AYUSH JUVEKAR

Email: aajuveka@mtu.edu | **Phone:** +1 (906) 299-4314 | **LinkedIn:** linkedin.com/in/ayushjuvekar
GitHub: github.com/AyushJ1001 | **Portfolio:** ayushjuvekar.com

EDUCATION

Michigan Technological University, Houghton, MI · **GPA: 3.88/4.0**
M.S. Computer Science · Expected Spring 2026

Pune Institute of Computer Technology, Pune, India · **GPA: 8.14/10**
B.E. Computer Engineering · June 2024

TECHNICAL SKILLS

Languages: Python, JavaScript/TypeScript, Java, C++, Go, Rust, C# | **Frontend:** React, Next.js, TailwindCSS, shadcn/ui |
Backend: Node.js, Express.js, Prisma ORM | **Databases:** PostgreSQL, MongoDB | **ML/AI:** TensorFlow, Scikit-learn,
OpenCV, NumPy, Pandas | **DevOps:** Docker, Git, Vercel, Linux | **IoT:** Arduino, MQTT, Zigbee | **Auth:** Clerk, JWT

PROJECTS

YayCamp - Full-Stack Camping Platform | *Next.js, TypeScript, Prisma, PostgreSQL* | yaycamp.ayushjuvekar.com
- Architected full-stack app with Next.js 14 SSR and Clerk authentication managing 100+ users, reducing page load time 40%
- Designed PostgreSQL schema with Prisma ORM and React Leaflet mapping, optimizing queries by 30% and achieving 99.9% uptime

MonkeyLang-CS - Programming Language Interpreter | *C#* | github.com/AyushJ1001/MonkeyLang-CS
- Implemented complete lexer, parser, and tree-walking interpreter supporting functions, closures, and first-class functions
- Built REPL environment with 95%+ test coverage across lexical analysis, parsing, and evaluation modules

Anomaly Detection in Crowd Surveillance | *Python, TensorFlow, Edge Computing* | CVBDSL Lab
- Trained CNN achieving 92% accuracy on 10K+ frames; optimized with TensorFlow Lite reducing inference time 73% on Jetson Nano
- Deployed real-time pipeline processing 720p at 25 FPS across 5 edge devices, cutting cloud costs 85% and response time 40%

Particle Vibration Analysis System | *Python, OpenCV, ZED Cameras* | Michigan Tech Research
- Developed CV system tracking 50+ particles at 60 FPS with sub-mm precision using stereo cameras and 3D data pipeline
- Applied statistical analysis correlating motion patterns with vibration frequencies, reducing manual analysis time 75%

Secure Data Analytics with Homomorphic Encryption | *Python, CKKS, Docker* | CVBDSL Lab
- Built privacy-preserving pipeline using CKKS encryption for healthcare data, achieving 98% accuracy with HIPAA compliance
- Containerized modules with Docker, streamlining deployment and improving processing efficiency 25%

IoT Air Quality Monitoring System | *C++, Arduino, MQTT, Python* | **Published: ESCI 2023**
- Engineered CO monitoring system with MQTT protocol, reducing detection time 35% via ML predictive alerts
- Presented at ESCI 2023 Int'l Conference; improved accuracy 20% through Kalman filtering and Zigbee mesh network

Ranking App - Tournament Bracket System | *TypeScript, React, Redis* | ranking.ayushjuvekar.com
- Created bracket app with decision-time-weighted scoring algorithm; implemented real-time Redis persistence for multi-device sync

EXPERIENCE

Teaching Assistant - Physics Department | Michigan Technological University · Sep 2024 - Present
- Facilitate learning for 60+ students in PH 2100/2200; developed Python automation reducing admin work 20 hours/semester
- Conduct tutorials improving average exam scores 15%; collaborate with faculty on course materials and assessments

PUBLICATIONS

A. Juvekar et al., "Carbon Monoxide Concentration Monitoring System," *ESCI 2023*, DOI: 10.1109/ESCI56872.2023.10100144

AWARDS

2nd Place PICT InC 24 (Data Structures) | **Conference Presenter** ESCI 2023 | **Mathex & MSCE Scholarships**
2021-2024