

Dan Schumacher

PHD STUDENT, INFORMATION TECHNOLOGY

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EDUCATION

University of Texas at San Antonio

PHD IN INFORMATION TECHNOLOGY

- Advisor: Dr. Anthony Rios

San Antonio
Aug 2024 - present

University of Texas at San Antonio

MS IN DATA ANALYTICS

- Advisor: Dr. Anthony Rios

San Antonio
Aug 2023 - July 2024

University of Texas at San Antonio

BM IN GUITAR PERFORMANCE

- Advisor: Dr. Matthew Dunne

San Antonio
Aug 2014 - May 2018

Domain: Natural Language Processing; Human-AI Collaboration; Mechanistic Interpretability; AI Applications; Generative AI in Games; AI in Healthcare

PROFESSIONAL EXPERIENCE

The University of Texas at San Antonio

GRADUATE RESEARCH ASSISTANT

- Conducted AI applications, AI reasoning, AI security, and AI education research
- Created data annotation applications using streamlit
- Assisted in research through annotation efforts, proof reading, and lit review

San Antonio, TX
2023 - Present

LJE Music, Self Employed, and UTSA String Project

MUSIC EDUCATOR

- Communicated with hundreds of student-parents
- Wrote orchestral arrangements of popular music from video games and movies.
- Led teacher ensembles in elementary school concerts to increase enrollment.
- Conducted orchestra of 180 young musicians.
- Taught group music classes for K-8th graders.
- Tracked instrument rentals and attendance.

Various Locations
2016 - 2024

Self Employed

CLASSICAL GUITARIST

- Biweekly performances at the San Antonio International Airport.
- Performed for weddings, grand openings, and a nun convention.
- Performed in concert tour throughout Cuba, and donated guitar strings to local schools.

Various Locations
2016 - 2024

San Antonio Public Library

LIBRARIAN ASSISTANT

- Developed resources for phone-less patrons using Text Now.
- Assisted a patron in making their first phone call to their mother in over a year.
- Restocked Central Library's banned book collection.

San Antonio, TX
2021 - 2023

PUBLICATIONS

1. Telling Speculative Stories to Help Humans Imagine the Harms of Healthcare AI.

Xingmeng Zhao, Tongnian Wang, **Dan Schumacher**, Veronica Rammouz, and Anthony Rios
In: Findings of the Association for Computational Linguistics: **ACL 2026**, To appear.

2. AI for Everyone: Engaging Middle Schoolers through Collaborative, Ethical, and Multimodal AI Learning.

Kayleigh Stallings, Nicole Tian, Elif Yayla Ercek, Haven Kotara, Devin Marinelli, Pragathi Durga Rajarajan, **Dan Schumacher**, Ismaila Temitayo Sanusi, and Fred Martin
In: Proceedings of the 57th ACM Technical Symposium on Computer Science Education (**SIGCSE TS 2026**), New York, NY, USA, 2026.

3. **RASTeR: Robust, Agentic, and Structured Temporal Reasoning.**
Dan Schumacher, Fatemeh Haji, Tara Grey, Niharika Bandlamudi, Nupoor Karnik, Gagana Uday Kumar, Cho-Yu Jason Chiang, Peyman Najafirad, Nishant Vishwamitra, and Anthony Rios
 In: Proceedings of the 14th International Joint Conference on Natural Language Processing (**IJCNLP-AAACL 2025**), Mumbai, India, 2025.
4. **Charting the Future: Using Chart Question-Answering for Scalable Evaluation of LLM-Driven Data Visualizations.**
 James Ford, Xingmeng Zhao, **Dan Schumacher**, and Anthony Rios
 In: Proceedings of the 31st International Conference on Computational Linguistics (**COLING 2025**), Abu Dhabi, UAE, 2025.
5. **Bike Frames: Understanding the Implicit Portrayal of Cyclists in the News.**
 Xingmeng Zhao, **Dan Schumacher**, Sashank Nalluri, Suhana Shrestha, Xavier Walton, and Anthony Rios
 In: Proceedings of the International AAAI Conference on Web and Social Media (**ICWSM 2025**), June 2025.
6. **Team UTSA-NLP at SemEval 2024 Task 5: Prompt Ensembling for Argument Reasoning in Civil Procedures with GPT-4.**
Dan Schumacher and Anthony Rios
 In: Proceedings of the 18th International Workshop on Semantic Evaluation (**SemEval-2024**), Mexico City, Mexico, 2024.

