

Kate Sanders

Email: ksande25@jhu.edu | Website: katesanders9.github.io | LinkedIn: [kate-sanders-395725146](https://www.linkedin.com/in/kate-sanders-395725146)

EDUCATION

Johns Hopkins University <i>Ph.D. in Computer Science Advisor: Benjamin Van Durme</i>	Final year Ph.D. student <i>Baltimore, MD</i>
Johns Hopkins University <i>M.S.E. in Computer Science (GPA: 3.9/4.0) Advisor: Benjamin Van Durme</i>	2021 – 2023 <i>Baltimore, MD</i>
UC Berkeley <i>B.A. in Computer Science (GPA: 3.9/4.0) Advisor: Ken Goldberg</i>	2017 – 2020 <i>Berkeley, CA</i>

RESEARCH STATEMENT

I am looking for a research role in industry that centers reasoning systems and NLP. I am particularly interested in multimodality (image and video), AI for science, evaluation, factuality, and retrieval.

CURRENT PROJECTS

Autonomous Scientific Feasibility Assessment

- Building tool-calling and multi-agent debate pipelines to analyze feasibility of claims in materials science.

Detecting Disinformation with LLMs

- Training lightweight LLMs to detect deceptive language in complex natural language documents.

RESEARCH EXPERIENCE

Amazon Web Services <i>Applied Scientist Intern</i>	May 2025 – Oct. 2025 <i>NYC, New York</i>
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- Researched automatic generation of rubric-based RL rewards for reasoning models (paper under review).
- Used SFT, GRPO & DAPO algorithms to train Qwen3 models for math and coding tasks.
- Mentored by Nathaniel Weir.

Human Language Technology Center of Excellence <i>Program Co-Lead</i>	June 2024 – Aug. 2024 <i>Baltimore, MD</i>
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- Co-organized and ran the 40+ participant, 10-week [SCALE 2024 Summer Research Workshop](#).
- First author of the research paper serving as the workshop basis [\[17\]](#).
- Led six-researcher team working on fine-tuning and evaluating multimodal fusion models.
- Workshop produced multiple research papers ([\[8\]](#), [\[9\]](#), [\[6\]](#), [\[5\]](#), [\[14\]](#)) and an [ACL 2025 shared task](#).

Center for Language and Speech Processing, Johns Hopkins University <i>Ph.D. Researcher</i>	Aug. 2021 – Present <i>Baltimore, MD</i>
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- Researching transparent reasoning ([\[1\]](#), [\[2\]](#), [\[12\]](#), [\[13\]](#), [\[10\]](#)), multimodal understanding and retrieval ([\[3\]](#), [\[15\]](#), [\[17\]](#), [\[18\]](#)), and model evaluation ([\[7\]](#), [\[11\]](#), [\[16\]](#)).

AUTOLab, UC Berkeley Artificial Intelligence Research <i>Undergraduate Researcher</i>	Sept. 2018 – May 2021 <i>Berkeley, CA</i>
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- Led robot error recovery research and improved system efficiency by 107% [\[23\]](#).
- Trained LSTMs for time series modeling [\[20\]](#) and co-designed a shelf-searching algorithm [\[19\]](#).
- Collaborated to design and deploy web app for computing robot grasp quality [\[24\]](#).

The Miller Lab, UC Berkeley Molecular & Cell Biology <i>Research Assistant</i>	Jan. 2018 – May 2018 <i>Berkeley, CA</i>
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- Developed statistical modeling software in MATLAB for neuronal analysis research ([\[21\]](#), [\[22\]](#)).

TEACHING

Artificial Agents (Lecturer)

Johns Hopkins University | CS 601.470 | Instructor: Prof. Benjamin Van Durme

Fall 2024
Baltimore, MD

- Co-wrote syllabus and gave lectures on current AI agent research.
- Advised 14 student teams on their final research projects.

Introduction to Machine Learning (Head TA)

UC Berkeley | CS 189/289A | Instructor: Prof. Anant Sahai

Fall 2020
Berkeley, CA

- Led staff of 20+ machine learning TAs and tutors.
- Received the UC Berkeley Outstanding Graduate Student Instructor Award.
- Designed and implemented novel course structures for online teaching.

