Yannik Glaser, Ph.D.

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Education

2025 **PhD (Computer Science)** at **University of Hawaii at Manoa** (GPA: 4.0/4.0)
Focus: Self-supervised learning for science applications — Advisor: Dr. Peter Sadowski

2020 **Master's of Science (Computer Science)** at **University of Hawaii at Manoa** (GPA: 3.9/4.0)
Focus: Applied machine learning for natural science — Advisor: Dr. Peter Sadowski

2018 **Bachelor's of Science (Computer Science)** at **University of North Georgia** (GPA: 4.0/4.0)
Graduated with Honors — President's Honors List — Cottrell Scholar

Work Experience

Research Corporation of Hawaii
Postdoctoral Researcher 2025–present

- **European Space Agency Sentinel-1 modeling:** Building on WV-Net foundation model for image retrieval and semi-supervised learning pipelines for atmospheric science and oceanography applications.
- **NASA SWOT Satellite foundation model:** Development of domain-informed foundation model for the new NASA SWOT satellite platform with application to atmospheric and ocean science and climate modeling.
- **Dual-energy X-ray foundation model:** Refinement of DXA foundation model, optimized for fairness metrics and stable subgroup performance with applications to various clinically-relevant outcomes such as mortality risk, cardiovascular health monitoring, and metabolic disease.
- **Solar atmosphere inversion model**: Developed a machine learning model for inverse solar physics, trained on terabyte-scale simulation data to be deployed in the Daniel K. Inouye Solar Telescope workflow.

University of Hawaii at Manoa
Graduate Research Assistant 2019–2025
Graduate Teaching Assistant 2018

- **SAR satellite foundation model**: Pioneered a self-supervised learning approach to train a SAR open ocean foundation model, enabling the retrospective analysis of decade of global-coverage data and identifying extremely rare patterns.
- **Dual-energy X-ray absorptiometry foundation model**: Engineered a domain-informed self-supervised learning embedding model by consolidating and curating four National Institute of Health datasets. Model outperforms World Health Organization hip fracture risk assessment tool.
- **Other projects:** High resolution solar forecasting with diffusion models, Belle-II Detector particle identification, Fish pose-estimation pipeline, Evolution-informed neural networks for microbiome data analysis.
- **Teaching:** Taught and mentored over 60 students in weekly lab sections, increased participation in tutoring sessions by 30%, and collaborated curriculum development to enhance the learning environment.

Mind-Alliance Systems
Software Engineering Intern 2018

- Developed a custom NLP named entity recognition web scraper that increased data acquisition speed by over 100%.
- Curated a novel dataset from schema.org information, which enhanced the named entity recognition model's accuracy from 50% to around 90% on internal testing data.
- Researched and proposed a new technology stack for graph database storage, reducing data retrieval time by 20%.

SAP Labs
Data Science Intern 2017

- Worked on conversational AI platform team developing custom chatbot reducing average response time by 80%.
- Pioneered an initiative to adapt existing chatbot training pipeline for the German market, broadening the platform's linguistic capabilities.
- Engineered a German word embedding model trained on internal documents, improved German chatbot performance by over 60%.

Current Projects

CiteGraph — Training an on-device QLoRA-fine-tuned LLM (Gemma 4B, 4-bit quantized on MLX) to extract structured metadata, citations, and semantic tags from academic PDFs. Built the full pipeline: a Gemini-powered multi-model consensus labeling system for synthetic training data, Pydantic-validated JSON extraction with custom evaluation metrics (token-level F1, Levenshtein-based citation matching), and a FastAPI inference server supporting 128k-token context via 4-bit KV-cache quantization. Runs entirely on Apple Silicon.

Skills

Software	Python, Tensorflow, Keras, Pytorch, SLURM, PySpark, Standard data science stack, Git, containerization (Docker, Singularity), DICOM, TIFF/ GeoTIFF, NetCDF, HDF5, GCP, Java, Unix
Modeling	Self-supervised learning, Diffusion models, Physics-informed neural networks, Graph neural networks, LLMs, Machine learning
Languages	English (fluent), German (fluent)

Publications

Journal Articles

[1] **Glaser, Yannik** and Co-authors. **2026a**. "A deep learning foundation model for dual-energy X-ray absorptiometry imaging". In: *Radiology*. In preparation, expected submission mid 2026.

[2] **Glaser, Yannik** and Co-authors. **2026b**. "Mapping the global ocean-atmosphere boundary layer with a SAR satellite foundation model". In: *Remote Sensing of Environment*. In preparation, expected submission mid 2026.

[3] **Glaser, Yannik** and Co-authors. **2025**. "WV-Net: A foundation model for SAR ocean satellite imagery". In: *Artificial Intelligence for the Earth Systems*.

