



Emmanuel Iarussi

Computer Vision | Computer Graphics | Machine Learning

Personal
Age: 36 - 01/12/1988
emmanuel.iarussi@utdt.edu
emmanueliarussi.github.io/

Address
Av. Pres. Figueroa
Alcorta 7350 (UTDT)
Buenos Aires
CP 1428
Argentina

Tel & Twitter
(+54 11) 5169 7847
@emmailarussi

Interest Areas
AI ★★★★★
3D CG ★★★★★
Generative ★★★★★
Imaging ★★★★★
Vision ★★★★★

Languages
Spanish ★★★★★
English ★★★★★
French ★★★★★
Italian ★★★★★

Since 2017 **Research Fellow** Buenos Aires, Argentina
CONICET

Since 2022 **Computer Graphics & Vision Expert** Buenos Aires, Argentina
Stämm

Since 2022 **Assistant Professor - Tenure Track** Buenos Aires, Argentina
Universidad Torcuato Di Tella

Since 2023 **Adjunct Faculty** Denver, US
University of Denver

Education

2016 - 2017 **Postdoctoral Fellow** Vienna, Austria
ISTA Austria - Digital Fabrication

2012 - 2015 **PhD. Computer Science** Sophia Antipolis, France
INRIA GraphDeco Team - [Link to PhD Thesis](#)
Advisors: Adrien Bousseau, George Drettakis

2006 - 2012 **Systems Engineer** Tandil, Argentina
UNICEN - Facultad de Ciencias Exactas
Advisors: Alejandro Clause, Virginia Cifuentes

2006 - 2011 **Programmer** Tandil, Argentina
UNICEN - Facultad de Ciencias Exactas

Recent Publications

DUDF: Differentiable Unsigned Distance Fields with Hyperbolic Scaling. Fainstein, M., Siless, V., Iarussi, E. *To be published.*

VesselVAE: Recursive Variational Autoencoders for 3D Blood Vessel Synthesis. Feldman, P., Fainstein, M., Siless, V., Delrieux, C., Iarussi, E. *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2023). Lecture Notes in Computer Science, vol 14220. Springer, Cham. doi:10.1007/978-3-031-43907-0_7.*

Bone-GAN: Generation of virtual bone microstructure of high resolution peripheral quantitative computed tomography. Thomsen, F. S. L., Iarussi, E., Borggreffe, J., Boyd, S. K., Wang, Y., Battié, M. C. *Medical Physics (2023). ISSN: 2473-4209. doi: 02/mp.16482.*

Learning normal asymmetry representations for homologous brain structures. Dean-geli, D., Iarussi, E., Princich, J. P., Bendersky, M., Larrabide, I., Orlando, J. *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2023). Lecture Notes in Computer Science, vol 14220. Springer, Cham. doi: 10.1007/978-3-031-43993-3_8.*

NORHA: A NORmal Hippocampal Asymmetry deviation index based on one-class novelty detection and 3D shape features. Deangeli, D., Iarussi, F., K lsgaard, H., Braggio, D., Princich, J. P., Bendersky, M., Iarussi, E., Larrabide, I., Orlando, J. I. *Brain Topography* (2023). ISSN: 1573-6792. doi:10.1007/s10548-023-00985-6.

Learning Deep Features for Stain-free Live-dead Human Breast Cancer Cell Classification. Pattarone, G., Acion, L., Simian, M., Iarussi, E.. *Nature Scientific Reports* (2021). ISSN: 2045-2322. doi: 10.1038/s41598-021-89895-w.

Generative Modelling of 3D in-silico Spongiosa with Controllable Micro-Structural Parameters. Iarussi, E., Thomsen, F. and Delrieux, C., *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2020)*. *Lecture Notes in Computer Science*, vol 12266. Springer, Cham. doi: 10.1007/978-3-030-59725-2_76.

