

Jeanine Ohene-Agyei

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EDUCATION

University of California, Davis

Master of Science in Computer Science (Thesis)

Davis, CA, United States

May 2027

University of Toronto

Honors Bachelor of Science in Computer Science and Mathematics

Toronto, ON, Canada

June 2025

PROFESSIONAL EXPERIENCE

Research and Development Intern

Pytri

Sept. 2024 – Apr. 2025

Montreal, QC, Canada (Remote)

- Developed a comprehensive blood work report structure using AI for clinical hematologists by integrating Pytri's RBC and WBC detection data, ensuring alignment with clinical standards
- Implemented essential hematology metrics, calculations, and a user-friendly interface to transform raw detection data into actionable, comprehensive blood work reports

RESEARCH EXPERIENCE

Université du Québec en Outaouais

Research Intern (LPVS Research Group)

Gatineau, QC, Canada

May 2025 – Present

- Selected as an NSERC-USRA award recipient and returning intern, continuing to develop algorithms for pain detection
- Designing a LangChain-based Retrieval-Augmented Generation pipeline with transformer LLMs to identify pain instances in movie scripts while mitigating cultural and gender biases

Research Intern (LPVS Research Group)

May 2024 – Aug. 2024

- Implemented reverse correlation genetic algorithm to create individual's mental representations of emotions using the open-source MakeHuman software
- Developed two experiments exploring cultural differences in emotion intensities between different ethnicities and genders

University of Toronto

Research Assistant (AICONS Research Group)

Toronto, ON, Canada

Dec. 2024 – Jun. 2025

- Developing novel scalable 3D Self-Supervised Learning algorithms for medical imaging, trained on a massive unlabeled dataset
- Evaluating the SSL-trained networks on downstream tasks, including real-world medical data and online challenges, optimizing performance for clinical applications such as detection, diagnosis, and risk profiling

Undergraduate Researcher (embARC Research Group)

Aug. 2024 – Jun. 2025

- Developed TuneShift-KD, a data-free distillation pipeline for transferring domain-specific knowledge from fine-tuned LLMs to new foundation models
- Engineered a perplexity-based filtering method and validated across open-source LLMs, achieving strong performance on specialized tasks without access to original training data

Machine Learning Researcher (BMO Lab)

Sept. 2023 – Apr. 2024

- Applied Neural Architecture Search techniques to Variational Auto-Encoders on the AMASS body motion dataset for optimal design and performance
- Created new pointing UI to existing body motion and text-to-image technology to control the display of images on a screen

PUBLICATIONS

- Guan, Y., **Ohene-Agyei, J.**, Kwan, D., Dandurand, JS., Zhang, Y., Vijaykumar, N.
TuneShift-KD: Knowledge Distillation and Transfer for Fine-tuned Models. NeurIPS 2025. Under Review.

POSTER PRESENTATIONS

- St-Pierre, É., **Ohene-Agyei, J.**, Richer, A., Bellerose, A., Gingras, F., Mharchat, Z., Saumure, C., Fiset, D., Caldara, R., & 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>

PROJECTS

Computational Complexity in Machine Learning | *PyTorch, NumPy, Scikit-learn*

- Developed a new benchmark called EcoNAS aimed to optimize computational complexity, interpretability and accuracy in Deep Neural Networks using Neural Architecture Search algorithms
- Utilizing NSGA-II and multi-objective optimization to evaluate and produce high performing DNNs
- Found architectures that increased accuracy and interpretability and lowered computational cost, contradicting previous research

Interpretability of Machine Learning Models | *Python, NumPy, PyTorch*

- Compared the performance of Deep Neural Networks and Convolutional Neural Networks as uninterpretable models against Logistic Regression and Support Vector Machines as interpretable models
- Evaluated model several accuracy metrics to assess predictive performance and trade-offs between model interpretability and predictive power
- Quantified the concept of statistical parity to address fairness and bias considerations in machine learning models
- Presented findings that showcased the advantages and limitations of interpretable and uninterpretable models

RELEVANT COURSEWORK

Computer Science: Computational Linguistics, Software Design and Engineering, Data Structures and Analysis, Artificial Intelligence, Theory of Computation, Operating Systems

Mathematics: Linear Optimization, Multivariable Calculus, Statistics, Linear Algebra

Science: Advanced Biology, Psychology

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