Kento Nishi

kentonishi@college.harvard.edu | GitHub | LinkedIn | Google Scholar | Garmin

Education

Harvard — Bachelor's & Master's in Computer Science — Aug. 2022 – exp. May 2026

- Concurrent four-year AB/SM Program, with Honors. GPA: 3.971.

Skills

Programming: Python, TypeScript/JavaScript, C++, Java, Svelte, OpenGL, Bash, Git, Docker, LaTeX.

Research: PyTorch, CNNs, transformers, diffusion models, mechanistic interpretability, representation learning, explainability, multi-modal learning, data augmentation, LLMs, audio processing, GPU/CUDA.

Misc.: bilingual English/Japanese (professional-level), teaching. **Hobbies:** running, music composition.

Affiliations

Harvard-NTT Physics of AI Group — Mar. 2023 – Present

- Advised by Dr. Hidenori Tanaka and Dr. Ekdeep Singh Lubana.
- **ICML first author** paper (2025); also co-authored **2x ICLR** and **2x NeurIPS** papers.

Harvard Visual Computing Group — Aug. 2022 – Present

- Advised by Dr. Hanspeter Pfister; mentored by Dr. Junsik Kim.
- **CVPR first author** paper (2024), as a sophomore undergrad.

UCSB Four Eyes Lab — Jun. 2020 – Aug. 2022

- **CVPR first author** paper (2021), as a **high school student** at **age 16**.

Grants

Ezoe Memorial Recruit Foundation Scholarship — Apr. 2023 – Present

- Longest-running & most selective scholarship program in Japan (approx. 6 recipients/year).
- **Full funding** of tuition and living expenses (**$95,000/yr.**). Valid through **BA**, **MS**, and **PhD**.

MATS (ML Alignment & Theory Scholars Program) — Jan. – Mar. 2025

- 12-week program in Berkeley, CA. Supports research on AI alignment, governance, and security.
- Awarded $12,000 plus $10,000 in compute credits. Started my diffusion models project (ongoing).

PRISE (Harvard Program for Research in Science and Engineering) — Jun. – Aug. 2024

- Highly selective 10-week fellowship by the Harvard Summer Undergraduate Research Village.
- Awarded housing, a meal plan, and a $3,000 stipend. Project later became my ICML 2025 paper.

Achievements

Harvard AI Safety Team Program Director: Research Compute Lead for AISST. — 2023 – Present

John Harvard Scholar: top 5% of the Harvard College class of 2026. — 2023, exp. 2025

Advanced Half-Marathon Runner: 1h25m10s PR (Nov. 2024). 4x race finisher. — 2021 – Present

Regeneron STS Top 300 Scholar: the oldest, most prestigious high school STEM award. — 2022

Employment

Comcast — Applied AI Labs, Speech AI Team

Part-Time Contractor (post-internship extension, remote) — Sep. 2025 – Present

- Continuing research to mechanistically probe biases in text-to-speech diffusion models.

- Aiming for a tier-1 conference paper publication and a proprietary patent filing.

Grad-Level Summer Research Intern (Washington DC, in-person) Jun. – Aug. 2025

- Worked on production text-to-speech models that serve over 50 million daily users.
- Uncovered and diagnosed training-inference gaps in time-domain diffusion models.

Harvard SEAS

CS 79 Course TA Aug. 2025 – Present

- Teaching Assistant for CS 79: Design of Useful and Usable Interactive Systems by Dr. K. Gajos.
- Serving as the Studio Planning Lead; am the sole undergraduate member of course staff.

Projects

LiveTL Apps Nov. 2020 – Present

- Lead dev of three modular addons that improve YouTube and Twitch (LiveTL, HyperChat, YtcFilter).
- 100K+ total users; 900+ total repo stars; 20+ code contributors. Free, open-source, and cross-platform.

holoEN Christmas Advent Calendar Nov./Dec. 2022, 2023, 2024, exp. 2025

- Full-stack dev of the event platform (holoen-advent.com). Officially commissioned by Cover Corp.
- 250K+ total users; a beloved yearly holiday tradition in the hololive English community.

Exio UI Elements — npm May 2024

- A customizable, framework-agnostic web UI library. Used in my open-source websites and apps.

Torch Pitch Shift — PyPI Jun. 2021

- The first Python library for pitch-shifting on GPU at the time. Later added to PyTorch upstream.
- 750K+ downloads/month; 135+ stars on GitHub; used by torch-audiomentations with 1.1K+ stars.

Publications

Representation Shattering in Transformers: A Synthetic Study with Knowledge Editing
ICML 2025, as **first author**.
Our interpretable task reveals why edits to model weights can destroy representation geometries.

In-Context Learning of Representations
ICLR 2025, as co-author.
We explain how LLMs reorganize representations in-context to align with task-specific structures.

Structured In-Context Task Representations
NeurIPS 2024 NeurReps Workshop, as co-author.
A precursor to "In-Context Learning of Representations."

Stepwise Inference in Transformers: Exploring a Synthetic Graph Navigation Task
NeurIPS 2023 R0-FoMo Workshop, as co-author.
Our synthetic DAG navigation task clarifies when chain-of-thought might help autoregressive models.

Joint-Task Regularization for Partially Labeled Multi-Task Learning
CVPR 2024, as **first author**.
We propose a regularizer to train models using partially labeled data with linear complexity.

Augmentation Strategies for Learning with Noisy Labels
CVPR 2021, as **first author**.
Our decoupled augmentation strategy improves model robustness under noisy-label scenarios.

Improving Label Noise Robustness with Data Augmentation and Semi-Supervised Learning
AAAI 2021 Student Abstract Track, as **first author**.
A precursor to "Augmentation Strategies for Learning with Noisy Labels."