Josué Tonelli-Cueto

Mathematician
Postdoctoral Researcher

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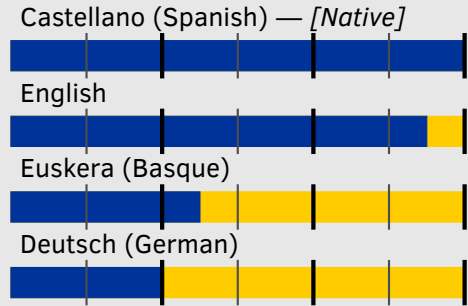
🏛 UT San Antonio

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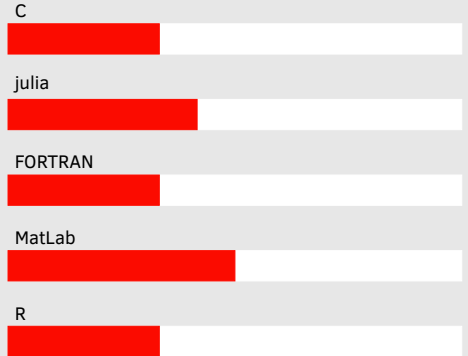
✎ illsaidthoughts.xyz

Interests

★ Numerical algorithms
and condition-based complexity
★ Computational algebraic geometry
★ Random geometry

Languages

Castellano (Spanish) — *[Native]*

English

Euskera (Basque)

Deutsch (German)

(*)[The scale follows the *Common European Framework of Reference for Languages: Learning, Teaching, Assessment* with the black lines indicating levels A2, B2 and C2 and the gray lines the levels A1, B1 and C1.]

Programming

C

julia

FORTRAN

MatLab

R

(*)[The skill scale for each program or programming language is from 0 (Fundamental Awareness) to 6 (Expert).]

Last update on the 16th of September of 2022.

Profile photo: © Inria / Photo B. Fourrier

employment & education

2022-23	Postdoctoral Associate	The University of Texas at San Antonio
	Under the mentorship of Alperen A. Ergür	
2020-22	FSMP Postdoctoral Fellow	Inria Paris & IMJ-PRG
	In the OURAGAN team mentored by F. Roullier and E. Tsigaridas	
2020	Postdoctoral researcher	Inria Paris & IMJ-PRG
	In the OURAGAN team mentored by F. Roullier and E. Tsigaridas	
2017-19	Dr. rer. nat. Mathematik (PhD in Mathematics)	BMS & TU Berlin
	Under the supervision of Prof. P. Bürgisser and Prof. F. Cucker.	
2014-17	M.Sc. Mathematics	BMS & TU Berlin
	M.'s t. "On the complexity of some Null-Cone Memebership Problems" with Prof. P. Bürgisser.	
2009-14	Licenciatura en Matemáticas con Premio Nacional Fin de Carrera	UPV/EHU
	B. Mathematics in the University of the Basque Country.	

grants & awards

2021	MATH+ Dissertation Award 2020	MATH+, BMS & Einstein Foundation Berlin
2020	3rd Prize in the Tiburtius Prizes 2020 of the Berlin Universities	LKRP Berlin
2020-22	FSMP Postdoctoral Fellowship	Fondation Sciences Mathématiques de Paris
	Call of 2020 in the "interactions" program	
2017-19	BMS Doctoral Fellowship	BMS & Einstein Foundation Berlin
2019	Special Award to Young Researchers presenting Posters	MEGA 2019
	One out of three given awards	
2014-16	Beca de "la Caixa" para estudios de posgrado en universidades europeas	
	Jointly awarded by Obra Social "la Caixa" and DAAD in 2014 for BMS Phase I.	

