Krishnadas Nair

Boston | xxx-xxxxxxx | nair.kri@northeastern.edu | LinkedIn | GitHub | Available: Spring 2026 & Summer 2026

Education

Northeastern University, Boston, MA — Jan. 2025 – Present
Khoury College of Computer Sciences — Expected graduation: May 2027
Candidate for a Master of Science in Computer Science — GPA: 3.78/4.0
Related courses: Computer Systems, Fundamentals of Computer Networking, Algorithms

National Institute of Technology Tiruchirappalli, Trichy, India — Graduated: Aug 2024
Bachelor of Science in Computer Science and Engineering
Related courses: Operating Systems, Compiler Design, Data Structures, Databases, Software Engineering

Skills

Languages: C++, Go, Python, Java, TypeScript
Frameworks & Libraries: React, TailwindCSS, Spring Boot, Node.js, Express
DevOps & Systems: Docker, SLURM, Nginx, Git, Bash, Linux, CI/CD
Cloud & Networking: AWS (S3, RDS, EC2), REST APIs, WebSockets, TCP/UDP, Socket Programming
Databases: PostgreSQL, MySQL, MongoDB
AI/ML: PyTorch, Scikit-learn, NumPy, Pandas

Experience

Network Science Institute, *Boston, MA (Barabási Lab - Foodome Project)* — June 2025 – Present
Systems Engineering Intern

- Built data pipeline for 20+ food compounds across 3 metabolomics databases with inconsistent upload formats, processing 400+ studies and 50GB+ of mass spectrometry data
- Designed automated filtering: custom scrapers → GPT-4 study classification → MS^2 detection → SIRIUS compound identification, reducing manual review by 80% per food item
- Collaborated with researchers to identify study attributes (spectrometry parameters, sample types) that improve GPT-4 accuracy for raw vs. processed food classification
- Automated SIRIUS workflows on HPC clusters using SLURM, optimizing database filtering to reduce runtime by 40%

Cryptography Lab – NIT Trichy, *Tiruchirappalli, India* — Jan 2024 – May 2024
Undergraduate Researcher

- Built block cipher using reversible cellular automata with 3-person research team
- Implemented multithreaded encryption in C++, achieving 15% performance improvement through parallel processing
- Co-developed algorithm to decrypt without storing exponential cycle data, enabling linear-time decryption
- Passed NIST cryptographic validation tests; co-authored Springer publication (ACRI 2024)

NLP and AI – NIT Trichy, *Tiruchirappalli, India* — May 2023 – Aug 2023
Undergraduate Researcher

- Built CNN-BiLSTM classifier for identifying salient sentences in Indian legal documents, applied adaptive data augmentation to address class imbalance in multi-label classification resulting in a 20% accuracy gain; published our findings in Springer's journal Evolving Systems 2025
- Demonstrated 300x model size reduction (1.35MB vs 417MB) and 9x faster inference compared to transformer baselines while maintaining comparable domain-specific classification performance

Projects

DNA Sequence Analysis Web Platform| *TypeScript, React, FastAPI (Source Code)* — July 2025 – Present

- Productionized bioinformatics Python scripts into web API serving 16,000+ visitors in 72 hours
- Created React frontend with one-click workflows for non-technical researchers
- Built REST API with input validation and error handling for 10+ analysis functions.
- Handled 5,000+ daily API calls on free-tier infrastructure
- Achieved viral growth through research community (30K LinkedIn impressions)

KDTransfer | *Go, Typescript, WebRTC (Source Code)* — April 2025 – Present

- Built peer-to-peer file sharing system with rendezvous server architecture achieving 17MB/s local transfer
- Designed session-based pairing using 8-character alphanumeric codes for secure peer discovery
- Implemented direct TCP connections between peers after initial server-mediated handshake
- Developed custom binary message protocol with opCode-based framing for reliable data transmission
- Built communication server for peer registration and IP/port resolution before direct connection establishment

Publications

- **"Adaptive Data Augmentation for Salient Sentence Identification in Indian Judicial Decisions"** – Evolving Systems, Springer 2025
- **"A Scheme for Symmetric Cryptosystem Using Large Cycle Reversible Cellular Automata"** – ACRI 2024, Springer