C Thomas

(they/them)

Website | Linkedin | GitHub | Scholar | email | SF Bay Area

Professional Summary

Forward-thinking and resourceful technical leader and contributor. I lead the machine learning team at Apple that translates advances in research to applications in manufacturing. My work centers data and compute efficiency for impact at scale. I value research and tool development equally, and all research successes are developed and merged to a well-used library, with impact measured across Apple.

Skills

- Experimental science
- Deep learning
- R&D leadership
- Org strategy
- People leadership
- Technical communication

Experience

Apple — Cupertino, CA

Applied Research Manager, Machine Learning — 2022 – current

- Pitched and built R&D team within Apple Operations, own team mission and vision, set measurable quarterly goals and demonstrate factory impact via improvements to model performance, data efficiency and compute efficiency.
- Drive collaborations with academic and internal researchers, targeting current and future challenges in manufacturing ML. Recent successes reduce data collection and annotation requirement by 30% in images and up to 90% in test sampling.
- Work with directs to identify their career goals and a growth plan at the intersection of their goals and our team mission.
- Individual contributor on exploratory topics, including recent work on pretraining with hierarchical memory (see Publications).

Machine Learning Engineer — 2020 – 2022

- Built and deployed vision models to the factory floor; identified a major source of manufacturing error before it impacted customer with significant financial impact.
- Implemented flexible, generalized automation in model training, now used by all Ops vision MLEs. Included experiment tracking and dataset versioning for performance improvement and up to 80% time savings in urgent model updates.
- Mentored interns and junior ICs in collaborative code development, research decisions, and interpreting results.

Tua Fertility Founder — Oakland, CA, 2019 - 2020

- Designed and prototyped medical devices as a startup in residence at the San Francisco Autodesk Technology Center.
- Developed and pursued organizational and technical milestones, conducted user research, collaborated with fertility center to identify challenges and assess competitive landscape

Rigetti Computing Senior Research Engineer & Tech Lead — Berkeley, CA, 2017 – 2019

- Aligned engineering teams so that subsystem improvements (fabrication, cryogenic, mechanical and electrical) fit together to improve end-user experience of the quantum computer.
- Started and hired the technical program management team. Supported hiring over 30 engineers in high growth period.

University of California, Berkeley Doctoral Research Fellow — Berkeley, CA, 2010 – 2017

- Built laser and ultra high vacuum systems to trap and cool individual atoms, achieving some of the coldest temperatures in the universe, to study the simplicities and complexities of quantum physics.
- Identified and developed a predictive white box model to explain an unexpected asymmetry in absorption image data (2D, grayscale images).
- Developed and tested a mean-field model predicting the critical point of the phase transition in atomic samples that includes the impact of lattice geometry.

Education

PhD **University of California at Berkeley**, Atomic and Optical Physics
Quantum simulation of triangular, honeycomb and kagome crystal structures using ultracold atoms in lattices of laser light

MA **University of California at Berkeley**, Physics

BA **Boston University**, Physics and Math

Select Publications

Pretraining with hierarchical memories: separating long-tail and common knowledge. Hadi Pouransari, David Grangier, *C Thomas*, Michael Kirchhof, Oncel Tuzel. In-review at ICLR. arxiv 2510.02375. — Oct 2025

Rethinking Semi-Supervised Domain Adaptation for Semantic Segmentation in the Era of Foundation Models. J. Kurien*, B. Balaji*, K.H. Lai, P. G. Vela, *C Thomas*, A. Wong, S. Rambhatla. IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshop on Fine-Grained Visual Categorization (FGVC), 2025. — Jun 2025

LangDA: Language-guided Domain Adaptive Semantic Segmentation Chang Liu, Saad Hossain, *C Thomas*, Kwei-Herng Lai, Raviteja Vemulapalli, Sirisha Rambhatla, Alexander Wong NeurIPS 2024, AFM workshop — Nov 2024

Synth4Seg–Learning Defect Data Synthesis for Defect Segmentation using Bi-level Optimization Shancong Mou, Raviteja Vemulapalli, Shiyu Li, Yuxuan Liu, *C Thomas*, Meng Cao, Haoping Bai, Oncel Tuzel, Ping Huang, Jiulong Shan, Jianjun Shi IEEE Transactions on Automation Science and Engineering, vol. 22. — Oct 2024

Mean-field scaling of the superfluid to Mott insulator phase transition in a 2D optical superlattice *CK Thomas*, Thomas H Barter, Tsz-Him Leung, Masayuki Okano, Gyu-Boong Jo, Jennie Guzman, Itamar Kimchi, Ashvin Vishwanath, Dan Stamper-Kurn Physical Review Letters, Editor's Suggestion — Sept 2017

Service

Conference

Invited speaker and panelist. Talk title: *Applied Research in Industrial AI*, 3rd workshop on Vision-based Industrial Inspection, International Conference on Computer Vision (ICCV), 2025. — Honolulu, HI Oct 2025

Co-organizer and panelist. Support challenge on data-efficient defect segmentation. 2nd workshop on Vision-based Industrial Inspection, European Conference on Computer Vision (ECCV), 2024. — Milan, Italy Oct 2024

Career mentorship

Career Development Committee Member, Apple Operations — 2023 - current
Individual mentor for recent grads entering the workforce — 2023 - current

Community

Impact Bay Area is a nonprofit in the San Francisco Bay Area that trains women and girls to set and hold boundaries with verbal and physical self-defense skills.

Assistant Instructor — 2017 - current
Board Secretary — 2023 - 2025

Tools

Languages: Python, C++

Technologies: PyTorch, Tensorflow, HuggingFace, Voxel, Git