Improving realism in patient-specific abdominal Ultrasound simulation using CycleGANs. Vitale, S., Orlando, J.I., Iarussi, E. and Larrabide, I. *International Journal of Computer Assisted Radiology and Surgery*, 1-10 (2019). ISSN: 1861-6429. doi: 10.1007/s11548-019-02046-5.

FlexMaps: Computational Design of Flat Flexible Shells for Shaping 3D Objects. Malomo, L., P rez, J., Iarussi, E., Pietroni, N., Miguel, E., Cignoni, P. and Bickel, B. *ACM Transactions on Graphics (SIGGRAPH Asia)* 37.6 (2018). ISSN: 0730-0301. doi: 10.1145/3272127.3275076.

CoreCavity: Interactive Shell Decomposition for Fabrication with Two-Piece Rigid Molds. Kazutaka Nakashima , Thomas Auzinger, Emmanuel Iarussi, Ran Zhang, Takeo Igarashi, Bernd Bickel. *ACM Transactions on Graphics (SIGGRAPH)* 37.4 (2018). ISSN: 0730-0301. doi: 10.1145/3197517.3201341..

WrapIt: Computer-Assisted Crafting of Wire Wrapped Jewelry. Emmanuel Iarussi, Wilmot Li, and Adrien Bousseau. *ACM Transactions on Graphics (SIGGRAPH Asia)* 34.6 (2015). doi:10.1145/2816795.2818118. ISSN: 0730-0301.

BendFields: Regularized Curvature Fields from Rough Concept Sketches. Emmanuel Iarussi, David Bommes, and Adrien Bousseau. *ACM Transactions on Graphics (TOG)* 34.3 (2015): 24. ISSN: 0730-0301. doi:10.1145/2710026.

The Drawing Assistant: Automated Drawing Guidance and Feedback from Photographs. Emmanuel Iarussi, Adrien Bousseau, and Theophanis Tsandilas. *ACM Symposium on User Interface Software and Technology (UIST)*. ACM, 2013. ISBN: 978-1-4503-8635-7. doi:10.1145/2501988.2501997

Awards

2022 Top 100 cancer Nature Scientific Reports papers in 2021

Learning Deep Features for Stain-free Live-dead Human Breast Cancer Cell Classification.

2021 Salesforce AI Research Grant

Bone-GAN: Towards an accurate diagnosis of osteoporosis from routine body CTs.

Grant: USD 50.000,00.

2020 Kaggle open data research grant 2020

Improving realism in patient-specific abdominal Ultrasound simulation using CycleGANs

Grant: USD 2.500,00.

Research Funding

- 2023 **Project CLIAS - IECS**
Development of a remote AI system for analysing fixed cervicovaginal smears (PAPs) images.
Grant: USD 20.000,00.
- 2021 **Project PIP / ID: PIP 2021-2023 GI - 11220200102981CO**
Accurate diagnosis of osteoporosis from routine body CT images using antagonistic generative models.
Grant: USD 10.000,00.
- 2020 **Project PID UTN / ID: SIUTNBA0005534**
Redes Generativas para el Diseño 2D/3D Interactivo y Síntesis Multivista.
Grant: \$644.225,68.
- 2020 **Project PID UTN / ID: SIUTNBA0005139**
CrossMatch: Detección de Correspondencias de Dominio Cruzado mediante Deep Learning.
Grant: \$1.143.878,00.
- 2019 **Project PICT-Joven / ID: PICT-2018-04517**
Deep multi-view descriptors for matching line drawings.
Grant: USD 3.500,00.
- 2017 **Nvidia Research Grant**
Dense Cross-Domain Features for 2D/3D Matching using Deep Convolutional Networks.
Grant: USD: 3.800,00.

