pincheira Original Text: Ingenieria Civil en Computacion mencion Informatica.
September 2007	**Bachelor of Science in Engineering**, Technological Metropolitan University, Santiago, Chile Original Text: Licenciatura en Ciencias de la Ingenieria.

1.2 Continuing Education

Jan 2017	"Successful negotiations and presentations". Akademie für Führungskräfte der Wirtschaft.
Aug 2015	"Advanced Topics in Machine Learning" Doctoral Course. 2.5 ECTS. Technical University of Denmark.
Jan 2011	"Curricular approach focused on learning achievements and oriented to a graduation profile formulated in competences". Technological Metropolitan University.
Feb 2009	"Developing Applications for the Java EE Platform" (FJ-310-EE5) Course. Provectis.

2 Awards and Distinctions

2.1 Scholarships

Dec 2014 to Nov 2017	Marie Skłodowska-Curie Early-Stage Researcher Fellowship (European Academy for Marine and Underwater Robotics, Grant agreement number FP7-PEOPLE-2013-ITN-608096).

2.2 Awards

February 2023	Best Student Paper Award at the 7th International Conference on Human Computer Interaction Theory and Applications (HUCAPP/VISIGRAPP).
December 2022	Top Reviewer at Neural Information Processing Systems 2022 (link).
May 2022	Highlighted Reviewer at International Conference on Learning Representations (link).
Dec 2021	Best Paper Award at the LatinX in AI Research Workshop @ NeurIPS 2021, for the paper "Exploring the Limits of Epistemic Uncertainty Quantification in Low-Shot Settings".
June 2021	Best Full Paper Honorary Award at the LatinX in CV Workshop @ CVPR 2021, for the paper "I Find Your Lack of Uncertainty in Computer Vision Disturbing".
Dec 2020	Best Paper Award at the LatinX in AI Research Workshop @ NeurIPS 2020, for our short paper "Unsupervised Difficulty Estimation with Action Scores". Prize was a nVidia Tesla GPU.
Sept 2020	Top 33% Reviewer for the thirty-seventh International Conference on Machine Learning, ICML 2020.
Oct 2015	Preis der Förderer der Hochschule Bonn-Rhein-Sieg e.V., Sankt Augustin, Germany. (€1000 Award)
Sept 2015	AFCEA Bonn e.V. Studientpreis 2015, 1st Place for Master Thesis. Koblenz, Germany. (€4000 Award)
Sept 2012	Diploma for outstanding academic participation as scholar in the degree programs of the Department of Informatics, Universidad Tecnológica Metropolitana (translated from original in Spanish).
Oct 2010	Honours Diploma for the highest GPA amount Faculty of Engineering graduates. Technological Metropolitan University, Santiago, Chile. (translated from original in Spanish)
April 2006	Honours Diploma to the outstanding grade (6.3 / 7.0) in the Vector Calculus subject, Technological Metropolitan University, Santiago, Chile. (translated from original in Spanish).

3 Research Experience

	University of Groningen, Groningen, The Netherlands
	Bernoulli Institute, Faculty of Science and Engineering
Since Feb 2022	**Assistant Professor for Machine Learning with Education Profile**
	German Research Center for Artificial Intelligence, Bremen, Germany
	Robotics Innovation Center
Jan 2018 to Jan 2022	**Researcher**, Robot Learning Team. (Led by Dr-Ing. Patrick Draheim).

May 2017 to Dec 2017	**Guest Researcher**
	Heriot-Watt University, Edinburgh, Scotland
Dec 2014 to Dec 2017	**Marie Curie Fellow / Research Associate**.
	Fraunhofer Institute for Intelligent Analysis and Information Systems, Sankt Augustin, Germany.
4/2014 - 11/2014	**Research Assistant**
	Master Thesis project: *Fast Text Detection for Road Scenes.*
5/2013 - 1/2014	**Research Assistant**
	Research and Development project *Fast Radial Symmetry Detection for Traffic Sign Recognition* under the supervision of Dr. Stefan Eickeler.

