

# KRISHNA CHEBOLU

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## Education

### University of Missouri-Columbia

*M.S. Applied Mathematics | Concentration in fluid dynamics and computational methods*  
GPA: 3.91/4.00

2024 – Present

Columbia, MO, USA

### Truman State University (TSU)

*B.S. Mathematics | Minor in Computer Science*  
Cumulative GPA: 3.93/4.00, Major GPA: 4.00/4.00 | Summa Cum Laude

2020 – 2024

Kirkville, MO, USA

## Work Experience

### Cart3D Group, NASA Ames Research Center

*Research Intern, Uncertainty Quantification (UQ)*

Summer 2025

Mountain View, California, USA

- Conducted UQ studies of the X-59's acoustic signature under varying atmospheric conditions and aircraft trim states.
- Developed benchmark test cases to validate NASA's UQ tools, providing parameter rankings and sensitivity analyses.
- Executed workflows using Python, Perl, NASA's QUEST, Cart3D, & sBOOM on high-performance compute clusters.

### Summer Geometry Initiative, Massachusetts Institute of Technology

*Geometry Processing Research Fellow*

Summer 2024

Boston, Massachusetts, USA

- Performed Topological Data Analysis on OpenAI's CLIP to test robustness. Access [Jupyter notebook](#).
- Gained proficiency in UMAP, Ripser, cosine similarity matrices, and vector space dimensionality reduction.
- Tested Simultaneous Localization and Mapping (SLAM) systems ORB-SLAM and NICER SLAM on Esophagus data.

### Bolton Lab, Washington University in St. Louis

*Research Intern*

Summer 2024

St. Louis, Missouri, USA

- Developed Python, R, and Bash scripts to evaluate a genomic analysis pipeline, identifying and eliminating two redundant steps to improve efficiency.
- Analyzed large datasets to assess the accuracy of lab models, systematically identifying correct/incorrect classifications.
- Presented findings to team, explaining discrepancies in model predictions and their underlying causes.

### Oklahoma Bombers Financial Operations, The Boeing Company

*Finance Intern*

Summer 2022

Oklahoma City, Oklahoma, USA

- Optimized B1, B2, B52, ALCM, & Multiplatform aircraft initiatives by restructuring data for 60+ spending plans.
- Filled knowledge gaps in 20+ reports and spending plans by seeking out Points of Contact and obtaining explanations, aiding core team.
- Saved 100 hours of company time and decreased the time spent generating spending plan reports.

### Phantom Works Estimating Department, The Boeing Company

*Finance Data Analysis Intern*

Summer & Fall 2021

St. Louis, Missouri, USA

- Conducted a comprehensive regression and sensitivity analysis on 18 Cost-Estimating Relationships (CERs).
- Boosted accuracy by over 20% on average by generating 60-70 alternates; 3 CERs had a 50% boost.
- Synthesized and presented findings to management for further research– continued by full-time employees.

## Research Experience

### Investigating Meteotsunamis Using Bifurcation Theory

Fall 2024 – Present

- Using tools from Bifurcation Theory and Implicit Function Theorem to investigate ocean phenomena– Meteotsunamis.
- Key topics: Computational fluid dynamics (CFD), partial differential equations, implicit function theorem, water waves.
- Thesis project in progress.

### On Nonlinear Time Series Analysis and Climate Variability

Summer & Fall 2023

- Designed and conducted a self-driven comprehensive study, reviewing over 150 academic papers and articles.
- Topics include Chaos theory, fractals, state-space reconstruction, and delay-coordinate embedding.
- Acquired proficiency in subject-specific terminology, mathematical techniques, case studies, and seminal works.
- Effectively synthesized and distilled key findings, creating a foundational resource to facilitate newcomers into the field.

- Human-Animal Relationships in Maasai Mara Game Reserve**
Spring 2023
- Task: Identify alternate ways to manage resources in the Maasai Mara reserve and use math to inform policy changes.
  - Built a complex network of human-animal relationships using thirteen variables & six equations.
  - Reported 8 policy changes; e.g. for the environment, increasing human settlements is better than letting cattle graze.

- Developing a Day-to-Day Trading Strategy**
Spring 2022
- Developed a model to buy/sell assets based on only the asset price with transaction fees.
  - Optimized model using other price data sets: Ethereum (1400% value gain w/ model), Pfizer (160%), and Gold (130%).

