

# Jerry Paul Magaña

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## SUMMARY

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Current PhD. student and Teaching Associate at Arizona State University's School of Mathematical and Statistical Sciences with a research focus in applications of algebra and geometry to the theory of quantum computing.

## EDUCATION

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### Arizona State University

*Ph.D. in Mathematics*

Tempe, Az

*Aug. 2021 – Present, Status: Student*

### University of North Georgia

*B.S. in Mathematics, Minor in Modern Language - Spanish*

Gainesville, Ga

*Aug. 2016 – Aug. 2020, GPA: 3.83*

### John Tyler Community College

*A.A.S in Information Technology*

Richmond, Va

*Aug. 2011 – May 2013, GPA: 3.79*

## RESEARCH & TEACHING EXPERIENCE

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### Teaching Associate

*Arizona State University School of Mathematical & Statistical Sciences*

August 2021 – Present

*Tempe, Az*

### Undergraduate Research Assistant

*University of North Georgia Department of Mathematics*

Jan 2017 – May 2020

*Gainesville, Ga*

- Collaborated with multiple professors in the mathematics department on research project in numerical chemistry, analytical fracture mechanics, and algebraic geometry
- Conducted literary reviews by analyzing and reporting on contemporary research on each topic. Generated lists of citations and references for resulting manuscripts.
- Conducted numerical calculations/experiments in Python, Mathematica, and MATLAB. Generated illustrations, graphs, and other visual elements for resulting manuscripts. Assisted with molecular dynamics simulations in Gaussian application.
- Drafted and edited manuscripts for publication in conjunction with professors. Presented research in several mathematics conferences as oral and poster presentations.
- Successfully secured grants for 3 research conferences and partial funding for research efforts.

### Mathematical & Theoretical Biology Institute REU

*Arizona State University SAL-MCMSC*

Jun 2019 – Aug 2019

*Tempe, Az*

- Selected to participate in an NSF-funded REU focusing on Mathematical Modeling for the Biological Sciences with the Summer 2019 Cohort.
- Successfully completed 4 weeks of intensive training on specialized topics including but not limited to the following: System Dynamics, Chaos, Bifurcations, Graph Theory, Evolutionary Game Theory, Population Modeling, Sensitivity Analysis, Stochastic Processes, Agent-based Modeling, Global Information Science (GIS), Python, MATLAB, Mathematica, Maple, LaTeX, ArcGIS, QGIS.
- Created a new, deterministic mathematical model of missing hiker wandering patterns for applications in Search and Rescue as part of a team of students and researchers, resulting in a technical report published in the university journal.

### Mathematics Tutor

*University of North Georgia Department of Student Services*

Jan 2018 – May 2020

*Gainesville, Ga*

- Tutored students in Calculus I-III, Linear Algebra, Ordinary Differential Equations, Probability & Statistics, Discrete Mathematics, Real Analysis, Abstract Algebra, and other topics in one-on-one and group sessions.
- Frequently assisted students with other subjects, including but not limited to introductory Physics and Computer Science courses.

### Instructor/Team Lead

*Mathnasium of Dacula*

Aug 2019 – May 2020

*Dacula, Ga*

- Worked one-on-one and in groups as a mathematics instructor for students in first grade through high-school. Helped students develop mathematical intuition in early development, and assisted students with Algebra, Geometry, Trigonometry, Statistics, and Calculus. Taught the Mathnasium curriculum in conjunction with homework help.
- Worked with the center director as team lead, assisting other instructors with difficult problems, managing tutoring groups, maintaining student binders, and working with the center director to tailor student curriculum as needed.

## PUBLICATIONS

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- On Estimation of Adhesive Strength of Implants Bioactive Coating with Titanium by Density Functional Theory and Molecular Dynamics Simulations. Balueva, A., Dashevskiy, I.N., Todebush, P., Campbell, C. Magana, J., Clement, N. Journal of Materials Research. Accepted for Publication, April 2019.
- Topography and Behavior Based Movement Modeling for Missing Hikers in Land-Wilderness Settings. Alanis, J., Brown, M.M., Kitchens, J., Magaña, J., Velastegui, C., Thakur, M., Arriola, L., Espinoza, B., Murillo, A., Rodriguez-Messan, M., Koester, R., Castillo-Garsow, C. SAL-MCMSC, Mathematical Theoretical Biology Institute, Journal of Technical Reports. Arizona State University, Tempe, Arizona. Accepted for Publication, July 2019.
- A New Model For Hydrogen-Induced Crack (HIC) Growth in Metal Alloy Pipelines Under Extreme Pressure. Balueva, A., Dahevskiy, I., Magana, J. Structural Integrity Proceedings Elsevier. Accepted for Publication, December 2020.
- Mixed Commuting Varieties Over Nilpotent Matrices. Ngo, N., Magana, J. Acta Mathematica Vietnamica. Submitted for Publication, December 2020.

