

KARTIKEY SANKHDHER

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EDUCATION

Bachelor of Science in Computer Science | University of Georgia
3x President's List | STEM Scholar (5-campus selection)

May 2024

PROJECTS

VetFlow - AI Workflow Automation Agent vetflow.kartikey.io Python, Playwright, Ollama, LLM APIs

- **Built a local automation harness** that streamlines veterinary radiology case entry by extracting patient data from EMR and populating teleradiology forms, **accelerating workflow by 20% across 40+ daily cases**
- Integrated local LLM (Ollama) for natural language intent parsing with deterministic Playwright browser automation; scripted workflows over LLM-driven navigation for reliability, keeping all patient data on-device for HIPAA compliance

Zypher - Discreetly Embed Audio Inside Any Image zypher.kartikey.io Next.js, TypeScript, FastAPI, Python

- **Designed full-stack web platform** that hides audio and voice messages inside images using LSB encoding, splitting 16-bit audio samples across R+G channels while preserving blue channel for visual fidelity
- Built a **FastAPI** microservice to handle encode/decode/capacity operations, separated from Next.js frontend for independent scaling

Dicomizer - Clinical Video-to-DICOM Converter dicomizer.kartikey.io C#, WPF, FFmpeg, fo-dicom

- Engineered .NET application converting endoscopy/arthroscopy video into standards-compliant DICOM objects; **no commercial solution existed** for this use case, saving the hospital **~\$10K in equipment and licensing costs**
- **Implemented frame extraction pipeline** with H.264 BD-compatible encoding and standards-compliant metadata handling; running in production at university veterinary hospital

GhostAuth - Zero-Knowledge Proof Auth Demo ghostauth.kartikey.io Next.js, TypeScript, snarkjs

- **Built ZKP authentication system** where client generates Groth16 proofs from SHA-256 hashed credentials and server verifies proof structure without ever receiving plaintext passwords
- Implemented 5-minute proof expiry and client-generated nonces as part of the verification flow; built split-screen UI visualizing **real-time proof generation vs. server-side verification**

EXPERIENCE

Software Systems Coordinator July 2024 – Present

Veterinary Teaching Hospital, University of Georgia – Athens, GA

- Engineered ImageToDicom - multi-format (JPEG, BMP, PNG, PDF) to DICOM converter with **no commercial equivalent, reducing a 4-hour manual process to 15 minutes**
- Built PixBurn - DICOM annotation tool that burns text, arrows, and shapes directly into pixel data for permanent markup, **eliminating dependency on viewer-specific overlays**
- Designed video-to-DICOM conversion pipeline enabling non-standard data sources to integrate with enterprise storage, **reducing storage by ~67% (~500 GB annually)** through pre-archive video processing
- Led SQL Server migration from database mirroring to Always On Availability Groups across multi-node architecture, **eliminating recurring production outages (~2/month → 0 for 8+ months)**
- Integrated 20+ networked devices using DICOM and HL7 protocols across a **distributed multi-site clinical network**; diagnosed interface failures at the protocol message level to restore system communication

IT Professional Assistant March 2023 – May 2024

Enterprise Information Technology Services, University of Georgia – Athens, GA

- **Resolved 4,000+ service tickets** in enterprise environment serving 35,000+ users; administered identity lifecycle operations and access management using AD

Undergraduate Research Assistant September 2021 – July 2022

Intelligent Systems Lab, Georgia State University – Atlanta, GA

- Developed and deployed a Python-based AI assistant on a **Debian Linux Turtlebot3 platform** for **autonomous robotic operation and natural language voice interaction**
- Modified open-source Android application to enable remote teleoperation, **reducing setup time by 20%**; presented to university leadership, **contributing to \$1M in research funding**

TECHNICAL SKILLS

- **Languages:** Python, C#, JavaScript/TypeScript, SQL, Java, C++
- **Frameworks & Tools:** React, Next.js, FastAPI, Node.js, Express, WPF/.NET, Playwright, FFmpeg, snarkjs, Git
- **Infrastructure:** SQL Server (Always On AG), Linux (Debian/Ubuntu), Google Cloud, Windows Server, AD, CI/CD
- **Domains:** Generative AI, LLM Integration, Distributed Systems, AI/Machine Learning, Cryptography (ZKP, Steganography), Security, Web Application Development