- Seeing Where The Real Buzz Might Be**
Spring 2021
- Task: Determine which reported sightings of murder hornets deserve resources.
  - Used Python to filter data using a point system; decides which report in a list most deserves additional resources.
  - Model consistently scored positive cases in the top 10 overall rankings and effectively allocated resources.

## Teaching Experience

<b>Calculus for Social Sciences</b> at University of Missouri-Columbia	2025 - Present
<b>College Algebra</b> at University of Missouri-Columbia	2024 - 2025
<b>Quantitative Reasoning</b> at Truman State University	2021 - 2023

## Skills

<b>Technical:</b> Python, C++, MATLAB, R, Java, $\LaTeX$ , Bash/Shell scripting, MS Excel
<b>Scientific Computing:</b> High-Performance Computing, Job scheduling, numerical simulation, computational fluid dynamics (CFD), uncertainty quantification, optimization
<b>Tools &amp; Platforms:</b> Git/GitHub, BitBucket, Docker, DockerHub, React Native, Jira, QUEST, Linux/Unix environments

## Leadership & Service

<b>Phi Beta Kappa:</b> Inductee	2024 - Present
<b>American Mathematical Society:</b> Sponsored Member	2023 - Present
South Asian Student Union: Founding President and Treasurer	2023 - 2024
Student Government: Voting Senator, Environmental Affairs	2020 - 2022
Namaste Nepal: Coordinator	2021 - 2023
African Student Association: PR Chair and Webmaster	2021 - 2023

## Publications

2025	Control Surface Deflection Uncertainty Quantification for Low-Boom Acoustic Signatures	Poster
2023	On Nonlinear Time Series Analysis and Climate Variability — <a href="#">Access paper</a>	Literature Review

## Projects

- SurfNote**
Spring 2024
- Built a Google Chrome extension for note-taking while surfing on the web. Available on the webstore.
- WorldNews, An Immersive Map-Based News Application**
Fall 2023
- Designed and built a web application to obtain top worldwide news as custom markers on a map.
  - Integrated Google Maps API, Google Street View API, and Aylien News API into a .Net framework.

## Selected Talks & Presentations

2025	Uncertainty Quantification of X-59’s Acoustic Signature due to Atm. Conditions, <i>Aeronautics Talks, NASA ARC</i> Control Surface Deflection Uncertainty Quantification for Low-Boom Acoustic Signatures, <i>NASA ARC</i>
2024	Efficacy of the BCBIO Filter in ArCH Pipeline, <i>Bolton Lab, Washington University in St. Louis</i> Foundations of Nonlinear Time Series Analysis, <i>American Mathematical Society Spring, U of Wisconsin-Milwaukee</i>
2023	On Nonlinear Time Series Analysis & Climate Variability, <i>Mathematics Capstone Seminar, TSU</i> Human-Animal Relationships in Maasai Mara Game Reserve, <i>Student Research Conference, TSU</i>
2022	Tea Time with Sue: Krishna Chebolu, Episode 4, <i>University talk show with university president Dr. Susan Thomas</i> Developing a Bitcoin and Gold Portfolio Manager, <i>Student Research Conference, TSU</i>
2021	Seeing Where the Real Buzz Is, <i>Student Research Conference, TSU</i>

## Selected Awards & Honors

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- 2025 Andrew McFarland Scholarship, University of Missouri-Columbia
- 2024 Symposium on Geometry Processing Travel Grant, Massachusetts Institute of Technology  
Graduation Speaker for the Center for Diversity & Inclusion, TSU
- 2023 Bulldog B.I.T.E. Business Pitch Competition 2nd Place Winner, TSU  
Outstanding Residence Leadership for Exceptional Service to the University Community, TSU  
Top Presenter, University of Northern Iowa
- 2022 The Boeing Scholarship for Mathematics, Statistics, and Computer Science, TSU
- 2021 The Boeing Scholarship for Mathematics and Computer Science, TSU  
Dr. Susan LaGrassa Scholarship for Mathematics, TSU
- 2020 President's Honorary Scholarship for Full Tuition, TSU

### Recurring

- 2020 - 2024 President's List for Academic Excellence, TSU
- 2021 - 2023 Successful Participation in the Consortium for Mathematics and its Applications