Teaching

- Since 2023 **Adjunct Faculty Denver University** Denver, US (Remote)
Deep Learning: Model Design and Application.
MS in Data Science
Contact: Sean Connin · sean.connin@du.edu
- Since 2023 **Professor UTDT** Buenos Aires, Argentina
Métodos computacionales
Licenciatura en Tecnología Digital
Contact: Agustín Gravano · agravano@utdt.edu
- Since 2022 **Professor UTDT** Buenos Aires, Argentina
Tecnología Digital IV: Redes de Computadoras
Contact: Agustín Gravano · agravano@utdt.edu
- Since 2022 **Professor UTDT** Buenos Aires, Argentina
Visualización y Análisis de Datos
Optativa para todas las carreras - Track de Ciencia de Datos
Contact: Gustavo Vulcano · gvulcano@utdt.edu

- 2019 - 2021 **Assistant Professor FCEN-UBA** Buenos Aires, Argentina
 Algorithms and Data Structures II & Fundamentals of Computer Graphics
 Licenciatura en Ciencias de la Computación
 Contact: Santiago Figueira · santiago@dc.uba.ar
- 2018 - 2021 **Assistant Professor - UTN** Buenos Aires, Argentina
 Fundamentals of Computer Graphics.
 Contact: Patricia Cibeira
pcibeira@frba.utn.edu.ar
- 2014 - 2015 **Assistant Professor - IUT, Université Côte d'Azur** Nice, France
 Introduction à l'Interaction Homme-Machine
 Systèmes d'informations et Gestion de Données
- 2010 - 2011 **Assistant Professor UNICEN** Tandil, Argentina
 Computer Architecture
 Ingeniería en Sistemas
 Professor: Elias Todorovich · etodorov@exa.unicen.edu.ar
- 2009 - 2011 **Assistant Professor UNICEN** Tandil, Argentina
 Software Development Methodologies.
 Ingeniería en Sistemas
 Professor: Claudia Marcos · cmarcos@exa.unicen.edu.ar

Teaching (Postgraduate)

- 2017 - 2022 **Data Visualization** Buenos Aires, Argentina
 MiM - Master in Management + Analytics / UTDT
 Contact: Gustavo Vulcano · gvulcano@utdt.edu
- 2017 - 2022 **Fundamentals of Computer Graphics** Buenos Aires, Argentina
 Doctorado en Ingeniería, mención Procesamiento de Señales e Imágenes / UTN.
 Contact: Ricardo Armentano · armen@frba.utn.edu.ar
- 2017 - 2022 **Information Visualization** Buenos Aires, Argentina
 Maestría en Explotación de Datos y Descubrimiento del Conocimiento / FCEN UBA.
 Contact: Marcelo Soria · soria@agro.uba.ar
- 2020 - 2021 **Graphics Representation and Data Visualization** Tandil, Argentina
 Diplomatura Universitaria en Inteligencia Artificial / UNICEN
 Contact: Andrés Díaz-Pace · adiazpace@gmail.com
- 2020- 2021 **Machine Learning** Río Gallegos, Argentina
 Maestría en Informática y Sistemas / UNPA.
 Contact: Claudio Delrieux · cad@uns.edu.ar
- 2018 - 2019 **Scientific Communication** Buenos Aires
 Master en Optimización y Seguridad de Sistemas / UTN FRBA.
 Contact: Carolina Rodrigo · crodrigo@frba.utn.edu.ar

2019 - 2020 **Information Visualization** Paraná, Argentina
Maestría en Minería de Datos / UTN FRP
Contact: Ana Silvia Haedo · anasicorreo@outlook.com

Other Short Courses and Trainings

2019 - 2020 **CreativelA: Generative Adversarial Networks in PyTorch / UNS** Bahía Blanca, Argentina
Lecturer. Creative AI tools training course for UNS teachers and researchers.

2019 - 2020 **CreativelA: Generative Adversarial Networks in PyTorch / UNSA** Salta, Argentina
Lecturer. 48 JAIIO workshop course.

2017 - 2018 **Visualization Techniques for Big Data / UBA** Buenos Aires, Argentina
Lecturer. Visualization training course. *CitepLab: Big Data* workshop.

Other Activities

Since 2022 **Advisory committee member** Buenos Aires, Argentina
Metadocencia.

2018-2022 **PhD. Committee member** Buenos Aires, Argentina
PhD in Engineering, Signal and Image Processing mention. UTN FRBA.