PUBLICATIONS UNDER REVIEW AND IN PREPARATION

7. **Dementia vs. General Caregiver: A Large-Scale Comparison of Support Needs using Caregiving Communities on Reddit.**
Dan Schumacher, Xingmeng Zhao, Vishalakshi Arumugam, Sashank Nalluri, John Quarles, Jeremy Davis, and Anthony Rios
 In: **arXiv preprint** arXiv:2601.03464, 2026. Under review (Targeting AMIA 2026)
8. **Prompting Underestimates LLM Capability for Time Series Classification.**
Dan Schumacher, Erfan Nourbakhsh, Rocky Slavin, and Anthony Rios
 In: **arXiv preprint** arXiv:2601.03464, 2026. Under review in ACL Rolling Review (Targeting EMNLP 2026)
9. **Detecting AI: How Do Middle Schoolers Identify LLM Agents in a Live Collaborative Setting?**
Dan Schumacher, Pragathi Durga Rajarajan, Haven Kotara, Roman Rendon, Kosi Atupulaz, Deepti Tagare, Ismaila Sanusi, Fred Martin, and Anthony Rios
 Under review in ACL Rolling Review (Targeting EMNLP 2026)

Awards, Fellowships, & Grants

- 2017 **String Project Excellency Award**, UTSA College of Liberal and Fine Arts
- 2017 **Outstanding Achievement in Guitar Performance**, UTSA College of Liberal and Fine Arts
- 2018 **Outstanding Achievement in Guitar Performance**, UTSA College of Liberal and Fine Arts

TALKS & PRESENTATIONS

- T1. **Garbage In, Not (Always) Garbage Out: Robust Temporal Reasoning with RASTeR.**
 Brown Bag Seminar Series, Department of Information Systems and Cybersecurity, UT San Antonio, Nov. 2025.
- T2. **RASTeR: Robust, Agentic, and Structured Temporal Reasoning.**
 2025 Fall Workshop on Cybersecurity and Artificial Intelligence, Angelo State University, San Angelo, TX, Oct. 2025.
- T3. **RASTeR: Robust, Agentic, and Structured Temporal Reasoning.**
 Oral Presentation at the 14th International Joint Conference on Natural Language Processing (**IJCNLP-AAACL 2025**), Mumbai, India, Dec. 2025.
- T4. **RASTeR: Robust, Agentic, and Structured Temporal Reasoning.**
 Poster Presentation at the **Texas NLP Symposium**, UT Austin, 2025.
- T5. **Context Matters: An Empirical Study of the Impact of Contextual Information in Temporal Question Answering Systems.**
 Poster Presented at the Los Datos Conference 2024, San Antonio, TX, 2024.

T6. Presenter for AITX.

Boeing Center at Tech Port, San Antonio, TX.

TEACHING EXPERIENCE

2016-2024 **LJE Music and Self Employed**, Private Lesson Instructor

- Class Size: 1
- Singer songwriter, classical and electric guitar, piano
- Ages 4 to 75

2022-2023 **Digital Help Hour**, Librarian Assistant

- Class Size: Varies
- One on one sessions for the public in need of technology assistance
- Largely worked with people who are homeless get set up with computers/tablets/phones

2015-2018 **UTSA String Project**, Assitant Director, Guitar Coordinator

- Class Size: 20
- Group classical guitar lessons
- grades K-8

MENTORSHIP EXPERIENCE

Gabriel Green, (Spring 2024), UTSA MSIT Student

PROFESSIONAL ACTIVITIES

Reviewer ACL Rolling Review (2024, 2025) | Dewald Roode Workshop on Information Systems Security Research **Reviewer**

RELEVANT EXPERIENCE AND SKILLS

- S1. Deep Learning: Enhanced Model's temporal reasoning ability. Made more robust to irrelevant context.
- S2. Large Language Models and Agentic Systems Research Seminar: Investigated demographic biases in large language models in game theory settings.
- S3. Natural Language Processing Research Seminar: Discovered security vulnerabilities caused by the growing context windows in large language models.
- S4. Game Development: Made a dog agility platform puzzle game with a gpt4 powered haiku writing level up system.