

ACHYUT NIROULA

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Education

Nipissing University

Bachelor of Computer Science | GPA: **3.7/4.0**

Expected Graduation: **May 2026**

North Bay, ON

Relevant Coursework: Distributed Systems, Artificial Intelligence, Cloud Computing, Data Structures, Algorithms

Work Experience

Nipissing University

Research Assistant

May 2023 - Aug 2025

North Bay, ON

- Designed and deployed 8+ full-stack research platforms using **React, Angular, Python, and Firebase**, serving 2,000+ active users and reducing data processing time by **65%** through algorithmic optimization
- Implemented data visualization dashboards with **Chart.js** that increased analytical accuracy by **40%**, enabling real-time trend analysis for 15+ concurrent research projects
- Authored 25+ technical documentation reports using **LaTeX** and **Markdown**, streamlining knowledge transfer and saving **50+ hours** of onboarding time per semester

Projects

AI Video Processing Cloud Platform | *In Progress* | *Python, YOLOv8, OpenCV, FastAPI, AWS, Docker*

- Building a **CPU-only, cloud-native real-time video analytics system** with <2s detection latency using event-driven pipelines and containerized inference workers
- Implementing optimized object detection, live WebSocket overlays, and analytical dashboards, achieving **3–5× cost efficiency** via frame throttling and stateless processing

Cloud Chat - Distributed Real-Time Messaging System | *Java, Firebase, WebSocket, Maven*

- Architected distributed messaging platform using **Firebase Realtime Database** with eventual consistency model, achieving **<150ms** latency for 500+ concurrent users across 3 geographic regions
- Implemented WebSocket-based synchronization with role-based access control and multi-line emoji support, improving user engagement by **45%** while maintaining 99.9% uptime
- Deployed cloud-native infrastructure on **Google Cloud Platform** with auto-scaling capabilities, reducing server costs by **\$8,500 annually** through optimized resource allocation

Niroula's Landscaping - Cloud Inventory Tracker | *Flask, Firebase, Cloud Run, Docker*

- Engineered serverless inventory management system on **Google Cloud Run** with **Flask backend** and **Firebase**, processing **10,000+** monthly transactions with **<200ms** response time
- Integrated **Cloudinary CDN** for image optimization and **Chart.js** analytics, increasing inventory accuracy by **52%** and reducing manual reporting time by **15 hours/week**
- Secured application with role-based authentication and HTTP-only cookies, preventing **100%** of attempted unauthorized access attempts during penetration testing

Professional Portfolio Website | *Next.js, React, TypeScript, Firebase Hosting*

- Built responsive portfolio with **Next.js 14** and **WordPress REST API** integration, achieving **95+ Lighthouse** performance score and **<2s** load time on mobile devices
- Deployed on **Firebase Hosting** with global CDN, serving **1,200+** monthly visitors and reducing bounce rate by **38%** through optimized UX design