

# Gerardo Mauricio Toledo Acosta

*Curriculum Vitae*

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| E-MAIL             | mauricio.toledo@unison.mx                                                                                                       |
| RESEARCH INTERESTS | Natural Language Processing, Complex Kleinian Groups, Ergodic Theory, Lattices and Ordered Algebraic Structures, Deep Learning. |
| LANGUAGES          | Spanish (Native), English (IBT TOEFL 112), German (Intermediate), Swedish (Beginner).                                           |

## EDUCATION

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### Ph.D. in Pure Mathematics

2014-2019

*Centro de Investigación en Matemáticas, A.C.*

Thesis Advisors: Mónica Moreno Rocha, Ángel Cano Cordero. Thesis: *Three Generalizations Regarding Limit Sets for Complex Kleinian Groups.*

### M.Sc. in Applied Mathematics

2012-2014

*Centro de Investigación en Matemáticas, A.C.*

Thesis Advisor: Raúl Felipe Parada. Thesis: *Generalizations on the notion of diversities.*

## POSITIONS HELD

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### Associate Professor

2022-

*Universidad de Sonora, Departamento de Matemáticas.*

### Post-doctoral Researcher

2020-2022

*Universidad Autónoma del Estado de Morelos, Centro de Investigación en Ciencias, Laboratorio de Semántica Computacional.*

CONACYT Project A1-S-24213.

## REFEREED PUBLICATIONS

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- A. Sedano-Capdevila, M. Toledo-Acosta, M. L. Barrigon, E. Morales-González, D. Torres-Moreno, B. Martínez-Zaldivar, J. Hermosillo-Valadez, E. Baca-García, MEmind Study Group.  
*Text mining methods for the characterisation of suicidal thoughts and behaviour.* Psychiatry Research, Volume 322, 2023,. <https://doi.org/10.1016/j.psychres.2023.115090>  
<https://www.sciencedirect.com/science/article/pii/S0165178123000434>
- M. Toledo-Acosta.  
*The Dynamics of Solvable Subgroups of  $PSL(3, \mathbb{C})$ .* Bull Braz Math Soc, New Series (2021). <https://doi.org/10.1007/s00574-021-00254-9>.
- M. Toledo-Acosta, B. Martinez-Zaldivar, A. Ehrlich-Lopez, E. Morales-Gonzalez, D. Torres-Moreno, J. Hermosillo-Valadez.

*Semantic Representations of Words and Automatic Keywords Extraction for Sentiment Analysis of Tourism Reviews*. Proceedings of the Iberian Languages Evaluation Forum (IberLEF 2021).

- M. Toledo-Acosta, T. Barreiro, A. Reig-Alamillo, M. Müller, F. Aroca Bisquert, M. L. Barrigon, E. Baca-Garcia, and J. Hermosillo-Valadez.  
*Cognitive Emotional Embedded Representations of Text to Predict Suicidal Ideation and Psychiatric Symptoms*. Mathematics. 2020; 8(11):2088.
- M. Toledo-Acosta, T. E. Barreiro, A. Reig-Alamillo, E. Baca-Garcia, and J. Hermosillo-Valadez.  
*Cognitive representation of words in a corpus of short text messages*. Research in Computing Science, ISSN 1870-4069. Volume 149(10), 2020.

## SUBMITTED PUBLICATIONS AND PRE-PRINTS

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- D. Bryant, R. Felipe, M. Toledo-Acosta, and P. Tupper.  
*Lattice Diversities*, arXiv preprint arXiv:2010.11442.
- A. Reig Alamillo, E. Morales González, M. Toledo-Acosta, D. Torres-Moreno, B. G. Martínez-Zaldivar, J. Hermosillo-Valadez.  
*The Analysis of Synonymy and Antonymy in Discourse Relations: An interpretable Modeling Approach*. (Accepted for publication in Computational Linguistics).
- M. Toledo-Acosta.  
*Representations of Solvable Subgroups of  $PSL(3, \mathbb{C})$* . arXiv preprint arXiv:1912.09828 (submitted to Bulletin of the Brazilian Mathematical Society).

## INVITED PRESENTATIONS

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- Matemáticas en la sociedad, ¿cómo impactan las matemáticas en nuestra vida?. March 28th-31st, 2022. *Natural Language Processing*.
- Young meeting on Geometry and Dynamics. December 7th-9th, 2021. Cuernavaca, Morelos. *The Dynamics of Solvable Subgroups of  $PSL(3, \mathbb{C})$* .
- XIII Coloquio de Geometría. December 12th-14th, 2016. Mérida, Yucatán. *Patterson-Sullivan Measures*.

## TEACHING

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| <b>Machine Learning and Deep Learning Instructor</b><br><i>Universidad Autónoma del Estado de Morelos</i><br>Certification Program in Data Science and Python                                                      | 2022-     |
| <b>Part-time Professor</b><br><i>Universidad Virtual del Estado de Guanajuato</i><br>Business Mathematics, Algebra                                                                                                 | 2019-     |
| <b>Part-time Professor</b><br><i>Universidad Autónoma del Estado de Morelos</i><br>Taller del Curso Propedéutico de la Licenciatura en Ciencias área terminal en Ciencias Computacionales y Computación Científica | 2021      |
| <b>Part-time Professor</b><br><i>Universidad de Guanajuato, División de Ingenierías, Campus Irapuato-Salamanca</i>                                                                                                 | 2009-2012 |

Calculus, Algebra, Physics, Graph Theory, Discrete Mathematics, Economy.

## THESIS COMMITTEES

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- Licenciatura en Matemáticas, Bolívar Galileo Martínez Zaldívar, UNAM, 2021. *Clasificación de patrones de correlación en EEG de sujetos que han sufrido maltrato infantil, mediante el uso de técnicas de Machine Learning.*
- Maestría en Ciencias Cognitivas, David Torres Moreno, UAEM, 2021. *Análisis de fractalidad en textos y extracción automatizada de palabras clave.*
- Licenciatura en ciencias, Eliseo Morales Gonzalez, UAEM, 2021. *Estudio de un modelo predictivo de relaciones asimétricas aplicado a la representación de rasgos lingüísticos.*

## RESEARCH VISITS

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- IMUNAM Cuernavaca. November 28th - December 18th, 2021.
- Simon Fraser University, Department of Mathematics. January 6th-17th, 2020.
- University of Guanajuato, Department of Mathematics. October 17th-27th, 2019.
- IMUNAM Cuernavaca. September 16th-27th, 2019.

## DISTINCTIONS

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- Candidato a Investigador Nacional SNI, 2023-2026.

## COMPUTER SKILLS & CODING

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Python (Deep Learning and Machine Learning), C/C++, Mathematica, Java, L<sup>A</sup>T<sub>E</sub>X.

<https://github.com/gmauricio-toledo>