Curriculum Vitae of J. Miguel Valverde

Personal details

Full name: Juan Miguel Valverde Martinez
Website: www.delanover.com
Google scholar: https://scholar.google.com/citations?user=OPH9yeIAAAAJ&hl=en
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Github: https://github.com/jmlipman

Work experience

DTU Compute, Technical University of Denmark — Lyngby, Denmark
Postdoc Researcher — Sep 2023–Aug 2025
Development of topology- and morphology-aware deep learning segmentation methods.
Supervisor: Anders Bjorholm Dahl

A.I. Virtanen Institute, University of Eastern Finland — Kuopio, Finland
Postdoc Researcher — Oct 2022–Aug 2023
Segmentation of electron microscopy images with deep learning.
Supervisor: Alejandra Sierra

Department of Architecture, Sojo University — Kumamoto, Japan
Researcher — Oct 2017–Sep 2018
Navigation map system for wheelchair users for iOS (front and backend).
Supervisor: Motoya Koga

Copenhagen Business School — Copenhagen, Denmark
Research student — Dec 2015–Mar 2016
Visualizing Public Complex Data.

Education

University of Eastern Finland — Kuopio, Finland
Ph.D. in Computer Science (with honors) — Oct 2018–Sep 2022
Thesis: MRI Segmentation with Deep Learning. Application in Rodent Brain Images with Lesions (examiner: Koen Van Leemput). Supervisors: Jussi Tohka, Olli Gröhn

University of Oxford *(Research visit)* — Oxford, UK
Supervisor: Jason Lerch — Nov 2021–Feb 2022

University of Copenhagen — Copenhagen, Denmark
M.Sc. in IT and Cognition — Aug 2015–Sep 2017
Thesis: Template building and labelling of in-vivo specimens of rats with hypertension in pre-clinical settings. Supervisor: Sune Darkner

University of Burgos — Burgos, Spain
BSc. in Computer Science Engineering (*Grado en Ingeniería informática*) — Sep 2010–Jun 2014

Turku University of Applied Sciences *(Erasmus Exchange)* — Turku, Finland
Aug 2013–Jun 2014

Language skills

Spanish: Native
English: Full professional proficiency
Japanese: Elementary proficiency

Awards, Mentions, Distinctions

CVPR Outstanding Reviewer — 2025
NeurIPS Top Reviewer — 2024
MICCAI Outstanding Reviewer – Honorable mention — 2023
UEF's Young Researcher Award — 2023
Ph.D. Thesis and defense – Approved with honors — 2022
MICCAI Outstanding Reviewer – Honorable mention — 2022

Teaching

Deep Learning for Experimental 3D Image Analysis *Technical University of Denmark* — Lyngby, Denmark, 2024, 2025
with Hans Martin Kjer, Marco Pizzolato, Vedrana A. Dahl, Anders B. Dahl

Supervision

Silas Krongaard Hansen & Agnes Lund Olsen *Technical University of Denmark* — Lyngby, Denmark, Feb 2025-Jun 2025
BSc. Thesis: "Segmentation and Characterization of Plant Root System Architecture from Micro-CT Scans"

Julius Ellegård Grønager *Technical University of Denmark* — Lyngby, Denmark, Jan 2025-Jun 2025
BSc. Thesis: "Improving Skeleton Consistency in 3D Medical Image Segmentations of Tubular Structures Using Deep Learning and Visual Analytics"

Morten Møller Christensen *Technical University of Denmark* — Lyngby, Denmark, Jan 2025-Jun 2025
MSc. Thesis: "Applying machine learning approaches for estimating temporal changes in surface water extent using multi-modal remote sensing data"

Carl Lucas Grundtvig Nørlund & Malthe August Bordin Bresler *Technical University of Denmark* — Lyngby, Denmark, Jan 2024-Jun 2024
BSc. Thesis: "Thin Object Image Segmentation in Three Dimensions"

Mohammad Jaber Hossain *Norwegian University of Science and Technology* — Kuopio, Finland, Jan 2023-Aug 2023
MSc. Thesis: "Transfer Learning-Based Deep Learning Techniques for Brain Lesion Segmentation in 3D Pre-Clinical Magnetic Resonance Images"