4 Professional Experience

	Department of Computing and Informatics, Technological Metropolitan University, Santiago, Chile
Sept 2010 to Aug 2012	**Part-Time Lecturer**
	Center for Mathematical Modeling, Faculty of Physical and Mathematical Sciences, University of Chile. (CNRS UMI 2807)
Sept 2010 to Sept 2012	**Project Engineer**
	Scientific software development for the Mathematical Modeling for Geomechanics Laboratory, mostly executing projects for CODELCO El Teniente (The Chilean state-owned Cooper mining company).
	DIL Brands, Santiago, Chile
Apr 2010 to Aug 2010	**Development Engineer**. DIL Brands.
	Software development of the virtual reality system "IVD" in C# using Unity.
	Orange People, Santiago, Chile, now known as *Experti*
Feb 2009 to Mar 2010	**Development Engineer**
	Software development and design. Main client is a large payment company in Chile.
	Meier Corporation, Santiago, Chile
Aug 2007 a Jan 2009	**Software Developer**
	Design and development of game engines in C#.

5 Academic Activities

5.1 Undergraduate Teaching

Bachelor of Artificial Intelligence, University of Groningen

WBAI002-05	Introduction to Machine Learning (for AI) Taught on 2022-23-Ib (with Andreea Sburlea, 70 students, Coordinator).
WBAI056-05	Autonomous Systems Taught on 2022-Ia (with Hamidreza Kasaei, 120+ students).
WBAI040-05	Ethics in Artificial Intelligence. Guest lecture on Explainable AI on 2022-IIb and 2023-IIb.
WBAI054-05	Uncertainty in Machine Learning Taught on 2022-IIb (40 students, Coordinator) 2023-IIb.

Bachelor of Coding and Software Engineering, Exponential University of Applied Sciences

EL-37	Artificial Intelligence I. (42 Teaching hours) Taught on SS 2021 (9 students).

Computer Engineering Degree, Technological Metropolitan University

INF-648	Analysis of Algorithms. (108 Teaching hours) Taught on WS 2011 (36 students), SS 2011 (33 students), WS 2012 (38 students).
INF-763	Distributed Systems. (108 Teaching hours) Taught on WS 2011 (39 students), SS 2011 (9 students), WS 2012 (20 students).
INF-762	Parallel Computing. (108 Teaching hours) Taught on SS 2010 (42 students).
INF-750	Optimization. (108 Teaching hours) Taught on SS 2010 (45 students).

Technical Engineering Program, Technological Metropolitan University

INF-548	Analysis of Algorithms. (54 Teaching hours) Taught on WS 2011 (7 students)
INF-614	Data Transmission. (54 Teaching hours) Taught on SS 2011 (6 students)

5.2 Postgraduate Teaching

Master of Science in Artificial Intelligence, University of Groningen

WBAI054-05	Deep Learning Taught on 2022-IIa (with Matthia Sabatelli, 100+ students), SS 2023-IIa (with Matthia Sabatelli, 100+ students, Coordinator).

Master of Science in Autonomous Systems, Bonn-Rhein-Sieg University of Applied Sciences

WS 2018/2019	Neural Networks, in cooperation with Prof. Dr Paul Plöger and Octavio Arriaga (38 students).
SS 2018	Learning and Adaptivity, in cooperation with Anastassia Küstenmacher (32 students).

University of Bremen, Department of Computer Science

These courses are usually taught with a set of lecturers from the German Research Center for Artificial Intelligence. Except where noted, my participation was one lecture, one tutorial, and the drafting and grading of one exercise sheet. Courses taught in 2020 and 2021 were using a virtual format due to the COVID-19 pandemic.

