Jeanine Ohene-Agyei

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Education

University of California, Davis — Davis, CA, United States
Master of Science in Computer Science — *June 2027*

University of Toronto — Toronto, ON, Canada
Honors Bachelor of Science in Computer Science and Mathematics — *June 2025*

Professional Experience

Research and Development Intern — Montreal, QC, Canada (Remote)
Pytri — *Sept. 2024 – Apr. 2025*

- Architected an end-to-end computer vision pipeline for automated hematology analysis, integrating object detection metrics for RBC/WBC into structured diagnostic reports.
- Created a robust data-to-insight interface that transformed high-dimensional raw image data into actionable clinical metrics through automated diagnostic logic.

Research Experience

University of California, Davis — Davis, CA, United States
Graduate Researcher (Laboratory for AI, Robotics, and Automation — Advisor: Iman Soltani) — *Oct. 2025 – Present*

- Developing foveated world models for egocentric vision, exploring adaptive attention mechanisms that combine high- and low-resolution representations for efficient scene prediction.
- Investigating robotics and SLAM-inspired methods for retinal OCT imaging, focusing on reconstruction of wide-field retinal maps from unordered scans collected under natural eye motion.

University of Toronto — Toronto, ON, Canada
Undergraduate Researcher (embARC Research Group — Advisor: Nandita Vijaykumar) — *Aug. 2024 – Jun. 2025*

- Devised a novel framework for cross-model knowledge transfer that enables domain-specific reasoning capabilities in foundation models without requiring access to original training data.
- Engineered an automated data curation and filtering mechanism to optimize the distillation process, improving model efficiency on specialized reasoning benchmarks.

Université du Québec en Outaouais — Gatineau, QC, Canada
Research Intern (LPVS Research Group — Advisor: Caroline Blais, Anderson Avila) — *May 2025 – Oct. 2025*

- Developed a multimodal benchmark for automated affective state detection, by engineering a pipeline to semantically align high-level film scripts with low-level video and transcript annotations.
- Evaluated the zero-shot reasoning capabilities of LLMs (GPT-4, Claude, Gemini) in identifying complex human states, providing a framework for cross-modal validation in unstructured environments.

Research Intern (LPVS Research Group — Advisor: Caroline Blais) — *May 2024 – Aug. 2024*

- Implemented a reverse correlation genetic algorithm in MakeHuman to perform computational modeling of internal representations, generating individualized 3D visualizations of emotional states.
- Analyzed these modeled representations through cross-cultural experiments to identify systematic variances in perception across ethnic and gender groups.

Publications

- **Ohene-Agyei, J.**, Berthaud, M., Vèzina, L.-A., Blais, C., Avila, A. *P-SCRIB: Mitigating Visual Bias via Text-Driven Pain Detection in Films.* In *Proceedings of the Language Resources and Evaluation Conference (LREC)*, 2026. **Under Review.**
- Guan, Y., **Ohene-Agyei, J.**, Kwan, D., Dandurand, J.-S., Zhang, Y., Vijaykumar, N. *TuneShift-KD: Knowledge Distillation and Transfer for Fine-tuned Models.* In *Proceedings of the International Conference on Machine Learning (ICML)*, 2026. **Under Review.**

Poster Presentations

- Richer, A., **Ohene-Agyei, J.**, Pelland-Goulet, P., Bellerose, A., Mharchat, Z., Berthaud, M., Gingras, F., St-Pierre, E., Saumure, C., Caldara, R., Fiset, D., and Blais, C. *Dissociating Mental Representation from Perception in Gendered Pain and Emotional Facial Expressions: A Reverse Correlation Study using Genetic Algorithm and Machine Learning.* Abstract submitted to the *Vision Sciences Society (VSS) Annual Meeting*, 2026. **Under Review.**

- St-Pierre, É., **Ohene-Agyei, J.**, Richer, A., Bellerose, A., Gingras, F., Mharchat, Z., Saumure, C., Fiset, D., Caldara, R., and Blais, C. *Conceptual knowledge and individual differences in facial emotion perception using genetic algorithms.* Poster presented at the *Vision Sciences Society (VSS) Annual Meeting*, 2025. Abstract published in *Journal of Vision*, 25(8):2439. https://doi.org/10.1167/jov.25.8.2439

Selected Projects

EcoNAS: Environmentally Efficient Neural Architecture Search | PyTorch, NumPy, Scikit-learn 2023

- Designed EcoNAS, a multi-objective neural architecture search framework for discovering accurate, interpretable, and low-FLOP neural architectures.
- Implemented NSGA-II–based Pareto optimization to jointly optimize predictive performance, model transparency, and computational efficiency.
- Identified architectures that reduced inference cost and energy usage while maintaining or improving accuracy, motivating later work in efficient model distillation and simulation.

Interpretable and Fair Models for Decision-Making | Python, NumPy, PyTorch 2023

- Studied trade-offs between transparency and predictive performance across deep and classical models in decision-making tasks.
- Implemented fairness, bias, and reliability metrics (e.g., statistical parity) to evaluate risks of learned models under deployment.
- Demonstrated that interpretable models can provide more stable and trustworthy predictions under distribution shift.

Leadership and Extracurriculars

Kulen Outreach English Tutor Feb. 2023 – Oct. 2023

- Aid in fundraising events to supply schools in Cambodia educational materials
- Volunteer as an English tutor to students in Hong Kong on the weekends

Computer Science Student Ambassador Sept. 2022 – Aug. 2023

- Mentored high school students on preparing for computer science university life
- Provided my experiences on 300/400 level computer science courses for second year students
- Aided the Department of Computer Science in first year orientation

Awards and Honors

NSERC Undergraduate Student Research Award Feb. 2025

- Awarded an NSERC-USRA for Black researchers in the amount of $7,900 by the Institut National de la Recherche Scientifique

The Isabel Bader In-Course Scholarship Aug. 2024

- Awarded an in-course scholarship in the amount of $1,000 for excellent academic performance in the third group of 5.0 courses

INRS Excellence Scholarship Mar. 2024

- Awarded an institutional research scholarship in the amount of $6,125 for excellent academic record and research skills

Vector Institute Professional Development Award Dec. 2022

- Received a Professional Development Certificate by the Vector Institute for Artificial Intelligence
- Awarded a $500 award for completion of a significant project in machine learning

Victoria College Clara Flavelle Mcheachren Scholarship Sept. 2021

- Awarded Victoria University entry scholarship in the amount of $3,000 for an outstanding academic record