[4] Bunnell, Arianna, **... Glaser, Yannik**, and Co-authors. **2024a**. "Is AI-enhanced breast ultrasound ready for breast cancer screening in low-resource environments? A systematic review". In: *Cancer Research* 84.6_Supplement, pp. 3449–3449.

[5] Leong, Lambert T, **... Glaser, Yannik**, and Co-authors. **2024b**. "Generative deep learning furthers the understanding of local distributions of fat and muscle on body shape and health using 3D surface scans". In: *Communications Medicine* 4.1, p. 13.

[6] Yang, Kai E, **...** And **Glaser, Yannik**. **2024c**. "Spectropolarimetric Inversion in Four Dimensions with Deep Learning (SPIn4D). I. Overview, Magnetohydrodynamic Modeling, and Stokes Profile Synthesis". In: *The Astrophysical Journal* 976.2, p. 204.

[7] Hatanaka, Yusuke, **Glaser, Yannik**, and Co-authors. **2023**. "Diffusion models for high-resolution solar forecasts". In: *arXiv preprint arXiv:2302.00170*.

[8] Fernandes, Vânia Filipa Lima, **Glaser, Yannik**, and Co-authors. **2022a**. "Evolution of left–right asymmetry in the sensory system and foraging behavior during adaptation to food-sparse cave environments". In: *BMC biology* 20.1, p. 295.

[9] **Glaser, Yannik** and Co-authors. **2022b**. "Deep learning predicts all-cause mortality from longitudinal total-body DXA imaging". In: *Communications medicine* 2.1, p. 102.

[10] Quach, Brandon, **Glaser, Yannik**, and Co-authors. **2020**. "Deep learning for predicting significant wave height from synthetic aperture radar". In: *IEEE Transactions on Geoscience and Remote Sensing* 59.3, pp. 1859–1867.

Peer-reviewed Proceedings

[11] **Glaser, Yannik**. **2025**. "Domain-Specific Foundation Models for Science Applications: Self-Supervised Learning with SAR and DXA". In: *Medical Image Computing and Computer Assisted Intervention – MICCAI 2025 Doctoral Symposium*. Vol. 16489. Lecture Notes in Computer Science. Cham: Springer.

[12] Bunnell, Arianna, **Glaser, Yannik**, and Co-authors. **2024**. "Learning a Clinically-Relevant Concept Bottleneck for Lesion Detection in Breast Ultrasound". In: *International Conference on Medical Image Computing and Computer-Assisted Intervention*. Springer, pp. 650–659.

[13] Ito, Michael, **Glaser, Yannik**, and Co-authors. **2021**. "Evolution-informed neural networks for microbiome data analysis". In: *2021 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*. IEEE, pp. 3386–3391.

[14] Quach, Brandon, **Glaser, Yannik**, and Co-authors. **2020**. "Deep sensing of ocean wave heights with synthetic aperture radar." In: *AAAI 2020 Spring Symposium*.

[15] Beck, Robert, **... Glaser, Y**, and Co-authors. **2019a**. "Refined redshift regression in cosmology with graph convolution networks". In: *NeurIPS Machine Learning and the Physical Sciences Workshop*.

[16] **Glaser, Yannik** and Co-authors. **2019b**. "Hip fracture risk modeling using DXA and deep learning". In: *NeurIPS Machine Learning and the Physical Sciences Workshop*.

Conference Abstracts

[17] **Glaser, Yannik** and Co-authors. **2025**. "Task-Agnostic DXA Features: A Deep Learning Foundation Model For Diverse Radiological Tasks". In: *The Radiological Society of North America scientific assembly and annual meeting*.

[18] **Glaser, Yannik** and Co-authors. **2023a**. "WVNet: A SAR Wave-mode Foundation Model". In: *AGU Fall Meeting Abstracts*. Vol. 2023, IN54B–03.

[19] Yang, Kai, **... Glaser, Yannik**, and Co-authors. **2023b**. "Spectropolarimetric Inversion in Four Dimensions with Deep Learning (SpIN4D): Magnetohydrodynamic Modeling and Forward Synthesis Pipeline". In: *AGU Fall Meeting Abstracts*. Vol. 2023. 2687, SH51G–2687.

[20] **Glaser, Yannik** and Co-authors. **2021**. "Deep learning identifies body composition changes over time in total-body DXA imaging to predict all-cause mortality". In: *The Radiological Society of North America scientific assembly and annual meeting*.

[21] **Glaser, Yannik** and Co-authors. **2020**. "Hip fracture risk modeling using DXA and artificial intelligence". In: *Journal of Bone and Mineral Research*. Vol. 35. John Wiley et al., pp. 200–200.