

Sonia Cromp

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EDUCATION

University of Wisconsin, Madison WI

Doctor of Philosophy in Computer Science,
Master of Science in Computer Science

August 2021 - Present

University of Pittsburgh, Pittsburgh PA

Bachelor of Science in Computer Science,
Bachelor of Arts in Linguistics, Minor in Bosnian/Croatian/Serbian

August 2017 - April 2021

PUBLICATIONS

Tabby: Tabular Data Synthesis with Language Models

Sonia Cromp, Satya Sai Srinath Namburi GNVV, Catherine Cao, Mohammed Alkhudhayri, Samuel Guo, Nicholas Roberts, Frederic Sala

Transactions on Machine Learning Research (TMLR) 2026

Journal-to-Conference Certification (Top ≈10% of Accepted Papers)

Geospatial Diffusion-Based Evolution Synthesis (GeoDES) of Extratropical Cyclone Wind Field and Storm Surge Hazards

Sonia Cromp, Kellie O'Grady, Grace Kisslinger, Allegra LeGrande
2026 Meeting of the American Meterological Society (AMS)

Pretrained Hybrids with MAD Skills

Nicholas Roberts, Samuel Guo, Zhiqi Gao, Satya Sai Srinath Namburi GNVV, *Sonia Cromp*, Chengjun Wu, Chengyu Duan, Frederic Sala

Conference on Language Modeling (COLM) 2025

Climate PAL: Enhancing Accessibility of Climate Model Data through Conversational AI

Sonia Cromp, Behrad Rabiei, Maxwell Elling, Alexander Herron, Michael Hendrickson
NeurIPS 2024 Machine Learning and the Physical Sciences (ML4PS) Workshop

NeurIPS 2024 Tackling Climate Change with Machine Learning (CCAI) Workshop

American Geophysical Union 2024 Meeting (AGU)

OTTER: Effortless Label Distribution Adaptation of Zero-shot Models

Changho Shin, Jitian Zhao, *Sonia Cromp*, Harit Vishwakarma, Frederic Sala
Conference on Neural Information Processing Systems (NeurIPS 2024)

The Credential is Not Enough: Combining Honeypots & Fake Credentials for Cyberdefense

Sonia Cromp, Mark Bilinski, Ryan Gabrys, Frederic Sala
Conference on Decision and Game Theory for Security (GameSec 2023)

Mitigating Source Bias for Fairer Weak Supervision

Changho Shin, *Sonia Cromp*, Dyah Adila, Frederic Sala
Conference on Neural Information Processing Systems (NeurIPS 2023)

Geometry-Aware Adaptation for Pretrained Models

Nicholas Roberts, Xintong Li, Dyah Adila, *Sonia Cromp*, Tzu-Heng Huang, Jitian Zhao, Frederic Sala
Conference on Neural Information Processing Systems (NeurIPS 2023)

Causal Omnivore: Fusing Noisy Estimates of Spurious Correlations

Dyah Adila, *Sonia Cromp*, Sicheng Mo, Frederic Sala

International Conference on Machine Learning 2022 Workshop on Spurious Correlations, Invariance, and Stability (ICML SCIS 2022)

Essay Revision and Corresponding Grade Change as Captured by Text Similarity and Revision Purposes

Sonia Cromp, Diane Litman

International Conference on Educational Data Mining (EDM 2021) Workshop for Undergraduates Best Paper Award

Relaxed SkipList for Concurrent Priority Queues

Sonia Cromp, Michael Spear

International Conference on Parallel Architectures and Compilation Techniques (PACT 2020)
Finalist, Association for Computing Machinery Student Research Competition

WORK EXPERIENCE

NASA Goddard Institute for Space Studies

Graduate Research Assistant

New York, NY / Remote

October 2024 - September 2025

Pretrained and fine-tuned a large diffusion model to predict the path and wind field of hurricanes and other cyclonic storms with greater speed and accuracy than prior machine learning-based approaches. Mentored by Allegra LeGrande as part of the NASA Climate Change Research Initiative (CCRI).

Graduate Intern

June 2024 - May 2025

Developed a GPT-4-based system for researchers to retrieve and analyze climate change data within the Coupled Model Intercomparison Project 6 (CMIP6) and other climate datasets using conversational English, with Michael Hendrickson.

Frederic Sala's Sprocket Lab, University of Wisconsin Computer Sciences

Madison, WI

Graduate Research Assistant

January 2022 - Present

Lead Investigator & Mentor: Managing full lifecycles for primary research lines (Tabby, GeoDES), from ideation to publication. Recruiting and training undergraduate assistants and co-authoring technical sections for major federal grant proposals.

Agile Research Communication: Regularly deployed as a specialist writer for high-stakes deadlines, synthesizing unfamiliar projects' results into coherent technical narratives to ensure on-time submissions.

Systems Admin: Architecting Linux GPU servers for deep learning workflows, handling full-stack maintenance including kernel and driver updates, CUDA versioning and network security (SSH/Firewall).

University of Wisconsin Computer Sciences Instructional Staff

Madison, WI

Graduate Teaching Assistant

August 2021 - Present

Leading recitations, developing and grading course materials for upper-level Algorithms/ML courses.

SKILLS

Programming Python, C, C++, MATLAB, Java, R, SQL

Machine Learning PyTorch, Hugging Face (Diffusers, Transformers, Hub), PEFT, WandB

Data Processing Xarray, Pandas, Numpy, NetCDF, Cartopy, Matplotlib

Systems Azure, AWS, Slurm, Linux Administration, Hardware Configuration, Bash, Git

Language English, Bosnian/Croatian/Serbian, French (advanced), Russian, German

HONORS & SERVICE

Reviewer for NeurIPS/ICLR/ICML (2023-Present), *UW-Madison Golden Brick Award* (2023), *Women of the ACM Chapter President* (2022-24), *FLAS Fellowship* (2019), *AutoML Cup Organizer* (2023)