Sergio Doval Sánchez *Universidad Carlos III de Madrid* — Kuopio, Finland, Sep 2022-Jun 2023
BSc. Thesis: "Automated Segmentation of Ischemic Lesions in MR Images"

Funding

University of Eastern Finland *550€*
For the research visit to the University of Oxford — Jan 2022

Otto Malm Foundation *4300€*
For the research visit to the University of Oxford — Jun 2020

University of Eastern Finland *900€*
For attending MICCAI conference in Shenzhen, China — Sep 2019

Other key academic merits

Organization, Staff

Scandinavian Conference on Image Analysis (SCIA) *Organizing committee* — Reykjavik, Iceland, June 2025
with Rasmus Larsen, Thomas B. Moeslund, Jens Petersen, Vedrana A. Dahl.

Workshop on Challenges in analysis of large image data *Organizing committee* — Reykjavik, Iceland, June 2025
with Anders B. Dahl, Rebecca Engberg, and the rest of QIM Centre.

Navigating as a Researcher in the Era of AI (Workshop) *Debate coach* — Aalborg, Denmark, March 2024
with Gretchen Repasky, Benjamin Lebiecka-Johansen, Katharina Herzog, Tibor Varga.

UEF Winter School *Award committee* — Kuopio, Finland, May 2023
with Jenni Küblbeck (UEF, main organizer).

MLT __init__ journal club *Co-organizer* — Online, Jan 2021-Sep 2022
with Jayson Cunanan (AI Inside), Suzana Ilić (Hugging Face), Alisher Abdulkhaev (ROMS).

UEF Winter School *Co-organizer* — Kuopio, Finland, Mar 2019
with Joanna Huttunen, Lenka Dvoráková, Ratika Sehgal, Heidi Pulkkinen, Niina Vuokila, Sami Gabbouj.

Nordic AI *Volunteer* — Copenhagen, Denmark, Sep 2017
with Sarah Gill (Founders).

Invited lectures

Board of European Students of Technology (BEST) *Lecture* — Lyngby, Denmark, June 2025
Topic: Image recognition & AI

International research activity

Integrating AI & Data Sharing for the Human Organ Atlas Hub workshop — Lyngby, Denmark
Poster presentation — Nov 2024
Disconnect to Connect: A Data Augmentation Method for Improving Topology Accuracy in Image Segmentation

MAX IV User's Meeting *Poster presentation* — Lund, Sweden
Disconnect to Connect: A Data Augmentation Method for Improving Topology Accuracy in Image Segmentation — Jan 2024

Nordic Probablistic AI school *Poster presentation* — Helsinki, Finland
Region-wise Loss for Biomedical Image Segmentation — Jun 2022

Challenge in Adolescent Brain Cognitive Development Neurocognitive Prediction at MICCAI Conference *Poster presentation* — Shenzhen, China
Predicting intelligence based on cortical WM/GM contrast, cortical thickness and volumetry — Oct 2019

International Workshop on Machine Learning in Medical Imaging at MICCAI Conference *Poster presentation* — Shenzhen, China
Automatic Rodent Brain MRI Lesion Segmentation with Fully Convolutional Networks — Oct 2019

Machine Learning Summer School *Poster presentation* — Moscow, Russia
Automatic Rodent Brain MRI Lesion Segmentation with Fully Convolutional Networks — Aug 2019

University of Eastern Finland Winter School *Poster presentation* — Kuopio, Finland
Automatic Rodent Brain MRI Lesion Segmentation with Fully Convolutional Networks — Mar 2019

Peer review

TMLR	2025
BMVC	2025
CVPR	2025
ICLR	2025
NeurIPS	2024-2025
MICCAI International Conference	2022-2025
Communications Medicine	2024
Entropy	2024
Scientific Reports	2022,2024
MICAD International Conference	2023
Quantitative Imaging in Medicine and Surgery	2023
Artificial Intelligence In Medicine	2023
Frontiers in Neuroimaging	2022
Frontiers in Neurology	2022
BMC Medical Imaging	2021-2022
Biocybernetics and Biomedical Engineering	2021
Computational Intelligence and Neuroscience	2021