Adaptive Instruction Methods in Computer Science

UC Berkeley | CS 370 | Instructor: Christopher Hunn

Spring 2020
Berkeley, CA

- Trained 60+ UC Berkeley EECS TAs and tutors.
- Ran peer tutoring for UC Berkeley's lower-division EECS classes.
- Implemented and maintained tutor-student matching software using Ruby on Rails.
- Co-developed syllabus, assignments, and exams.

Structure and Interpretation of Computer Programs

UC Berkeley | CS 61A | Instructor: Prof. Dan Garcia

Spring 2019
Berkeley, CA

- Taught discussion and lab sections, hosted office hours, and proctored exams.

PRESENTATIONS

Grounding Partially-Defined Events in Multimodal Data

Workshop on the Future of Event Detection, EMNLP 2024

Nov. 2024
Talk

Takeaways from the SCALE 2024 Workshop on Video-based Event Retrieval

Center for Language and Speech Processing Seminar

Sept. 2024
Talk

A Survey of Video Datasets for Grounded Event Understanding

3rd Visual Datasets Understanding Workshop, CVPR 2024

June 2024
Talk

Multimodal Entailment Trees for Neuro-Symbolic Video Reasoning

11th Mid-Atlantic Student Colloquium on Speech, Language and Learning

May 2024
Poster

Visual Event Semantics

Center for Language and Speech Processing Seminar

Oct. 2023
Talk

SERVICE

ACL Workshop Organizer (MAGMaR 2025 & 2026)

2025 – Present

- Co-organizer for the 2025 & 2026 ACL workshops on multimodal RAG.

CLSP Admissions Committee

2023 – Present

- Member of the hiring committee for reviewing Johns Hopkins CS Ph.D. applications.

Peer Reviewing

- ICLR 2026, EMNLP 2025, COLM 2025, ACL 2025*, CVPR 2025*, EMNLP 2024, NAACL 2024, NeurIPS 2023, Instruction Workshop @ NeurIPS 2023, NeurIPS 2022, IROS 2021, CASE 2020*¹

¹*Secondary reviewer

Google Scholar ID: [VJFrFM0AAAAJ](#)

- [1] **Sanders, K.**, Van Durme, B. [Bonsai: Interpretable Tree-Adaptive Grounded Reasoning](#). 2025 arXiv preprint.
- [2] Gupta, K., **Sanders, K.**, Solar-Lezama, A. [Randomly Sampled Language Reasoning Problems Elucidate Limitations of In-Context Learning](#). 2025 arXiv preprint.
- [3] Martin, A., Kriz, R., Walden, W., **Sanders, K.**, Recknor H., Yang, E., Ferraro, F., Van Durme, B. [WikiVideo: Article Generation from Multiple Videos](#). 2025 arXiv preprint.
- [4] Deo, A., **Sanders, K.**, Van Durme, B. [SocialNLI: A Dialogue-Centric Social Inference Dataset](#). 2025 arXiv preprint.

