

DESCARTES TUYISHIME

☎ (845) 224-1108 ✉ tuyishime.descartes@outlook.com [in linkedin.com/in/tdescartes](https://www.linkedin.com/in/tdescartes) github.com/tdescartes tdescartes.dev

Education

Marist College

Graduated May 2025

Bachelor of Science in Computer Science; Minor in Math, IT, and IS

Poughkeepsie, NY

- **Coursework:** Internetworking, Computer Org & Architecture, Operating Systems, Database Management, Data Structures & Algorithms, Quantum Algorithms, Data Mining & Predictive Analysis, ML, Probability & Statistics
- **Certificate:** Machine Learning Specialization, Deep Learning Specialization, Document AI: From OCR to Agentic Doc Extraction, Agent AI (DeepLearning.AI), IBM DevOps & Software Engineering (IBM), Front End Web Development Nanodegree (Udacity)

Technical Skills

Languages: Python (Django), C, C++, Java, SQL, HTML/CSS, JavaScript (TypeScript, Next.js), React

Tools: AWS (S3, Lambda, Bedrock), Git, Linux, Docker, Kubernetes, PostgreSQL, MongoDB, Redis, PostHog, ESP32, UART/I2C

Libraries & Frameworks: FastAPI, FreeRTOS, TensorFlow, Scikit-learn, Pandas, NumPy, LangChain, ReportLab, Eleventy

Experience

Microsoft Corporation

May 2022 – August 2022

Software Engineer Intern

Redmond, WA

- Engineered a TypeScript Azure Function Prototype solution, streamlining API definition to Azure Function conversion and reducing deployment time
- Developed and deployed the TypeScript developer documentation website using Eleventy, supporting its public release
- Integrated CI/CD Azure Pipelines for website deployment and added TypeScript Playground for interactive API testing
- Implemented OpenAPI to Swagger UI conversion feature on TypeScript Playground for in-browser API testing

Marist College Web Services

June 2021 – February 2022

Student Software Developer

Poughkeepsie, NY

- Developed static web pages and Java portlets on the Marist Magazine site using HTML, CSS, JavaScript, and Java
- Conducted cross-device testing to improve user experience for 10,000+ monthly visitors and updated user documentation

Projects

ThermaGuard | *ESP32, FreeRTOS, C++, Python, UART, I2C, CRC-8*

February 2026 – March 2026

- Built an ESP32 monitoring system tracking CPU, memory, and thermal metrics at sub-10ms latency, zero host overhead
- Engineered a 7-byte binary packet protocol with CRC-8 checksums over UART, reducing bandwidth 83% over JSON alternatives
- Implemented dual-core FreeRTOS with interrupt-driven I/O, assigning Core 0 to serial ingestion and Core 1 to OLED rendering
- Added hardware watchdog auto-recovery and graceful signal-loss degradation for fault-tolerant operation
- Computed thermal delta (Delta-T) between CPU and ambient sensors for real-time cooling performance analysis

Poruta | *Next.js, React, FastAPI, NVIDIA Triton (gRPC), PostgreSQL, MongoDB, Qdrant, Celery, MinIO* **October 2025 – Present**

- Developed an AI-powered customs clearance platform automating document processing, tariff classification, and tax calculation
- Built NVIDIA Triton inference pipeline for document OCR, HS code classification, and LLM reranking via Qdrant vector search
- Orchestrated Celery task queues over Redis to chain OCR, extraction, and classification stages across GPU workers
- Integrated PostgreSQL, MongoDB, and MinIO object storage with role-based access control and audit logging

SheltRise | *React (TypeScript), FastAPI, PostgreSQL, AWS (S3, Lambda, Bedrock), Stripe API, PostHog*

August 2025 – Present

- Developed a property management platform to automate tenant management, leasing, rent collection, and maintenance tracking
- Engineered a maintenance ticketing system with image upload pipeline using AWS S3 presigned URLs for tenant repair requests
- Integrated PostHog analytics, Stripe API for rent processing, and ReportLab to generate PDF rent receipts and reports
- Built an AI Lease Assistant using AWS Bedrock and RAG, enabling tenants to query lease agreements in natural language
- Developed AI lease agent with AWS (S3, Lambda, Bedrock) and LandingAI ADE to process tenant documents and generate leases

xCompiler – 6502 Microprocessor | *TypeScript, Finite Automata, Recursive Descent Parsing*

January 2025 – May 2025

- Built a TypeScript lexer with finite automata and regex to tokenize BNF grammar (blocks, vars, assignments, if/while, exprs), handling comments and multi-program EOP markers
- Implemented recursive descent parser for token validation, generating pretty-printed CSTs on success; skipped output on errors
- Added error/warning diagnostics (location, cause, suggested fixes) for lex/parse issues like unterminated comments with verbose debug traces

PathOS | *TypeScript, HTML5 Session Storage, Round-Robin Scheduling*

September 2023 – December 2023

- Developed a browser-based operating system in TypeScript with real-time CPU, memory, and process management visualization
- Implemented Round-Robin scheduling, a custom file system using HTML5 session storage, and virtual memory swapping