papers and preprints

'22 +	Generalized Perron Roots and Solvability of the Absolute Value Equation	arXiv:1912.08157
	With Manuel Radons.	
'22 +	Ultrametric Smale's α-theory	arXiv:2206.08392
	With Jazz G. Suchen.	
'22 +	A p-adic Descartes solver: the Strassman solver	arXiv:2203.07016
'22 +	Probabilistic bounds on best rank-one approximation ratio	arXiv:2201.02191
	With Khazhgali Kozhasov.	
'21 +	Functional norms, condition numbers and numerical algorithms in algebraic geometry	arXiv:2102.11727
	With Felipe Cucker and Alperen A. Ergür.	
2023	Condition Numbers for the Cube. I: Univariate Polynomials and Hypersurfaces	Journal of Symbolic Computation
	With Elias Tsigaridas. Conference version at ISSAC'20. arXiv:2006.04423	
2022	A Geometric Summation of the Geometric Series	The American Mathematical Monthly
	hal-03779492	
2022	On the Complexity of the Plantinga-Vegter Algorithm	Disc. & Comp. Geometry
	With F. Cucker and A.A. Ergür. Journal version at ISSAC'19. arXiv:2004.06879	
2022	On the Error of Random Sampling: Uniformly Distributed Random Points on Parametric Curves	ISSAC 2022
	With A. Chalkis and Ch. Katsamaki. arXiv:2203.02832	
2022	Beyond Worst-Case Analysis for Root Isolation Algorithms	ISSAC 2022
	With A.A. Ergür and E. Tsigaridas. arXiv:2202.06428	
2021	Computing the Homology of Semialgebraic Sets. II: General Formulas	J.FoCM
	With P. Bürgisser and F. Cucker. arXiv:1903.10710	
2020	Condition numbers for the cube. I: Univariate polynomials and hypersurfaces	ISSAC 2020
	With E. Tsigaridas. arXiv:2006.04423v1	
2020	Computing the Homology of Semialgebraic Sets. I: Lax Formulas	J.FoCM
	With P. Bürgisser and F. Cucker. arXiv:1807.06435	
2019	On the Number of Real Zeros of Random Fewnomials	SIAGA
	With P. Bürgisser and A.A. Ergür. arXiv:1811.09425	

2019	Plantinga-Vegter algorithm takes average polynomial time	ISSAC 2019
	With F. Cucker and A.A. Ergür. arXiv:1901.09234	

selected talks

2022	MINDS & CIS Seminar Series	John Hopkins University
	"Condition Numbers and Probability for Explaining Algorithms in Computational Geometry"	
2021	Mathematical Congress of the Americas 2021	University of Buenos Aires (On-line)
	"Symbolic vs. Numerical: Allies or Enemies? (Introductory Talk)"	
2021	SIAM Conference AAG 2021	Texas A&M (On-line)
	"What's new in Computational Real Algebraic Geometry? (Introductory Talk)"	
2021	Tutorial-a-thon of the Applied Algebraic Topology Network	On-line
	"The Niyogi-Smale-Weinberger Theorem & its relatives"	

