

Gustavo Gratacos, Ph.D.

Computer Scientist



About me

My primary interests are computer graphics, image processing, and graph theory. However, my main passion lies in solving algorithmically interesting problems.

Areas of specialization

Computational Geometry
• Data Visualization • Graph theory • Algorithms
• Optimization

Programming Languages

Python • C/C++ • Matlab
• Mathematica • \LaTeX

Interests

Environmental Conservation
• Wildlife Photography
• Hiking • Snorkeling • Music

gratacos.github.io

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SHORT RÉSUMÉ

2020–2024

Computer Graphics Lab

DOCTORAL STUDENT • Washington University in St. Louis

Worked on segmenting time-series images of plants, and creating algorithms to recover the shapes of tree-like structures from 2D and 3D images.



2018

Summer Engineering Fellowship - Computational Imaging Lab

VISITING STUDENT • Washington University in St. Louis

Used dictionary learning to improve the quality of medical images.



2017

Marquette MSCS REU

VISITING STUDENT • Marquette University

Extended MUzECS: a music-based platform for computer science education.



2015–2017

Undergraduate Research

BACHELOR'S STUDENT • University of Puerto Rico, Río Piedras

Designed algorithms to find low-stretch spanning trees of graphs.



DEGREES

2024

Computer Science

PHD • Washington University in St. Louis



2019

Computer Science

B.A. • University of Puerto Rico, Río Piedras



2019

Mathematics

MINOR • University of Puerto Rico, Río Piedras



PUBLICATIONS

2023

Tree Recovery by Dynamic Programming, IEEE Transactions on Pattern Analysis and Machine Intelligence.

2023

The plant response to high CO₂ levels is heritable and orchestrated by DNA methylation, New Phytologist

TALKS

2021

"Temporally Consistent Multi-label Plant-level Segmentation of Overhead Images for High-throughput Phenotyping", at: *Annual North American Plant Phenotyping Network Conference*

2018

"Neural Networks and Word Embeddings", at: *Seminario Interuniversitario de Investigación en Ciencias Matemáticas*

2018

"Image Restoration with Patch-wise Sparse Learning", at: *WUSEF Research Symposium*

2017

"Integrating the Circuit Playground with the MUzECS Software", at: *Marquette MCS REU Research Symposium*

CERTIFICATES & GRANTS

2019

Dean's Select PhD Fellowship

2018

Washington University in St. Louis Summer Engineering Fellowship

2017

NSF Award ACI-1461264 (Summer Research Experience)

2015 - 2018

Claude Shannon Grant

LANGUAGES

Spanish
English

C2
C2

mother tongue
native speaker

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