Alexander Martin

amart233@jhu.edu • <u>GitHub</u> • <u>Scholar</u> • <u>Website</u>

EDUCATION

Johns Hopkins University   **Baltimore, Maryland**
Ph.D. in Computer Science   Expected 2028
Advisor: Dr. Benjamin Van Durme

University of Rochester   **Rochester, New York**
B.S. in Computer Science; Highest Honors in Research   May 2024
Advisor: Dr. Aaron Steven White, Dr. Jiebo Luo
Thesis: Human-Centric Event Representations in Documents and Videos

HONORS & AWARDS

<u>National Science Foundation</u>, **Graduate Research Fellowship**   2024 – 2029
<u>Computing Research Association</u>, **Outstanding Undergraduate Research Award** (HM)   2024
University of Rochester
  Charles L. Newton Prize   2024
  Senior Research Award   2024
  Research Presentation Grant (x2)   2023, 2024
  Dean's Award in Engineering and Mathematics (x2)   2023, 2024
  River Campus Libraries Dataset Grant   2023
  Residential Life Best Program of the Year   2023
  Make It Happen Grant   2022

RESEARCH EXPERIENCE

Human Language Technology Center of Excellence   2024 – Present
Ph.D. Researcher; Advised by Dr. Benjamin Van Durme
  Researched topics in multimodal content generation and reasoning using documents and videos.

Human Language Technology Center of Excellence   Summer 2024
Researcher Intern; Advised by Dr. Benjamin Van Durme
  Researched extracting information about events from videos and aligned text and video retrieval.

Formal And Computational Semantics Lab   2022 – 2024
Undergraduate Researcher; Advised by Dr. Aaron Steven White
  Researched extracting and summarizing information about events from large unstructured text.

Visual Intelligence & Social Multimedia Analytics Lab   2022 – 2024
Undergraduate Researcher; Advised by Dr. Jiebo Luo
  Researched methods for image generation, image-to-image translation, and video understanding.

Environmental Protection Agency   Summer 2022 – Fall 2022
Research Intern; Advised by Dr. Andrea Kirk
  Developed methods for relative importance analysis to measure the effects of PFAS exposure on
  humans and their health, including cancer risk and bone mineral density.

Rochester Human Computer Interaction Lab   2022 – 2024
Research Assistant; Advised by Dr. Ehsan Hoque
  Created synthetic datasets to improve performance of hand pose estimation models for diagnosing
  Parkinson's Disease in virtual health appointments.

PUBLICATIONS

Representative Work: Multimodal RAG, Multimodal Reasoning, Video Understanding

[1] **A. Martin**, et al. "*WikiVideo: Article Generation from Multiple Videos*" (<u>ArXiv</u> 2025)
[2] A. Reddy*, **A. Martin***, et al. "*Video-ColBERT: Contextualized Late Interaction for Text-to-Video Retrieval*" (<u>CVPR</u> 2025)

All Others:

[3] R. Kriz et al. (incl **A. Martin**) "MultiVENT 2.0: A Massive Multilingual Benchmark for Event-Centric Video Retrieval" (CVPR 2025)

[4] S. Samuel et al. (incl **A. Martin**) "*MMMORRF: Multimodal Multilingual Modularized Reciprocal Rank Fusion*" (SIGIR 2025)

[5] D. DeGenaro et al. (incl **A. Martin**) "*FORTIFY: Generative Model Fine-tunning with ORPO for ReTrieval Expansion of InFormal Noisy Text*" (ACL Workshop 2025)

[6] W. Walden, P. Kuchmiichuk, **A. Martin**, et al. "*Cross-Document Event-Keyed Summarization*" (ACL Workshop 2025)

[7] K. Sanders et al. (incl **A. Martin**) "*Grounding Partially-Described Events in Multimodal Data*" (EMNLP 2024)

[8] W. Gantt, **A. Martin**, et al. "*Event-Keyed Summarization*" (EMNLP 24)

[9] S. Vashishtha, **A. Martin**, et al. "*FAMuS: Frames Across Multiple Sources*" (NAACL 2024)

[10] M. Hasan et al. (incl **A. Martin**) "*Hi5: 2D Hand Pose Estimation with Zero Human Annotation*" (ArXiv 2024)

[11] **A. Martin**, H. Zheng, J. An, J. Luo "*Jurassic World Remake: Bringing Ancient Fossils Back to Life via Zero-Shot Long Image-to-Image Translation*" (MM 2024)

[12] S. Barham et al. (incl **A. Martin**) "*MegaWika: Millions of reports and their sources across 50 diverse languages*" (ArXiv 2023)

[13] A.B. Kirk, A. DeStefano, **A. Martin**, et al. "*A New Interpretation of Relative Importance Analysis of Per and Polyfluorinated Alkyl Substances (PFAS) Exposure on Bone Mineral Density*" (IJERPH 2023)

TALKS

Discovering and Understanding Events in Videos in Real Time [slides]	**October 2025**
MacroXStudio (macrox.ai)	Talk
On Demand Article Generation of Events in Real Time [slides]	**April 2025**
University of Rochester, Department of Computer Science	Seminar
MARE: Automatic Modality-Agnostic Report Evaluation [slides]	**April 2025**
Eval4Rag Workshop; European Conference on Information Retrieval	Oral
Understanding Events in Multimodal Data Through Question Answering [slides]	**April 2025**
4th Workshop on Processing and Evaluating Event Representations	Talk
FAMuS: Frames Across Multiple Sources [slides]	**April 2024**
3rd Workshop on Processing and Evaluating Event Representations	Talk
Jurassic World Remake [slides]	**October 2023**
Main Conference; ACM Multimedia	Ora

SERVICE

MAGMaR: Workshop on Multimodal Augmented Generation via Multimodal Retrieval
 Organizing Committee; *ACL 2026*
 Program Committee; *ACL 2025*

Mentorship
 Charles Weng (Johns Hopkins University, B.S./M.S. 2025; **Now:** TikTok Research Scientist)
 Dengjia Zhang (**current:** Johns Hopkins University, M.S. 2026)
 Hanxiang Qin (**current:** Johns Hopkins University, M.S. 2026)
 Katherine Guerrerio (**current:** Johns Hopkins University, B.S. 2027)

Community Service

North American Computational Lingusitics Open Competition (NACLO)	2024 – Present
Competition Organizer	
STEM Initiative	2021 – 2024
Education Mentor	

University of Rochester: Residential Life   2021 – 2024
    Resident Advisor

Teaching
    Introduction to Artificial Intelligence (University of Rochester)   Spring 2023
    Data Structures and Algorithms (University of Rochester)   Spring 2022, Fall 2022
    Introduction to Computer Science (University of Rochester)   Fall 2021