## CERTIFICATIONS

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**Amazon Web Services Certified Cloud Practitioner (AWS CCP)** (Sept 2020 - Sept 2022)

**National Outdoor Leadership School Wilderness First Aid Certification (NOLS WFA)** (Feb 2021 - Feb 2023)

## LANGUAGES

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**English:** Native speaker

**Spanish:** Proficiency level equivalent to ILR Level 3 / CEFR C1

**Portuguese:** Basic

## SCHOLARSHIPS, AWARDS, AND EXTRA CURRICULAR ACTIVITIES

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### **McNair Scholarship Recipient**

Aug 2018 – Aug 2020

*University of North Georgia*

*Gainesville, Ga*

- Received a monthly stipends and specialized training for graduate education as part of a competitive scholarship program aimed to support undergraduate researchers intending to pursue a graduate degree; currently in alumni status with the program

### **Outstanding Math Student Award for Bachelor Degree Students**

Apr 2019

*University of North Georgia*

*Gainesville, Ga*

- Nominated and awarded by the department faculty the designation of outstanding student for my major among all campuses for the 2019 academic year

### **Student Worker Appreciation Award**

Apr 2019

*University of North Georgia*

*Gainesville, Ga*

- Nominated and awarded by the department of student services in the amount of \$200 for outstanding services provided as a math tutor.

### **Gainesville Mathematics Newsletter: Student Spotlight**

Nov 2018

*University of North Georgia*

*Gainesville, Ga*

- Appeared in the mathematics department newsletter in recognition for research conducted with faculty which resulted in a notable publication.

### **UNG CURCA Travel Grant**

Mar 2018

*University of North Georgia*

*Gainesville, Ga*

- Wrote proposal to secure \$500 travel grant to attend and present at Rose Hulman Institute of Technology conference

### **FIU McNair Scholars Award for Presentation Excellence**

Oct 2019

*Florida International University*

*Miami, FL*

- Wrote proposal to receive \$300 travel grant to present research at FIU where I received the presentation excellence award.

### **38th Southeastern-Atlantic Regional Conference on Differential Equations**

Oct 2018

*University of North Georgia*

*Gainesville, Ga*

- Assisted the event organizer in registering and accommodating presenters and plenary speakers.

### **UNG Math Club President**

Aug 2018 – Dec 2020

*University of North Georgia*

*Gainesville, Ga*

- Organized math club meetings, events, and other engagements with advising faculty. Maintained compliance with university regulations and student-government requirements. Filed budgets and regulatory paperwork. Maintained e-mail correspondence, updates, and event calendar with active members.

### **Volunteer Translator/Interpreter**

Jan 2020 – Apr 2020

*Good News Health Clinic*

*Gainesville, Ga*

- Worked with nursing staff and front office to conduct Spanish-to-English and English-to-Spanish interpretation for Spanish-speaking patients as needed. Contacted patients over the phone for appointment reminders and answered questions. Assisted with fall-safety classes for Spanish-speaking at-risk patients.

## **PRESENTATIONS**

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### **Georgia Undergraduate Research Conference**

Nov 2019

*Oral/Slide Presentation*

*Gainesville, GA*

- Investigations of the Cohesion of Nanoscale Bioactive Coatings with Titanium: A Molecular Dynamics approach using Density Functional Theory and the Kohn-Sham Framework. University of North Georgia.

### **11th Ann. Undergrad. Research Conf. at the Interface of Biology & Mathematics**

Nov 2019

*Oral/Slide Presentation*

*Knorville, TN*

- Topography and Behavior Based Movement Modeling for Missing Persons in Land-Wilderness Settings. University of Tennessee.

### **Mathematical & Theoretical Biology Institute Final Presentations**

Jul 2019

*Oral/Slide Presentation*

*Tempe, AZ*

- Topography and Behavior Based Movement Modeling for Missing Persons in Land-Wilderness Settings. Arizona State University.

### **24th Annual Research Conference**

Mar 2019

*Oral/Slide Presentation*

*Dahlonega, GA*

- Analytic Mathematical Models for Fracture Growth Due to Hydrogen Embrittlement. University of North Georgia.