selected organized activities

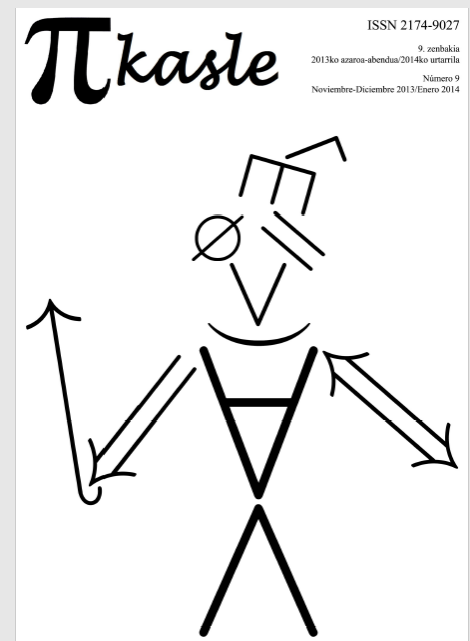| 2023	AMS Special Session on	JMM2023
	Data Science at the Crossroads of Analysis, Geometry, and Topology (a Mathematics Research Communities session) With Hitesh Gakhar and Harlin Lee	
2022	Sesión Especial	II Encuentro RSME-UMA
	Computación y Aplicaciones en Geometría Algebraica With Alicia Dickenstein, Gabriela Jerónimo and Beatriz Pascual Escudero	
2022	Mini-Symposium	5th SIAM TX-LA Meeting
	Applications and Computation in Algebraic Geometry With Jordy Lopez and Thomas Yahl	
2022	Sesión Especial	RSME2022
	Geometría Algebraica: la Aplicada, la Computacional y la Numérica With Laura Brustenga i Moncusí and Roser Homs	
2021	Minisymposium *Computational Real Algebraic Geometry*	SIAM Conf. AAG '21
	With Cordian Riener	
2021	S. Session *Symbolic and Numerical Computation with Polynomials*	MCA2021
	With Diego Armentano, Matías Bender and Alperen A. Ergür	
2020	3rd BYMAT Conference	UV & UPV
	Member of the Scientific Committee and of the Poster Committee	
2016-19	"What is...?" Seminar	BMS
	Member of the Organizing Committee	
2019	Minisymposium *Numerical methods for structured polynomial system solving*	SIAM Conference AAG 2019
	With Alperen A. Ergür, Pierre Lairez and Gregorio Malajovich	
2018	6th BMS Student Conference (21-23/2)	BMS
	With BMS Student Representatives of 2017	

popularization of mathematics

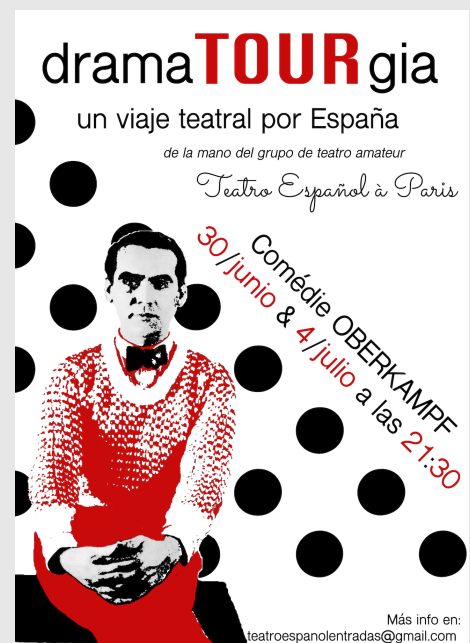| 2022	*Fête de la Science 2022* [French & Spanish]	Colegio de España en París
	Science week open to the general public. Co-organizer representing SIEF.	
2022	Radio Interview *Sistemas de ecuaciones, ¿cómo resolverlas?* [Spanish]	
	At *Investigadores por el mundo* (number 157) by Antonio G. Armas.	
2015	*Emmy Noether, retrato alfabético* [Spanish]	Poem
	Published in the blog "mujeres con ciencia" on the 5th of October.	
2011-14	πkasle [PIkasle]	UPV/EHU Math Students' Magazine
	Mainly online (with ISSN 2174-9027), but with some issues also on paper. Founder (together with Ricardo Grande), editor, desktop publisher, cover designer (except in issue number 10), interviewer and sporadic author.	
	2013 Honor mention in *Ciencia en Acción XIV*	
	2012 One 1st Prize in the *Image Difussion Student Awards of the UPV/EHU*	

service

2015-18	Vocal del Comité de Evaluación de Titulaciones de Ciencias de UNIBASQ	
	Student evaluator at Agency for Quality of the Basque University System	
2017	Student Representative of the BMS	Berlin Mathematical School
	Representation of students at BMS Executive Board and *Mentoring, Gender and Diversity* Committee and organization of students' social events	

Some designs ——————

πkasle No. 7

πkasle No. 9

dramaTOURgia: un viaje teatral a través de España