SS 2021	Modern Robot Control Architectures (33 students)
	Reinforcement Learning (40 students)
WS 2020/2021	Machine Learning for Autonomous Robots (81 students)
	Robot Design Lab (69 students)
SS 2020	Reinforcement Learning (37 students)
	Seminar on Deep Robot Learning: Behaviour, Perception and Transfer (Seminar style course, 3 lecturers, I taught 3 lectures and mentored students in the completion of a literature review in the Behavior research line, 7 students)
WS 2019/2020	Machine Learning for Autonomous Robots (34 students)
	Modern Robot Control Architectures (27 students)
SS 2019	Reinforcement Learning (24 students)

5.3 Other Teaching

Jan/March 2023	ENLIGHT Blended Intensive Program (BIP), Deep Learning for Forestry, in collaboration with Universities of Göttingen and Bordeaux.
Feb/March 2020	Winter School Advanced Machine Learning at the Bonn-Rhein-Sieg University of Applied Sciences. With Octavio Arriaga. Approximately 40 hrs in total, one week of lectures, and then project work and final examination.
August 2013	Foundation Course for the Master of Autonomous Systems program. Two weeks leveling course before starting the Masters program.

5.4 Supervision of Theses

5.4.1 Bachelor Theses

	Bachelor of Science in AI, University of Groningen.
2023	Dhruvs Sharma, Martino Pelucci, Amir Mohd Azman, Micky Labreche, Jay Khalil, Michaela Simacek.
2022	Levente Foldesi, Julia Boers, Farrukh Baratov, Anthony Klinker.
	Computer Engineering Degree, Technological Metropolitan University.
	In collaboration with Prof. Hector Pincheira.
2014	Miguel Rodriguez - Robot Simulation with Physics Enginers.
2013	Lissette Canaval - Tracking of Spherical Objects.
2012	Rodrigo Villablanca - Networked Multiplatform Videogame in Java.
	Richard Pinochet - Image Processing Framework in CUDA with Pipeline Implementation.
2011	Cristian Rodriguez Opazo - Automatic Recognition of Vehicle License Plates using Neural Networks.

5.4.2 Master Theses

	Master of Science in AI, University of Groningen.
2023	Amit Bharti, Steff Groefsema, Aleksandros Charisis, Cosmin Roger Harsulescu, Subhaditya Mukherjee (ongoing).
2022	Peter Varga, Bharath Mahadeva Rao.
	Master of Science in Autonomous Systems, Bonn-Rhein-Sieg University of Applied Sciences.
	In collaboration with Prof. Dr. Paul Plöger.
2023	Pranjal Dhole - Continuous Control of Under-Actuated Autonomous Vehicles using Reinforcement Learning Methods
2022	Lokesh Veeramacheneni - Out of distribution detection in 3D semantic segmentation models.
	Mihir Mulye - Uncertainty in Neural Network Explanations
	Ahmed Faisal Abdelrahman - A Neuromorphic Approach to Obstacle Avoidance in Robot Manipulation
2021	Alan Preciado - Self-supervised Learning for Sonar Images: Enhancing Multimodal Perception for Underwater Applications
	Jaswanth Bandlamudi - Benchmarking Out of Distribution Detection Methods in 2D Object Detection
2021	Aaqib Parvez Mohammed - A Benchmark for Out-of-Distribution Detection in Deep Reinforcement Learning
	Mihir Patil - Deep Reinforcement Learning for Continuous Control Docking of Autonomous Underwater Vehicles: A Benchmarking Study
2020	Swaroop Bhandary - Uncertainty Estimation in 3D Semantic Segmentation of Point Clouds
	Maryam Matin - A Comprehensive Evaluation of Uncertainty Quantification Methods in Deep Learning
	Mohandass Muthuraja - Black-Box Optimization of Object Detector Hyper-Parameters
2019	Tilemachos Bontzorlos - An evaluation of Deep Learning object detection pipelines for maritime application purposes
	Arka Mallick - Sonar Patch Matching via Deep Learning
2018	Octavio Arriaga - Artificial Transfer Learning in Convolutional Neural Networks
	Nour Soufi - Automatic Data Augmentation for Traffic Sign Dataset Using GANs
	Sai Kiran Kannaiah - Towards Weakly Supervised Object Detection

	Master of Science in Systems Engineering, University of Bremen.
	In collaboration with Prof. Dr. Frank Kirchner.
2020	Matthias Rosynski - Visual Explanations in Deep Reinforcement Learning via Convolutional Neural Network Localization
2019	Adrian Lubitz - Development of a Visual Voice Activity Detection