Publications

Open access Preprint Code * Shared authorship

Peer-reviewed Journal Articles

1. J.M. Valverde, A. Shatillo, J. Tohka. **Sauron U-Net: Simple automated redundancy elimination in medical image segmentation via filter pruning.** In *Neurocomputing*, 2024
2. A. Lazari, M. Tachrount, J.M. Valverde, D. Papp, A. Beauchamp, P. McCarthy, J. Ellegood, J. Grandjean, H. Johansen-Berg, V. Zerbi, J. P Lerch, R. B Mars **The mouse motor system contains multiple premotor areas and partially follows human organizational principles.** In *Cell Reports*, 2024
3. J.M. Valverde, J. Tohka. **Region-wise Loss for Biomedical Image Segmentation.** In *Pattern Recognition*, 2023

4. J.M. Valverde, A. Shatillo, R. De Feo, J. Tohka. **Automatic cerebral hemisphere segmentation in rat MRI with lesions via attention-based convolutional neural networks.** In *NeuroInformatics*, 2022
5. R. De Feo, E. Hämäläinen , E. Manninen, R. Immonen, J.M. Valverde, X.E. Ndode-Ekane, O. Gröhn, A. Pitkänen, J. Tohka. **Convolutional Neural Networks Enable Robust Automatic Segmentation of the Rat Hippocampus in MRI After Traumatic Brain Injury.** In *Frontiers in Neurology*, 2022
6. J.M. Valverde, V. Imani, A. Abdollahzadeh, R. De Feo, M. Prakash, R. Ciszek, J. Tohka. **Transfer Learning in Magnetic Resonance Brain Imaging: A Systematic Review.** In *Journal of Imaging*, 2021
7. R. De Feo, A. Shatillo, A. Sierra, J.M. Valverde, O. Gröhn, J. Tohka. **Automated skull-stripping and segmentation with Multi-Task U-Net in large mouse brain MRI databases.** In *NeuroImage*, 2021
8. J.M. Valverde, A. Shatillo, R. De Feo, O. Gröhn, A. Sierra, J. Tohka. **RatLesNetv2: A Fully Convolutional Network for Rodent Brain Lesion Segmentation.** In *Frontiers in Neuroscience*, 2020

Peer-reviewed Conference Articles

1. J.M. Valverde, A. Shatillo, R. De Feo, O. Gröhn, A. Sierra, J. Tohka. **Automatic Rodent Brain MRI Lesion Segmentation with Fully Convolutional Networks.** In *International Workshop on Machine Learning in Medical Imaging* (pp. 195-202). Springer, Cham. 2019
2. J.M. Valverde*, V. Imani*, J.D. Lewis, J. Tohka. **Predicting intelligence based on cortical WM/GM contrast, cortical thickness and volumetry.** In *Challenge in Adolescent Brain Cognitive Development Neurocognitive Prediction* (pp. 57-65). Springer, Cham. 2019

International abstracts

1. V. Imani, J.M. Valverde, M. Prakash J.D. Lewis, O. Gröhn, J. Tohka. **Fluid Intelligence Classification Based On Cortical WM/GM Contrast, Cortical Thickness and Volumetry.** In *Organization for Human Brain Mapping*, 2020.

Submitted manuscripts

1. J.M. Valverde, M. Østergaard, A. Rodriguez-Palomo, P. A. S. Vibe, N. K. Wittig, H. Birkedal, A. Dahl. **Disconnect to Connect: A Data Augmentation Method for Improving Topology Accuracy in Image Segmentation.** Submitted to *IEEE / CVF International Conference on Computer Vision (ICCV)*, 2025.
2. J.M. Valverde, M. Koga, N. Otsuka, A.B. Dahl. **TopoMortar: A dataset to evaluate image segmentation methods focused on topology accuracy.** Submitted to *IEEE / CVF International Conference on Computer Vision (ICCV)*, 2025.
3. J.M. Valverde, V. Imani, J. Tohka. **Fine-tuning ImageNet-pretrained Models in Medical Image Classification: Reassessing the Impact of Confounding Factors.** Submitted to *Pattern Recognition Letters*, 2025.