Valerie Stoica

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Education

University of Waterloo — Waterloo, Canada

Bachelor of Applied Science, Systems Design Engineering — *Sep. 2022 – May 2027*

- **Relevant courses:** Data Structures and Algorithms, Digital Systems, Systems Design, Introduction to C++ / Object-Oriented Programming
- **GPA: 3.9/4.0;** Honours Scholar

Technical Skills

Languages: Python, C++, TypeScript, JavaScript, C#

Frameworks: Next.js 14.0, React, Node.js, Manim

Developer Tools: Docker, Vercel, AWS (S3, Lambda, DynamoDB), MongoDB, Stripe, Azure, Postman, Git, Figma

Libraries & SDKs: PyTorch (torch.fx), Torchvision, ONNX, pycocotools, pandas, NumPy, Matplotlib

ML & Computer Vision: CNNs, YOLO-based models, model quantization (INT8/INT24), non-maximum suppression (NMS), COCO mAP evaluation, performance profiling (FPS benchmarking)

Experience

Machine Learning Engineer Intern — Jan. 2025 – Apr. 2025

UntetherAI — *Toronto, Canada*

- Engineered end-to-end, high-throughput **object-detection** pipelines in **Python and C++**, achieving **1,300 FPS** on the UntetherAI accelerator.
- Extracted and subgraphed ONNX graphs for **15+ CNNs** (e.g. **YOLOv11, ResNet-50**), isolating unsupported operators to enable full on-chip execution.
- Implemented streaming **quantization/dequantization** callbacks to handle unsupported data formats at the host–device boundary.
- Developed a modular **object-detection framework** to standardize **demo development** across diverse models, simplifying maintenance and accelerating new-model onboarding.
- Automated **COCO-style mAP evaluation** with **pycocotools** and built **TorchVision** visualization tools overlaying bounding boxes and scores for rapid quantitative and qualitative validation.
- Authored **comprehensive SDK documentation** and user guides, enhancing customer self-service and reducing support overhead.

Machine Learning Research Assistant — Aug. 2024 – Present

Vision & Image Processing Lab - University of Waterloo — *Waterloo, Canada*

- Developed and coded an end-to-end, AI-driven nutritional tracking platform using **Next.js**, **TypeScript**, and **Gradio**, enhancing elderly patient care through a responsive design accessible across all devices.
- Contributed to **2D/3D data collection** and **segmentation** for food intake scenes, developing a **PyTorch model** with over **95% accuracy** in analyzing dietary intake from video footage.
- Earned recognition at the **CVPR (Computer Vision and Pattern Recognition) conference**.
- Worked under the leadership of **Dr. Alexander Wong**, Co-Director of our lab and Director of Machine Learning at Apple.

Fullstack Developer — Jan. 2023 – Mar. 2024

Civision Inc. - La Base Entrepreneuriale HEC Montréal — *Montréal, QC*

- Delivered scalable, high-traffic web applications using **Next.js**, **TypeScript**, and **React** for flagship clients such as **l'Université de Montréal**.
- Implemented **Server-Side Actions** and rendering optimizations utilizing **Node.js** and **Express.js**, resulting in a **30%** reduction in application load times.
- Engineered over **10 AWS Lambda Functions** and **15+** serverless workflows using **AWS Step Functions**, with **AWS API Gateway** and **AWS S3**, leading to a **65%** decrease in execution times.

Backend Developer — May 2024 – Aug. 2024

Government of Canada - Food Inspection Agency — *Ottawa, ON*

- Reduced cloud infrastructure costs by **15%** by refactoring redundant API endpoints using **Azure DevOps**, enhancing efficiency of resources such as Azure Data Factory (ADF), Logic Apps, Azure Functions