

Oswaldo Arturo Tapia-Dueñas

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Contact Information

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Positions Held

2023–present	Assistant Professor , John Carroll University, USA Department of Mathematics, Computer Science, and Data Science.
2022–2023	Visiting scholar , Cleveland State University, USA Department of Mathematics & Statistics and Electrical Engineering and Computer Science Department.
2019–2022	Associate Research Professor , Autonomous University of Aguascalientes, Mexico, Department of Computer Science.

Education

2019–2023	Ph.D. in Applied Science and Technology , Autonomous University of Aguascalientes, Mexico. Advisor: Hermilo Sánchez-Cruz. Cleveland State University, USA. Visiting scholar, 2022–2023. Advisor: Hiram H. López.
2017–2018	Master in Computer Science , Autonomous University of Aguascalientes, Mexico. Thesis: <i>Formal system that allows binary object descriptors to be recognized</i> . Advisors: Hermilo Sánchez-Cruz and Hiram H. López.
2011–2016	Intelligent Computer Engineering , Autonomous University of Aguascalientes, Mexico. Thesis: <i>Selection of subsets of characteristics using testers and a hybrid EDA on the basis of EXANII data in the mathematical logical reasoning test in Aguascalientes in 2013</i> .

Publications

1. **Chain code strategy for lossless storage and transfer of segmented binary medical data**

Erdoğan Aldemir, Oswaldo Arturo Tapia Dueñas, Ali Emre Kavur, Gulay Tohumoglu, Hermilo Sánchez-Cruz and Mustafa Alper Selver(2023). Chain code strategy for lossless storage and transfer of segmented binary medical data. Expert Systems with Applications, Vol 216, Elsevier.

2. **3D object simplification using chain code-based point clouds**

Tapia-Dueñas, O. A., Sánchez-Cruz, H.,López H.H. (2022). 3D object simplification using chain code-based point clouds. Multimedia Tools and Applications, Springer.

3. **Context-free grammars to detect straight segments and a novel polygonal approximation method**

Tapia-Dueñas, O. A., Sánchez-Cruz, H. (2021). Context-free grammars to detect straight segments and a novel polygonal approximation method. Signal Processing: Image Communication, Vol 91, Elsevier.

4. **Polygonal Approximation Using a Multiresolution Method and a Context-free Grammar**

Sánchez-Cruz H., Tapia-Dueñas O.A., Cuevas F. (2019) Polygonal Approximation Using a Multiresolution Method and a Context-free Grammar. In: Carrasco-Ochoa J., Martínez-Trinidad J., Olvera-López J., Salas J. (eds) Pattern Recognition. Vol 11524. Springer, Cham.

5. **Coding 3D connected regions with F26 chain code**

Tapia-Dueñas O.A., Sánchez-Cruz H., López H.H., Sossa H. (2018) Coding 3D Connected Regions with F26 Chain Code. In: Batyrshin I., Martínez-Villaseñor M., Ponce Espinosa H. (eds) Advances in Computational Intelligence. Vol 11289. Springer, Cham.

Teaching Experience

John Carroll University

Fall 2023 | **Elementary Statistics.**

Fall 2023 | **Database Systems.**

Cleveland State University

Spring 2023 | **Introduction to Programming.**

Fall 2022 | **Systems Programming.**

Fall 2022 | **Introduction to Programming.**

Autonomous University of Aguascalientes

Fall 2021 | **TA of Theory of the Computation.**

Fall 2020 | **TA of Theory of the Computation.**

Fall 2019 | **Computer Graphics.**

Undergraduate Students

Spring 2021 | Arheli Elizabeth Beas, Autonomous University of Aguascalientes. *Use of image processing and Artificial Intelligence to recognize instruments and the moments in which they are played from the spectrogram of a piece of music.*

Spring 2021 | Abraham Chávez Gonzalez, Autonomous University of Aguascalientes. *Use of computer vision for the prevention of automotive theft.*

Spring 2021 | Héctor Javier Medina Hernández, Autonomous University of Aguascalientes. *Cellular Automata for Color Image Cryptography using Parallel Computing.*

Conference Talks

Benefits of Simplification, Compression, and Reconstruction of 3D Objects using Chain Codes and Helical Paths

CSU Math/Stat Colloquium, March 31st, 2023, Cleveland State University, USA.

Compression, Simplification and Reconstruction of 3D Objects using Chain Codes

Thirty-Fifth Annual Eastern Kentucky University Symposium in Mathematics and Statistics, April 4th 2023, Eastern Kentucky University, USA.

Chain code-based to simplify 3D objects

Hispanic Heritage Month Colloquium, Oct 5th, 2022, Youngstown State University, USA.

Introduction to Chain Codes

Math Club, Oct 4th, 2022, Cleveland State University, USA.

Simplification of 3D objects based on a context-free grammar

11th International Congress on Postgraduate Research. Oct 13 - 15, 2021.

Helical encoding to 3D objects using the chain code F26

9th International Congress on Postgraduate Research. Oct 10 - 12, 2018.

Logical-combinatorial approach to detect impact factors in EXANI II results

18th Research Seminar. May 24 - 26, 2017.

Participation in Events

Workshop Optimization Methods in Computer Vision and Image Processing, April 29th to May 3rd , 2019, ICERM, Brown University, USA

Skills

Programming	C/C++, JAVA, C#, JavaScript, Ajax, VisualBasic, PHP, Python, SQL, R, L ^A T _E X.
Scientific	MatLab, TensorFlow.
Programming	
Languages	Spanish (native), English (fluent).

References

Hiram H. López, h.lopezvaldez@csuohio.edu.

Hermilo Sánchez-Cruz, hermilo.sanchez@edu.uaa.mx.