PUBLICATIONS

- [5] Kriz, R.*, **Sanders, K.***, Etter, D., Murray, M., Carpenter, C., Recknor, H., Blasco, J., Martin, A., Yang, E., Van Durme, B. [MultiVENT 2.0: A Massive Multilingual Benchmark for Event-Centric Video Retrieval](#). **CVPR 2025**.
- [6] Reddy, A., Martin, A., Yang, E., Yates, A., **Sanders, K.**, Murray, K., Kriz, R., M de Melo, C., Van Durme, B., Chellappa, R. [Video-ColBERT: Contextualized Late Interaction for Text-to-Video Retrieval](#). **CVPR 2025**.
- [7] Ou, J.*, Walden, W.*, **Sanders, K.**, Jiang, Z., Sun, K., Cheng, J., ..., Van Durme, B. [CLAIMCHECK: How Grounded are LLM Critiques of Scientific Papers?](#) **EMNLP 2025 Findings**.
- [8] DeGenaro, D., Yang, E., Etter, D., Carpenter, C., **Sanders, K.**, ..., Kriz, R. [FORTIFY: Generative Model Fine-tuning with ORPO for ReTRetrieval Expansion of InFormal NoisY Text](#). **ACL 2025 Workshops**.
- [9] Samuel, S., DeGenaro, D., Guallar-Blasco, J., **Sanders, K.**, Eisape, O., ..., Kriz, R. [MMMORRF: Multimodal Multilingual MODularized Reciprocal Rank Fusion](#). **SIGIR 2025 Demo**.
- [10] Xu, K., Kordi, Y., Nayak, T., Asija, A., Wang, Y., **Sanders, K.**, Byerly, A., Zhang, J., Van Durme, B., Khashabi, D. [Tur\[k\]ingBench: A Challenge Benchmark for Web Agents](#). **NAACL 2025**.
- [11] Jiang, Z., Zhang, J., Weir, N., Ebner, S., Wanner, M., **Sanders, K.**, Khashabi, D., Liu, A., Van Durme, B. (2024). [Core: Robust Factual Precision Scoring with Informative Sub-Claim Identification](#). **ACL 2025 Findings**.
- [12] **Sanders, K.**, Weir, N., Van Durme, B. [TV-TREES: Multimodal Entailment Trees for Neuro-Symbolic Video Reasoning](#). **EMNLP 2024**.
- [13] Weir, N., **Sanders, K.**, Weller, O., Sharma, S., Jiang, D., Jiang, Z., ..., Van Durme, B. [Enhancing Systematic Decompositional Natural Language Inference Using Informal Logic](#). **EMNLP 2024**.
- [14] **Sanders, K.***, Kriz, R.*, Etter, D.*, Recknor, H., Martin, A., Carpenter, C., Lin, J., Van Durme, B. [Grounding Partially-Defined Events in Multimodal Data](#). **EMNLP 2024 Findings**.
- [15] **Sanders, K.**, Van Durme, B. (2024). [A Survey of Video Datasets for Grounded Event Understanding](#). **CVPR 2024 Workshops**.
- [16] Mayfield, J., Yang, E., Lawrie, D., MacAvaney, S., McNamee, P., Oard, D. W., ..., **Sanders, K.**, Mason, M., Hibbler, N. [On the Evaluation of Machine-Generated Reports](#). **SIGIR 2024**.
- [17] **Sanders, K.***, Etter, D.*, Kriz, R.*, Van Durme, B. [MultiVENT: Multilingual Videos of Events with Aligned Natural Text](#). **NeurIPS 2023 D&B**.
- [18] **Sanders, K.**, Kriz, R., Liu, A., Van Durme, B. [Ambiguous Images With Human Judgments for Robust Visual Event Classification](#). **NeurIPS 2022 D&B**.
- [19] Huang, H.*, Dominguez-Kuhne, M.*, Ichnowski, J., Danielczuk, M., Satish, V., **Sanders, K.**, M., Lee, A., Angelova, A., Vanhoucke, V., Goldberg, K. [Mechanical Search on Shelves using Lateral Access X-RAY](#). **IROS 2021**.
- [20] Huh, T. M., **Sanders, K.**, Danielczuk, M., Li, M., Chen, Y., Goldberg, K., Stuart, H. S. [A Multi-Chamber Smart Suction Cup for Adaptive Gripping and Haptic Exploration](#). **IROS 2021**.

- [21] Walker, A., Raliski, B., Nguyen, D., Zhang, P., **Sanders, K.**, Karbasi, K., Miller, E. [Imaging Voltage in Complete Neuronal Networks Within Patterned Microislands Reveals Preferential Wiring of Excitatory Hippocampal Neurons.](#) **Frontiers in Neuroscience 2021.**
- [22] Walker, A., Raliski, B., Karbasi, K., Zhang, P., **Sanders, K.**, Miller, E. [Optical Spike Detection and Connectivity Analysis With a Far-Red Voltage-Sensitive Fluorophore Reveals Changes to Network Connectivity in Development and Disease.](#) **Frontiers in Neuroscience 2021.**
- [23] **Sanders, K.**, Danielczuk, M., Mahler, J., Tanwani, A., Goldberg, K. [Non-Markov Policies to Reduce Sequential Failures in Robot Bin Picking.](#) **CASE 2020.**
- [24] Song, J., Tanwani, A., Ichnowski, J., Danielczuk, M., **Sanders, K.**, Chui, J., Aparicio Ojea, J., Goldberg, K. [Robust Task-Directed Grasp Planning as a Service.](#) **CASE 2020.**