	Master of Science in Control, Microsystems, Microelectronics, University of Bremen
2021	Banumathy Manickavasakan - Uncertainty Quantification of Inverse Neural Network Models in Robotics

5.4.3 R&D Projects and Internships

2021	Alex Jude - Interactive Learning Loop for Modelling Valid Measurement Data in Driving Dynamics Evaluation
2020	Aaqib Parvez Mohammed - Comparing Reinforcement Learning Generalization across Physics Engines
	Akshatha Kamath - Tradeoffs in Uncertainty Quantification using DropConnect (virtual internship)
2019	Maryam Matin - An Evaluation of Machine Learning Techniques for Web-Page Classification using Anonymized TCP/IP Headers
2017	Nour Soufi - Evaluation of Optimal Convolutional Neural Network for Circular and Triangular Traffic Sign Recognition
	Octavio Arriaga - Scene Understanding through Deep Learning
	Sai Kiran Kannah - Traffic Light Detection Using Deep Learning

6 Invited Talks

November 2022	Uncertainty Quantification in Machine Learning and Computer Vision
	National Center for Artificial Intelligence, Santiago, Chile.
November 2022	Writing (Computer Vision) Papers from the Reviewer's Perspective
	XXIII International Congress of Informatics and Systems, Tacna, Peru. Available at https://youtu.be/HDi0rQ76X1I?t=4391
August 2022	Writing GPU Supercomputing Grant Applications
	LatinX in AI Supercomputing Program
March 2022	Tips for your Graduate School Research
	AISTATS 2022 - Mentoring Retrospectives
January 2022	Uncertainty Quantification in Machine Learning
	Helmholtz AI consultants at Helmholtz-Zentrum Dresden-Rossendorf.
June 2021	Machine Learning for Sonar Perception.
	1st Advanced Marine Robotics TC Workshop - Active Perception @ ICRA 2021.
	Available at https://www.youtube.com/watch?v=TzeMrztq8Jg.
May 2021	Uncertainty Quantification in Robotics and Computer Vision.
	Cologne AI and Machine Learning meetup. (virtual event). Available at https://www.youtube.com/watch?v=1HSK_3H-Zds.
March 2021	Making AI a Field for Everyone: The Obstacles and Opportunities.
	Diversity and Inclusion Summit. Facebook AI.
	(virtual event, panel discussion). Available at https://www.facebook.com/FacebookAI/videos/making-ai-a-field-for-everyone-obstacles-opportunities/200315798593635/.

Jan 2021	Uncertainty in Neural Networks with Applications to Robotics. III Peruvian Deep Learning Symposium (virtual event).
Dec 2020	Data Science Research Peru Meetup @ NeurIPS 2020 (virtual event).
Aug 2018	Deep Neural Networks for Marine Debris Detection in Sonar Images Nara Institute of Science and Technology, Nara, Japan.
Apr 2018	A PhD is hard, but it doesn't have to! Graduate Institute Workshop, Bonn-Rhein-Sieg University of Applied Sciences, Sankt Augustin, Germany.
Dec 2017	Deep Learning for Computer Vision Universidad Catolica del Maule, Talca, Chile.
Aug 2017	Deep Neural Networks for Marine Debris Detection in Sonar Images German Research Center for Artificial Intelligence, Bremen, Germany.
Jun 2017	Deep Neural Networks for Marine Debris Detection in Sonar Images Bonn-Rhein-Sieg University of Applied Sciences, Sankt Augustin, Germany.
Jun 2016	Visual and Acoustic Perception with Deep Neural Networks STRONGMAR Summer School, Lisbon, Portugal.

