

Sonia Crompt

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EDUCATION

University of Wisconsin, Madison WI

August 2021 - November 2026 (Anticipated)

Doctor of Philosophy in Computer Science,

GPA 4.0

Master of Science in Computer Science

University of Pittsburgh, Pittsburgh PA

August 2017 - April 2021

Bachelor of Science in Computer Science,

GPA 3.9

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

PUBLICATIONS

Geospatial Diffusion-based Evolution Synthesis (GeoDES) for Storm-Centered Weather Augmentation

Sonia Crompt, Satya Sai Srinath Namburi GNVV, Youran Wang, Grace Kisslinger, Frederic Sala, James Booth, Allegra LeGrande

2026 Meeting of the American Meteorological Society (AMS)

Under Review at Transactions on Machine Learning Research (TMLR) 2026

Tabby: Tabular Data Synthesis with Language Models

Sonia Crompt, 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 $\approx 10\%$ of Accepted Papers) – Presented at ICLR 2026

Pretrained Hybrids with MAD Skills

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

Conference on Language Modeling (COLM) 2025

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

Sonia Crompt, Behrad Rabiei, Maxwell Elling, Alexander Herron, Michael Hendrickson

NeurIPS 2024 (ML4PS and CCAI Workshops)

American Geophysical Union 2024 Meeting (AGU)

Selected as AGU AI Media Roundtable Invitee

OTTER: Effortless Label Distribution Adaptation of Zero-shot Models

Changho Shin, Jitian Zhao, *Sonia Crompt*, Harit Vishwakarma, Frederic Sala

Conference on Neural Information Processing Systems (NeurIPS 2024)

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

Sonia Crompt, 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 Crompt*, 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

New York, NY / Remote

Graduate Research Assistant

October 2024 - September 2025

Developed a custom generative diffusion model to predict the evolution of cyclonic storms. Improved probabilistic forecasting for extreme weather events and tail-risk phenomena compared to standard Weather Foundation Models. Mentored by Dr. Allegra LeGrande (NASA CCRI).

Graduate Intern

June 2024 - May 2025

Designed Climate PAL, an LLM-based in-context learning framework enabling researchers to retrieve and analyze large-scale Earth system datasets (ERA5, CMIP6, NEXRAD), with Michael Hendrickson.

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

Madison, WI

Graduate Research Assistant

January 2022 - Present

Lead Investigator & Mentor: Directed project life cycles adapting foundation models to dynamical systems (Tabby, GeoDES), mentoring undergrad/MS assistants. Investigated rare event generalization from ideation to publication.

Fast-Paced Research Synthesis & Grant Writing: Co-authored technical sections for major federal grant proposals, translating theoretical findings on varied deep learning topics into compelling narratives.

High-Performance Computing: Administrated Linux GPU servers to support large-scale foundation model training. Orchestrated multi-GPU batch jobs via [UW-Madison CHTC clusters](#).

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	HTCondor, Azure, AWS, Docker, Conda, Slurm, Linux, Sys. Admin., 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)