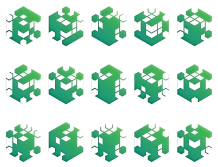

Emmanuel Iarussi

Computer Vision | Computer Graphics | Machine Learning

Personal

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Buenos Aires
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Interest Areas

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

Languages

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

Since 2017	**Research Fellow** CONICET	Buenos Aires, Argentina
Since 2022	**Computer Graphics & Vision Expert** Stämm	Buenos Aires, Argentina
Since 2022	**Assistant Professor - Tenure Track** Universidad Torcuato Di Tella	Buenos Aires, Argentina
Since 2023	**Adjunct Faculty** University of Denver	Denver, US

Education

2016 - 2017	**Postdoctoral Fellow** ISTA Austria - Digital Fabrication	Vienna, Austria
2012 - 2015	**PhD. Computer Science** INRIA GraphDeco Team - *Link to PhD Thesis* Advisors: Adrien Bousseau, George Drettakis	Sophia Antipolis, France
2006 - 2012	**Systems Engineer** UNICEN - Facultad de Ciencias Exactas Advisors: Alejandro Clausse, Virginia Cifuentes	Tandil, Argentina
2006 - 2011	**Programmer** UNICEN - Facultad de Ciencias Exactas	Tandil, Argentina

Recent Publications

DUDF: Differentiable Unsigned Distance Fields with Hyperbolic Scaling. Fainstein, M., Siless, V., **Iarussi, E**. *Submitted to the IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR 2024).*

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.**, Borggrefe, 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. Deangeli, 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., Külsgaard, 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., Pérez, 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: Agustin Gravano · **agravano**@utdt.edu

Since 2022 **Professor UTDT** — Buenos Aires, Argentina
Tecnología Digital IV: Redes de Computadoras
Contact: Agustin 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 Diaz-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 **CreativeIA: Generative Adversarial Networks in PyTorch / UNS** — Bahía Blanca, Argentina
Lecturer. Creative AI tools training course for UNS teachers and researchers.

2019 - 2020 **CreativeIA: 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 Clausse & María Virginia Cifuentes.

Students

In progress **Paula Feldman** UNS
PhD Thesis co-advisor. Started 2021.
Project: *Generative modeling and synthesis of vascular anatomical structures*.

In progress **Miguel Fainstein** FCEN - UBA
Master Thesis advisor. Started 2022.
Project: *Modelos generativos en salud*.

In progress **Martin Sinnona** FCEN - UBA
Master Thesis advisor. Started 2023.
Project: *Distilling Design Decisions in Visualizations using pixels-to-text Foundation Models*.

In progress **Santiago Corley** FCEN - UBA
Master Thesis advisor. Started 2023.
Project: *User assistance in CAD interfaces using LLMs*.

2021 - 2022 **Cristian Galli** FCEN - UBA
Master Thesis advisor.
Project: *Estrategias de muestreo 3D para el aprendizaje profundo de superficies implícitas*.

2020 - 2021 **Daniel Bauer** UNC
Master Thesis advisor.
Proyecto: *Implementación de un motor de rendering no-fotorrealista en python*.

2020 - 2021 **Francisco Iarussi** UNICEN
Engineering thesis. Advisors: Prof. Dr. Ignacio Larrabide, Dr. Emmanuel Iarussi.
Project: *Caracterización de asimetrías en hipocampos usando técnicas de inteligencia artificial*.

2020 - 2021 **Leonardo Maestri** UTN FRBA
EVC-CIN scholarship advisor.
Project: *CrossMatch: detección de correspondencias de dominio cruzado mediante deep learning*.

2019 - 2020 **Gisela Pattarone** FFyB - UBA
Master thesis. Advisors: Prof. Dr. Joschka Bödecker, Emmanuel Iarussi.
Project: *Automatic breast cancer cell classification using deep convolutional neural networks*.

2017 - 2020 **Pablo Navarro** UTN FRBA
Internship advisor.
Project: *Dense cross-domain features for 2D-3D matching using deep convolutional networks*.

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.
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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: *Universitá 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 Réaliste Assisté par Ordinateur (DRAO)** Inria Sophia Antipolis, France
The French National Research Agency (ANR)
ANR-12-JS02-0003. ANR Grant: 152.693 euros.