7 Contributed Talks

July 2023	Course on Uncertainty Quantification in Machine Learning. European Summer School on Artificial Intelligence, Ljubljana, Slovenia.
Nov 2020	Uncertainty Quantification in Neural Networks with Keras PyData Global 2020 (virtual event). Available at https://www.youtube.com/watch?v=ZTjquWQu-F8

8 Tutorials

Oct 2021	Writing (Computer Vision) Papers from the Reviewer's Perspective LatinX in CV Research Workshop @ ICCV 2021 (virtual event).
March 2021	Reviewer Mentoring Webminar LatinX in CV Research Workshop @ CVPR 2021 (virtual event). Available at https://www.youtube.com/watch?v=v9sCP7WIBno

9 Research and Publications

9.1 Journal Papers

[1] Daniel Motta, Alex Álisson Bandeira Santos, Bruna Aparecida Souza Machado, Otavio Gonçalvez Vicente Ribeiro-Filho, Luis Octavio Arriaga Camargo, **Matias Alejandro Valdenegro-Toro**, Frank Kirchner, and Roberto Badaró. Optimization of convolutional neural network hyperparameters for automatic classification of adult mosquitoes. *PLOS ONE*, 15(7):1–30, 07 2020.

[2] Sergio Hernández, Diego Vergara, **Matías Valdenegro-Toro**, and Felipe Jorquera. Improving predictive uncertainty estimation using dropout–hamiltonian monte carlo. *Soft Computing*, Jul 2019.

9.2 Peer Reviewed Conferences

[3] **Matias Valdenegro-Toro** and Daniel Saromo. A deeper look into aleatoric and epistemic uncertainty disentanglement. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, June 2022.

[4] Alan Preciado-Grijalva, Bilal Wehbe, Miguel Bande Firvida, and **Matias Valdenegro-Toro**. Self-supervised learning for sonar image classification. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 1499–1508, 2022.

[5] Deepak Singh and **Matias Valdenegro-Toro**. The marine debris dataset for forward-looking sonar semantic segmentation. In *Proceedings of the Internationa Conference on Computer Vision Workshops (ICCV) Workshops*, October 2021.

[6] **Matias Valdenegro-Toro**. I find your lack of uncertainty in computer vision disturbing. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, pages 1263–1272, June 2021.

[7] Arka Mallick, Paul Plöger, and **Matias Valdenegro-Toro**. Forward-looking sonar patch matching: Modern cnns, ensembling, and uncertainty. In *Global OCEANS 2021*. IEEE, 2021.

[8] Mihir Patil, Bilal Wehbe, and **Matias Valdenegro-Toro**. Deep reinforcement learning for continuous docking control of autonomous underwater vehicles: A benchmarking study. In *Global OCEANS 2021*. IEEE, 2021.

[9] **Matias Valdenegro-Toro**, Alan Preciado-Grijalva, and Bilal Wehbe. Pre-trained models for sonar images. In *Global OCEANS 2021*. IEEE, 2021.

[10] Sergio Hernández, Jose Valdés, and **Matias Valdenegro**. A comparison of stochastic gradient mcmc using multi-core and gpu architectures. In *2020 Congreso Estudiantil de Electrónica y Electricidad (INGELECTRA)*, pages 1–5, 2020.

[11] Octavio Arriaga, **Matias Valdenegro-Toro**, and Paul Plöger. Real-time convolutional neural networks for emotion and gender classification. In *ESANN*, 2019.

[12] **Matias Valdenegro-Toro**. Learning Objectness from Sonar Images for Class-Independent Object Detection. In *Mobile Robots (ECMR), 2019 European Conference on*. IEEE, 2019.

[13] Samy Nascimento and **Matias Valdenegro-Toro**. Modeling and soft-fault diagnosis of underwater thrusters with recurrent neural networks. *IFAC-PapersOnLine*, 51(29):80–85, 2018.

[14] Mariia Dmitrieva, **Matias Valdenegro-Toro**, Keith Brown, Gary Heald, and David Lane. Object classification with convolutional neural network based on the time-frequency representation of their echo. In *2017 IEEE 27th International Workshop on Machine Learning for Signal Processing (MLSP)*. IEEE, 2017.

[15] **Matias Valdenegro-Toro**. Best Practices in Convolutional Networks for Forward-Looking Sonar Image Recognition. In *OCEANS 2017 MTS/IEEE Aberdeen*. IEEE, 2017.