2011 - 2012 **Academic Council student member.** Tandil, Argentina
Facultad de Ciencias Exactas. UNICEN.

2011 - 2012 **Computing Department student member** Tandil, Argentina
Facultad de Ciencias Exactas. UNICEN.

Scholarships

2012-2015 **Doctoral Scholarship** Nice, France
Computer Assisted Realistic Drawing. Agence Nationale de la Recherche.
Advisors: Adrien Bousseau & George Drettakis.

2014 **Internship ADOBE Research** San Francisco, CA
Computer-Assisted Crafting of Wire Wrapped Jewelry.
Advisor: Wilmot Li.

2011 **Scientific training scholarship BENTR10** Tandil, Argentina
Texture Detection in Digital Images.
Comisión de Investigaciones Científicas. UNICEN.
Advisors: Alejandro Clause & María Virginia Cifuentes.

Students

In progress	Paula Feldman PhD Thesis co-advisor. Started 2021. Project: <i>Generative modeling and synthesis of vascular anatomical structures.</i>	UNS
In progress	Miguel Fainstein Master Thesis advisor. Started 2022. Project: <i>Modelos generativos en salud.</i>	FCEN - UBA
In progress	Martin Sinnona Master Thesis advisor. Started 2023. Project: <i>Distilling Design Decisions in Visualizations using pixels-to-text Foundation Models.</i>	FCEN - UBA
In progress	Santiago Corley Master Thesis advisor. Started 2023. Project: <i>User assistance in CAD interfaces using LLMs.</i>	FCEN - UBA
2021 - 2022	Cristian Galli Master Thesis advisor. Project: <i>Estrategias de muestreo 3D para el aprendizaje profundo de superficies implícitas.</i>	FCEN - UBA
2020 - 2021	Daniel Bauer Master Thesis advisor. Proyecto: <i>Implementación de un motor de rendering no-fotorrealista en python.</i>	UNC
2020 - 2021	Francisco Iarussi Engineering thesis. Advisors: Prof. Dr. Ignacio Larrabide, Dr. Emmanuel Iarussi. Project: <i>Caracterización de asimetrías en hipocampos usando técnicas de inteligencia artificial.</i>	UNICEN
2020 - 2021	Leonardo Maestri EVC-CIN scholarship advisor. Project: <i>CrossMatch: detección de correspondencias de dominio cruzado mediante deep learning.</i>	UTN FRBA
2019 - 2020	Gisela Pattarone Master thesis. Advisors: Prof. Dr. Joschka Bödecker, Emmanuel Iarussi. Project: <i>Automatic breast cancer cell classification using deep convolutional neural networks.</i>	FFyB - UBA
2017 - 2020	Pablo Navarro Internship advisor. Project: <i>Dense cross-domain features for 2D-3D matching using deep convolutional networks.</i>	UTN FRBA

Examining Committee

- 2023 **Examining committee member** Buenos Aires, Argentina
Master Thesis. Student: Federico Rabinovich. Dissertation: *"Cluster-Based Training Methods for Convolutional Layers in Neural Networks"*. FCEN, UBA.
- 2022 **PhD. examining committee member** Tandil, Argentina
Student: Delfina Braggio. Dissertation: *"Contributions to the Study of the Sensitivity of Voxel-Based Morphometry"*. FCEX, UNICEN.
- 2022 **Examining committee member** Buenos Aires, Argentina
Student: Gonzalo Ruarte. Dissertation: *"Optimization of a Visual Search Model: Adaptations and Improvements for cIBS"*. FCEN, UBA.
- 2021 **Examining committee member** Buenos Aires, Argentina
Student: Fermín Travi. Dissertation: *"Computational Models of Human Visual Search in Natural Scenes: Comparison of Models and Reference Datasets"*. FCEN, UBA.
- 2021 **PhD. examining committee member** Troyes, France
Student: Martin Palazzo. Dissertation: *"Dimensionality reduction of biomedical tumor profiles: a machine learning approach"*. UTT, France.
- 2021 **Examining committee member** Buenos Aires, Argentina
Student: Gaston Mazzei. Dissertation: *"Simplified Access to Neural Networks for Physics Problems and Others"*. FCEN, UBA.
- 2020 **Examining committee member** Buenos Aires, Argentina
Master Thesis. Student: Eduardo Montero. Dissertation: *"Visual Analytics in the Discovery of Knowledge of Non-Communicable Chronic Diseases in Ecuador"*. FCEN, UBA.
- 2019 **Examining committee member** Buenos Aires, Argentina
Student: Julián Bayardo. Dissertation: *"Efficient Approximation of the Non-Convex Capsule for Surface Reconstruction"*. FCEN, UBA.

