

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, TypeScript, Java, Go

Databases: RDBMS (PostgreSQL, MySQL, Oracle), NoSQL (MongoDB, Redis)

Cloud Technologies: Amazon Web Services (AWS), Google Cloud Platform (GCP)

Frontend UI Frameworks: HTML 5, CSS 3, Tailwind CSS, SCSS, React.js, Redux, Next.js, Material UI, Vercel

Backend & API Frameworks: JSON, Node.js, Express, Django, Flask, FastAPI

ML Frameworks: NumPy, SciPy, Pandas, Matplotlib, Seaborn, PyTorch, TensorFlow, Keras, OpenCV, Mahotas

Other Tools: Git, GitHub, Postman, Poetry, PyTest, JUnit, Apache Kafka, Docker, Kubernetes, Terraform, Jenkins (CI/CD), Elasticsearch

PROJECTS

AstreaJobs: Streamlining Job Search & Networking Process

<https://astrea-jobs.vercel.app>

Dec 2024

Stack: TypeScript, React.js 19, Next.js 15, Tailwind CSS, shadcn/ui, Lottie Web Animations, Vercel

- Engineered a comprehensive job tracking dashboard using TypeScript, React v19, and Next.js 15, implementing modular design patterns that reduced code duplication by 40%.
- Developed an interactive interface with Kanban, table, and timeline views using Tailwind CSS and shadcn/ui, enabling streamlined application management with advanced filtering capabilities.
- Built a real-time analytics platform featuring automated interview tracking, document management, and interactive heat maps to visualize application metrics and networking outreach.

Lock & Load: AI-Powered Image Encryption

Oct 2024

Stack: Python, Flask / FastAPI, Google Cloud, NumPy, Pandas, Mahotas, Scikit-Image

- Developed a robust image encryption system using Python, NumPy, and OpenCV, implementing vectorized algorithms and computer vision techniques to securely process sensitive images before cloud storage.
- Engineered a FastAPI-based web service integrated with Google Drive API, enabling automated encryption-decryption workflows and secure file management while preventing direct exposure of sensitive data in third-party storage.

Project FlyEM

<https://pypi.org/project/flyem-segmentation-pipeline/>

May 2023

Stack: Python, NumPy, Pandas, Keras, PyTorch, Mahotas, MVC, Machine Learning, Computer Vision, GitHub, Anaconda, PyPi

- Achieved 94% accuracy detecting hexagonal shapes by developing Keras U-Net ML segmentation pipeline, upgraded from traditional CV algorithms, improving computational efficiency by 50% in 10k image microscopic dataset.
- Implemented an MVC architecture and CI/CD pipeline with automated PyTest validation for image processing functions, ensuring reliable segmentation quality, improving the development times by 44%.

PUBLICATIONS

VPASS: Voice Privacy Assistant System for Monitoring In-home Voice Commands ([Publication Link](#))

Aug 2023

Stack: Python, BERT, Sentence Transformers, NLTK, NumPy, Pandas, PyTorch

- Engineered a voice privacy protection system (VPASS) utilizing 1D CNN and BERT Sentence Transformers to detect and prevent sensitive information leakage in voice-activated devices.

Chaotic Based Adaptive Inter Planar Confusion for Color Images ([Publication Link](#))

Jan 2020

Stack: Python, Pandas, NumPy, POB-Number System, OpenCV, Matplotlib

- Implemented an advanced encryption system using chaotic number theory and color plane manipulation, featuring inter-planar confusion and diffusion algorithms across RGB channels, built with Python and Pandas.

Tamper Detection of Medical Images Using Modified Hashing Algorithm ([Publication Link](#))

Oct 2019

Stack: Python, NumPy, Pandas, Mahotas, Image processing

- Developed a robust data integrity system utilizing SHA-256 hashing and region-based watermarking techniques, implementing secure tamper detection and automated recovery mechanisms using Python and Pandas.

Recursive Orthogonal Diffusion for Deeper Encryption of Color Images ([Publication Link](#))

Mar 2019

Stack: Python, NumPy, Pandas, OpenCV, Matplotlib, Image Processing, Information Security

- Engineered a novel image encryption algorithm using DNA-based diffusion and pixel decorrelation techniques, implementing the solution in Python and OpenCV to achieve enhanced security and data protection.