[16] **Matias Valdenegro-Toro**. Improving Sonar Image Patch Matching via Deep Learning. In *Mobile Robots (ECMR), 2017 European Conference on*. IEEE, 2017.

[17] **Matias Valdenegro-Toro**. Real-time convolutional networks for sonar image classification in low-power embedded systems. In *European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN)*, 2017.

[18] Stefan Eickeler, **Matias Valdenegro**, Thomas Werner, and Michael Kieninger. Future Computer Vision Algorithms for Traffic Sign Recognition systems. In *Advanced Microsystems for Automotive Applications 2015*, pages 69–77. Springer, 2016.

[19] **Matias Valdenegro-Toro**. End-to-End Object Detection and Recognition in Forward-Looking Sonar Images with Convolutional Neural Networks. In *Autonomous Underwater Vehicles (AUV), 2016 IEEE/OES*, pages 144–150. IEEE, 2016.

[20] **Matias Valdenegro-Toro**. Object recognition in forward-looking sonar images with convolutional neural networks. In *OCEANS 2016 MTS/IEEE Monterey*. IEEE, 2016.

[21] **Matias Valdenegro-Toro**. Objectness Scoring and Detection Proposals in Forward-Looking Sonar Images with Convolutional Neural Networks. In *IAPR Workshop on Artificial Neural Networks in Pattern Recognition*, pages 209–219. Springer, 2016.

[22] **Matias Valdenegro-Toro**. Submerged Marine Debris Detection with Autonomous Underwater Vehicles. In *International Conference on Robotics and Automation for Humanitarian Applications (RAHA)*. IEEE, 2016.

[23] **Matias Valdenegro-Toro**, Paul Plöger, Stefan Eickeler, and Iuliu Konya. Histograms of Stroke Widths for Multi-script Text Detection and Verification in Road Scenes. *IFAC-PapersOnLine*, 49(15):100–107, 2016.

[24] Franco Basso, Sergio Gaete, Alonzo González, Raúl Manásevich, Daniel Morales, **Matías Valdenegro**, and Rodrigo Zepeda. Maximum stable cavity estimation in 3D. 6th International Conference & Exhibition on Mass Mining (MassMin), 2012.

[25] **Matías Valdenegro** and Hector Pincheira. Implementing noise with hash functions on Graphics Processing Units. XXVIII International Conference of the Chilean Computing Science Society, 2009.

9.3 Workshop Papers

[26] Levente Foldesi and **Matias Valdenegro-Toro**. Comparison of Uncertainty Quantification with Deep Learning in Time Series Regression. In *Workshop on Robustness in Sequence Modeling at NeurIPS 2022*, 2022.

[27] Kumud Lakara and **Matias Valdenegro-Toro**. Disentangled Uncertainty and Out of Distribution Detection in Medical Generative Models. In *Medical Imaging Meets NeurIPS Workshop 2022*, 2022.

[28] **Matias Valdenegro-Toro** and Matthia Sabatelli. Machine Learning Students Overfit to Overfitting. In *Teaching in Machine Learning Workshop @ ECML/PKDD*, 2022.

[29] Lokesh Veeramacheneni and **Matias Valdenegro-Toro**. A Benchmark for Out of Distribution Detection in Point Cloud 3D Semantic Segmentation. In *NeurIPS 2022 Workshop on Robot Learning: Trustworthy Robotics*, 2022.

[30] Aaqib Parvez Mohammed and **Matias Valdenegro-Toro**. Benchmark for Out-of-Distribution Detection in Deep Reinforcement Learning. In *Deep Reinforcement Learning Workshop @ NeurIPS*, 2021.

[31] **Matias Valdenegro-Toro**. Exploring the Limits of Epistemic Uncertainty Quantification in Low-Shot Settings. In *LatinX in AI Workshop @ NeurIPS*, 2021.

[32] **Matias Valdenegro-Toro**. Teaching Uncertainty Quantification in Machine Learning through Use Cases. In *Teaching in Machine Learning Workshop @ ECML/PKDD*, 2021.