### **McNair Undergraduate Conference**

Oct 2018

*Oral/Poster Presentation*

*Miami, FL*

- Exploring Mathematical Models of Osseointegration: Using Density Functional Theory and Gaussian 09 for Geometric Optimizations and Ground State Calculations of Hydroxyapatite Component Ions with Titanium (II). Florida International University.

### **Rose-Hulman Undergraduate Research Conference**

Apr 2018

*Oral/Slide Presentation*

*Terre Haute, IN*

- Mathematical Modeling of Novel Bio-Active Nano Coatings of Dental Implants. Rose-Hulman Institute of Technology.

## WORK HISTORY & TECHNICAL EXPERIENCE

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### Founder & Head Tutor

March 2021 – Present

*Jerry Magaña Tutoring Services*

*Atlanta, GA, US*

- Operated an online-based professional tutoring service for K-12 and college students, specializing in mathematics and statistics.

### Service Operations Engineer

May 2020 – Present

*Sinch Americas (Full-time)*

*Atlanta, GA, US*

- Provided operational support and engineering for short message service (SMS) routing platform, API's, and telecom connections
- Supported Spanish-speaking engineers for service providers in Spain and Latin America as the direct point-of-contact for troubleshooting and resolving connection issues to maintain availability in these regions
- Provided Spanish-to-English/English-to-Spanish interpretation and translation services between the Service Operations team and external engineers as needed
- Made configuration changes to proprietary software platform in order to add, remove, and modify functionality to serve client organization needs
- Wrote reporting scripts in Python to pull log data for regulatory compliance and troubleshooting
- Used packet captures and trace analysis tools to determine the root-cause of issues relating to client and supplier connectivity
- Composed SQL queries and transactions to identify and implement changes to the configuration database to meet specific client needs.
- Conducted patching and security maintenance on EC2 instances running Debian Linux to maintain platform reliability and security
- Worked with Development team to construct bespoke solutions for strategic clients as needed

### Information Technology Analyst

Jun 2016 – Aug 2017

*Integricom Inc (Full-time)*

*Suwannee, GA, US*

- Deployed and managed all types of technical assets for clients to guarantee high availability and good performance of business-critical systems
- Monitored networks and critical services to ensure high availability for client businesses
- Configured and deployed new routers, switches, firewalls, and VoIP devices, including Cisco, Polycom, Adtran, and Checkpoint appliances, to expand client business system capacity and capabilities
- Managed and configured Asterisk PBX servers running on Ubuntu Linux, including OS configuration, Asterisk config files, updates, and process management
- Performed maintenance on Linux and Windows servers, including updates, backups, config file modifications, troubleshooting, syslog investigations, batch and shell scripting, and other tasks, to maximize performance and up-time for clients
- Performed Tier II and Tier III troubleshooting for all issues, including network, application, server, desktop, and VoIP assets, to minimize downtime for client businesses
- Drafted new SOP's, network diagrams, and other technical requirements as needed to provide faster problem resolution for clients

### Incident Manager

Feb 2015 - Jun 2015

*Capital One Bank (Full-time)*

*Glenn Allen, VA, US*

- Monitored and responded to internal network and server issues to provide maximal up-time for all technical assets
- Documented root cause, troubleshooting steps, and final resolution of technical failures in order to identify future issues and reduce time to problem resolution
- Investigated log files on Redhat Linux servers to identify potential issues and maintain good working order of server infrastructure
- Coordinated between departments to expedite resolution of problems

### Information Systems Technician

Jul 2014 - Jan 2015

*Dominion Credit Union (Full-time)*

*Richmond, VA, US*

- Performed network and server maintenance as directed, including VPN configuration, backups, whitelist changes, access control list modifications, and others, to maintain fast and secure access to internal and external systems
- Managed Cisco and Juniper network security devices to ensure network security and regulatory compliance
- Responded to end user issues, including desktop and application support, VoIP phones, and connectivity problems, to reduce downtime and increase productivity

**Network Technician**

Aug 2013 - April 2014

*Georgia Systems Operations Company (Full-time)**Smarr, GA, US*

- Performed initial configuration of Cisco routers and switches for deployment at EMC sites throughout the state as part of an effort to modernize their network
- Troubleshooted failed or damaged devices returned from the field to reduce operating costs
- Assembled network device panels and tested for proper working order to mitigate risk of device failure
- Performed other technical tasks as needed at warehouse location and headquarters to maintain high-availability of network assets