Aryaman Dora Tepal

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Education

University of Massachusetts Amherst   Expected Graduation: 05/2027
BS in Computer Science & Applied Mathematics, Commonwealth Honors College   *GPA: 3.90 / 4.0*
- **Relevant Coursework:** Data Structures, Algorithms, Robotics, Databases, Computer Architecture, Systems
- **Leadership:** President at UMass AI Club (2024–Present), Resident Assistant, UMass Run Club

Experience

SciQuel   May 2025 - Sep 2025
Software Engineer Intern | Github | TypeScript, Next.js, React.js, Prisma, Tailwind, Next-Auth   *Remote*
- Built Next.js microservices for contributor data ingestion/retrieval, managing 10K+ records across distributed databases with Prisma ORM.
- Re-architected database schema to improve query latency by 40% and integrated Next-Auth + JWT for secure authentication.
- Deployed production features via CI/CD pipelines (GitHub Actions), collaborating with designers to deliver reusable React components that increased velocity by 25%.

Build UMass   Feb 2025 - May 2025
Software Engineer | TypeScript, FastAPI, FAISS, LangChain   *Amherst, MA*
- Optimized backend performance using FastAPI + GraphQL, reducing response times by 40% while sustaining 20+ concurrent queries per second.
- Developed RAG pipelines with an in-memory FAISS vector store and LangChain for low-latency contextual answering of legal documents.
- Designed async caching and batching logic to stabilize throughput and minimize redundant API calls under variable workloads.

Nursing & Engineering Lab   Sep 2025 - Dec 2025
Research Software Engineer | C, Embedded Systems, Microcontrollers, Signal Processing   *Amherst, MA*
- Architected C embedded firmware for real-time EMG signal acquisition and filtering to power wearable robotic devices.
- Designed modular, low-latency firmware optimized for battery efficiency and precise sensor/actuator timing control.
- Integrated hardware/software stacks to enable scalable, reproducible experimentation for robotic rehabilitation research.

Forschungszentrum Jülich   May 2025 - Aug 2025
Machine Learning Engineer Intern | Python, PyTorch Lightning, MLflow   *Jülich, Germany*
- Constructed distributed geospatial-model training pipelines on HPC clusters using PyTorch Lightning and MLflow, scaling to multi-terabyte hyperspectral datasets.
- Automated job scheduling with SLURM scripts and containerized environments, cutting setup time by 70% and ensuring reproducibility.
- Fine-tuned foundation models for satellite imagery; applied mixed-precision inference for 30% faster throughput.

Projects

Moments | *Next.js, TypeScript, Redis, Neon Postgres, Framer Motion, Leaflet*
- Architected a serverless media platform using Next.js 16 App Router, featuring a multi-layered data strategy with Upstash Redis edge-caching and Neon Postgres for high-speed persistence.
- Optimized data retrieval by implementing cursor-based pagination and infinite scroll, leveraging a high-performance read path to minimize database latency.
- Decoupled heavy background operations—including image processing and ISR revalidation—from the request cycle to ensure non-blocking UI interactivity and sub-100ms response times.

Skills

Programming Languages: TypeScript, JavaScript, Python, GoLang, C/C++, Java, R, MATLAB
Frameworks and Tools: React, Redux, Next.js, PHP, FastAPI, Flask, Express, Node.js, PyTorch, TensorFlow, Pandas, NumPy
DevOps & Infra: AWS, Google Cloud, PostgreSQL, MongoDB, Git, Docker, MySQL