[33] Octavio Arriaga and **Matias Valdenegro-Toro**. Unsupervised Difficulty Estimation with Action Scores. In *LatinX in AI Research Workshop @ NeurIPS*, 2020.

[34] Swaroop Bhandary, Nico Hochgeschwender, Paul Plöger, Frank Kirchner, and **Matias Valdenegro-Toro**. Evaluating uncertainty estimation methods on 3d semantic segmentation of point clouds. In *ICML Workshop on Uncertainty and Robustness in Deep Learning*, 2020.

[35] Akshatha Kamath, Dwaraknath Gnaneshwar, and **Matias Valdenegro-Toro**. Know where to drop your weights: Towards faster uncertainty estimation. In *I Can't Believe It's Not Better! Workshop @ NeurIPS*, 2020.

[36] Maryam Matin and **Matias Valdenegro-Toro**. Hey Human, If your Facial Emotions are Uncertain, You Should Use BNNs! In *Women in Computer Vision @ ECCV*, 2020.

[37] Lauren Michelle Pfeifer and **Matias Valdenegro-Toro**. Automatic detection and classification of tick-borne skin lesions using deep learning. In *LatinX in AI Research Workshop @ NeurIPS*, 2020.

[38] Matthias Rosynski, Frank Kirchner, and **Matias Valdenegro-Toro**. Are Gradient-based Saliency Maps Useful in Deep Reinforcement Learning? In *I Can't Believe It's Not Better! Workshop @ NeurIPS*, 2020.

[39] **Matias Valdenegro-Toro**. Deep Sub-ensembles for Fast Uncertainty Estimation in Image Classification. In *NeurIPS Workshop on Bayesian Deep Learning*, 2019.

9.4 Preprints

[40] Octavio Arriaga, **Matias Valdenegro-Toro**, Mohandass Muthuraja, Sushma Devaramani, and Frank Kirchner. Perception for autonomous systems (paz). *arXiv preprint arXiv:2010.14541*, 2020.

[41] Aaqib Parvez Mohammed and **Matias Valdenegro-Toro**. Can reinforcement learning for continuous control generalize across physics engines? *arXiv preprint arXiv:2010.14444*, 2020.

[42] Mohandass Muthuraja, Octavio Arriaga, Paul Plöger, Frank Kirchner, and **Matias Valdenegro-Toro**. Black-box optimization of object detector scales. *arXiv preprint arXiv:2010.15823*, 2020.

[43] Nour Soufi and **Matias Valdenegro-Toro**. Data augmentation with symbolic-to-real image translation gans for traffic sign recognition. *arXiv preprint arXiv:1907.12902*, 2019.

[44] **Matias Valdenegro-Toro**, Mariela De Lucas Alvarez, Mariia Dmitrieva, Bilal Wehbe, Georgios Salavasidis, Shahab Heshmati-Alamdari, Juan F Fuentes-Pérez, Veronika Yordanova, Klemen Istenič, and Thomas Guerneve. Results from the robocademy itn: Autonomy, disturbance rejection and perception for advanced marine robotics. *arXiv preprint arXiv:1910.13144*, 2019.

[45] Octavio Arriaga, Paul Plöger, and **Matias Valdenegro-Toro**. Image captioning and classification of dangerous situations. *arXiv preprint arXiv:1711.02578*, 2017.

9.5 Technical Reports

[46] Matias Alejandro Valdenegro Toro. Fast Radial Symmetry Detection for Traffic sign recognition. Technical report, Department of Computer Science, Bonn-Rhein-Sieg University of Applied Sciences, Sankt Augustin, Germany, August 2015.

[47] Matias Alejandro Valdenegro Toro. Fast Text Detection for Road Scenes. Technical report, Department of Computer Science, Bonn-Rhein-Sieg University of Applied Sciences, Sankt Augustin, Germany, August 2015.

