

Mikhail Madarang

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EDUCATION

University of the Philippines Manila

Bachelor of Science in Computer Science, Major in Health Informatics

City of Manila, Philippines

Expected July 2028

SKILLS

Languages: Python, Go, SQL

Frameworks & Libraries: scikit-learn, XGBoost, GraphQL (gqlgen, Apollo Federation), GORM

Tools & Technologies: Git, GitHub, SQLite, Proxmox, Figma, VS Code

EXPERIENCE

Cloud / Systems Engineer Intern

Enov8tive Technology Solutions Inc.

Jun 2026 – Aug 2026

Taguig, Philippines

- Provisioned VMs on Proxmox and deployed NethServer instances to establish Samba Active Directory/Domain Controller infrastructure, implementing GPOs (drive/print restrictions, roaming profiles) and XFS user quotas (50GB) across 25 domain users; authored a bash script automating domain user creation with quota assignment
- Centralized company network by configuring a TP-Link Omada gateway and reconfiguring mesh access points under the new subnet, performing Ethernet and Starlink cabling and verifying end-to-end connectivity; produced network documentation including diagrams and blueprints
- Extended a federated GraphQL API (Go, gqlgen, Apollo Federation) with branch-level filtering across 4 analytics queries using @inaccessible directives, implemented a new GraphQL query with SQL joins, and fixed a GORM table-inference bug, writing 5 unit tests to verify backward compatibility
- Designed Figma mockups revamping the Patient Chart, Initial Consultation, and Patients Tab modules using company brand assets, including field validation enhancements for MD Notes

PROJECTS

fhir-interop: FHIR R4 Interoperability Pipeline

Aug 2026 – Present

- Designed a layered FHIR R4 interoperability pipeline in Go implementing HL7v2-to-FHIR conversion and Bundle ingestion across Patient, Encounter, and Observation resource types, with terminology validation against tx.fhir.org using a fail-open strategy
- Persisted normalized FHIR resources to PostgreSQL via GORM and exposed a GraphQL query API (gqlgen) enabling structured retrieval of patient encounter and observation data
- Built a live pipeline visualizer using Server-Sent Events (SSE) for real-time ingestion progress and a CLI batch ingest tool, validated with a concurrent test suite using `go test -race`

Mouse Protein Expression Classifier (CMSC 177 Research Project)

May 2026

- Built an 8-class supervised classification pipeline on the Data_Cortex_Nuclear dataset (1,080 samples, 77 cortical protein expression features) to predict mouse behavioral class from protein levels, addressing a research gap in the source paper which only applied unsupervised SOM clustering
- Designed a preprocessing pipeline with per-class mean imputation for missing protein values (up to 26.4% missingness in some columns) and StandardScaler normalization, replicating the imputation strategy from the original study to maintain comparability
- Trained and compared multiple classifiers including Decision Tree (baseline), Random Forest, SVM, and XGBoost using stratified 5-fold cross-validation on an 80/20 stratified train-test split, evaluated on accuracy, macro/weighted F1, and confusion matrices
- Performed feature importance analysis on the best-performing model and cross-referenced top predictive proteins against the 11 proteins identified as critical to learning by the original SOM-based study

xferDx: MobileRIS (Radiology Information System)

Sep 2025 – Jan 2026

- Integrated browser-based DICOM medical image viewer using Cornerstone.js, enabling radiologists to analyze X-rays and CT scans directly in web interface with interactive pan, zoom, and window/level controls
- Built multi-step DICOM upload workflow with file validation, metadata extraction, and automatic organization by patient ID, supporting 100MB file uploads across 5 radiology procedure types
- Developed radiologist review dashboard centralizing pending studies with status tracking (Pending, In Review, Completed, Rejected), clinical history documentation, and reviewer timestamps
- Implemented procedure scheduling system with automated study ID generation based on patient initials and priority classification (Routine, Urgent, STAT) for workflow optimization
- Designed file attachment system supporting multiple file types (DICOM, images, documents) with automatic categorization and media storage management organized by patient