International Conferences

- 2023 **International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)** Vancouver, Canada
VesselVAE: Recursive Variational Autoencoders for 3D Blood Vessel Synthesis
- 2023 **International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)** Vancouver, Canada
Learning normal asymmetry representations for homologous brain structures
- 2021 **Eurographics** Viena, Austria
SketchZooms: Deep Multi-view Descriptors for Matching Line Drawings
- 2021 **Toronto Geometry Colloquium** Toronto, Canada
Learning to generate realistic 3D bone micro-structure with controllable parameters
- 2020 **International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)** Lima, Perú
Generative Modelling of 3D in-silico Spongiosa with Controllable Micro-Structural Parameters

- 2019 **Computer Assisted Radiology and Surgery (CARS)** Rennes, France
Improving realism in patient-specific abdominal Ultrasound simulation using CycleGANs
- 2018 **ACM SIGGRAPH** Vancouver, Canada
CoreCavity: Interactive Shell Decomposition for Fabrication with Two-Piece Rigid Molds.
- 2017 **Visual Computing / Graphics and CAD Joint Symposium 2017** Tokyo, Japan
Interactive Decomposition for Fabrication with Two-Piece Permanent Molds.
- 2015 **ACM SIGGRAPH ASIA** Kobe, Japan
WrapIt: Computer-assisted Crafting of Wire Wrapped Jewelry.
 Association for Computing Machinery (ACM).
- 2015 **ACM SIGGRAPH** Los Angeles, CA
Bendfields: Regularized Curvature Fields from Rough Concept Sketches.
 Association for Computing Machinery (ACM).
- 2014 **Eurographics Student Volunteer** Strasbourg, France
 European Association for Computer Graphics.
- 2013 **Symposium on User Interface Software and Technology** St Andrews, UK
The Drawing Assistant: Automated Drawing Guidance and Feedback from Photographs.
 Association for Computing Machinery (ACM).
- 2013 **Conference on Human Factors in Computing Systems** Paris, France
 Association for Computing Machinery (ACM).

Other Research Projects

- 2019 - 2021 **Morphological Characterization of the Optic Nerve Head in Fundus Photographs Using Deep Learning** Tandil, Argentina
 PICT-2019-00070 - UNICEN
 Grant: USD 5.700,00.
- 2018 - 2021 **Study and Modeling of the Dynamics of Complex Systems Based on Signal Analysis** Buenos Aires, Argentina
 PID - Universidad Tecnológica Nacional
 ASUTNBA0004729. Grant: USD 75.000,00.
- 2016 - 2017 **Soft-bodied Intelligence for Manipulation (SOMA)** IST Austria
 European Union's Horizon 2020 Research and Innovation Programme.
 Instituciones Participantes: *Universit  di Pisa - Fondazione Istituto Italiano di Tecnologia, Deutsches Zentrum Fuer Luft – Und Raumfahrt Ev, Institute of Science and Technology Austria, The Walt Disney Company (Switzerland), Ocado Innovation Limited.*
 ID 645599. Grant: 7.131.091,25 euros.
- 2012 - 2015 **Dessin R aliste Assist  par Ordinateur (DRAO)** Inria Sophia Antipolis, France
 The French National Research Agency (ANR)
 ANR-12-JS02-0003. ANR Grant: 152.693 euros.