9.6 Research Visits

Nov 2017	Two week research visit to Sergio Hernandez' group at Universidad Catolica del Maule, funded by their University

10 Service

10.1 Reviewing

2023	ICLR, CVPR.
2022	European Conference on Computer Vision, European Conference on Machine Learning (ECML/PKDD).
	NeurIPS (main and datasets track), ICLR, CVPR, Black in AI @ NeurIPS. LatinX in CV @ CVPR, LatinX in AI @ NeurIPS.
2021	International Conference on Learning Representations (ICLR).
	Neural Information Processing Systems (NeurIPS).
	AISTATS, ICML.
2020	Black in AI Workshop @ NeurIPS 2020.
	Women in Computer Vision Workshop @ ECCV 2020
	SciPy Japan, PyData Global.
	International Conference on Machine Learning (ICML).
	AISTATS, ICRA.
2019	Black in AI Workshop @ NeurIPS 2019.
	Women in Machine Learning Workshop @ NeurIPS 2019.
	International Joint Conference on Artificial Intelligence (IJCAI).
	Conference on Artificial Intelligence and Statistics (AISTATS).
	IROS, ICRA.
2018	IROS.
2017	International Conference on Robotics and Automation (ICRA). IEEE/RSJ Conference on Intelligent Robotic Systems (IROS).
2016	IFAC World Congress.
Journals	IEEE Access, IEEE Transactions on Emerging Topics in Computing, MDPI Sensors, IET Image Processing, IET Signal Processing, F1000 Research, Patterns.
Proposals	National Science Center, Poland. FonCYT, National Agency for the Promotion of Research, Technological Development and Innovation, Argentina. NWO Veni.

10.2 Chairing & Program Committee

2022	LatinX in CV Research Workshop @ ECCV 2022, General and Logistics co-chair.
	LatinX in AI GPU Committee, Teaching Committee chair.
2021	LatinX in CV Research Workshop @ ICCV 2021, General and Logistics co-chair.
	LatinX in CV Research Workshop @ CVPR 2021, Program Committee co-chair.
	AAAI 2021 Workshop on Diversity in Artificial Intelligence - Diversity, Belonging, Equity, and Inclusion (AIDBEI). Organizing Committee.
2020	LatinX in AI Research Workshop @ NeurIPS 2020, Workshop Advisor.
	LatinX in AI Research Workshop @ ICML 2020, Workshop Advisor.
2019	LatinX in AI Research Workshop @ NeurIPS 2019, Visa Chair.
	Scaling Up Reinforcement Learning Workshop @ IJCAI 2019, Program Committee.

	Underwater Robotics Perception Workshop @ ICRA 2019, Program Committee.

10.3 Thesis Committee

May 2023	Xu "Owen" He. Continual Learning in Neural Systems. PhD at University of Groningen. Member examining committee.
Nov 2018	Diego Vergara. Predictive Uncertainty in Classification using Dropout - Stochastic Gradient Hamiltonian Monte Carlo. Master in Computer Science, Universidad Catolica del Maule.

10.4 Volunteering

2020	Mentor for the LatinX in AI Mentoring Program @ NeurIPS 2020.
2020	Two mentoring sessions at ICML 2020 (4 hrs in total).
2020	Mentor for the LatinX in AI Mentoring Program @ ICML 2020.
2018, 2019	Mentor for the Black in AI Graduate Application Program.
2010 to 2011	Volunteer at SUMATE Foundation (Santiago, Chile), teaching Mathematics and Programming courses to low income students.

11 Additional Information

11.1 Languages

Spanish	Native language (C2 Level).
English	Fluent written and spoken (C1 Level).
	TOEIC: 980 (990 maximum), taken on May 2009.
	TOEFL iBT: Reading 28, Listening 28, Speaking 22, Writing 28.
	Total 106 (120 maximum). Taken on June 2010.
German	A2 level.

11.2 General Knowledge

Prog. Languages	C/C++, Java, Python, C#, Latex
Frameworks	Tensorflow, Keras, scikit-learn, pandas, matplotlib, ROS.

Dr. Matias Valdenegro.
Groningen, The Netherlands. May 15, 2023