Prajesh Kumar Ganesh Kumar

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EDUCATION

New York University, Courant Institute of Mathematical Sciences Sep 2025 – May 2027
Master of Science, Computer Science | GPA: 3.72/4.0 New York, USA
Coursework: Building LLM Reasoners, Algorithms, Programming Languages, Machine Learning, Compilers, Operating Systems

Teaching Assistant - Parallel Computing Jan 2026 – Present
- Designed and led weekly review sessions for 100+ students covering OpenMP, MPI, and CUDA, guiding optimization of parallel algorithms for multi-core and GPU architectures.

Member, NYUSEC CTF Team — OSIRIS Lab Sep 2025 – Present
- Contributed to software security research and built challenge infrastructure for CSAW '25 using Terraform and AWS, serving 1,000+ participants.

Vellore Institute of Technology Jul 2019 – May 2023
Bachelor of Technology, Computer Science and Engineering | GPA: 3.84/4.0 Vellore, India

TECHNICAL SKILLS

Languages: Python, C/C++, Java, C#, JavaScript, OCaml

Frameworks: .NET, FastAPI, React, Node.js, OpenMP, CUDA, MPI, LangChain, LLVM

Infrastructure & Cloud: AWS, Terraform, Docker, Azure DevOps, GitHub Actions, Linux, CI/CD, SonarQube, Kubernetes

Databases: SQL, PostgreSQL, SQLite, MongoDB, MS SQL Server

EXPERIENCE

Amazon Jun 2026 – Aug 2026
Software Development Engineer Intern Seattle, WA, USA
- Built two admin-facing surfaces: a per-user grant inventory and an instance-wide Grants Console, enabling admins to audit temporary resource-scoped access without CLI scripts or backend log diving.
- Navigated AWS IAM policy constraints and Amazon Connect's authorization model to enforce least-privilege access for the Dynamic Grants feature, ensuring each admin sees only the grant data their role permits.

Shell India Markets Pvt Ltd Aug 2023 – Jul 2025
Associate Software Engineer Bengaluru, India
- Developed a Project Onboarding service using Java/Apex, reducing artifact setup time by 85% (3 weeks to 3 days) and saving an estimated $70K annually across capital projects.
- Built an end-to-end CI/CD pipeline integrating SonarQube, Azure DevOps, and GitHub Actions for a full-stack .NET application, enforcing automated unit testing and code quality gates that cut deployment cycles from 4 hours to under 1 hour.
- Designed and implemented a Role-Based Access Control (RBAC) system and secure REST APIs in C#, identifying and remediating 12 security vulnerabilities (4 critical-severity) in a commissioning data platform serving 5+ business units.
- Migrated 50K+ records from legacy MS Access to SQLite, redesigning the storage schema and data-access layer to optimize read/write patterns, achieving a 3x query performance improvement while eliminating licensing dependencies.

PROJECTS

MiniTensorCompiler | C++, LLVM/MLIR GitHub
- Built an MLIR-based compiler for a tensor expression language in C++, implementing a custom dialect with progressive lowering through Linalg on Tensors to LLVM IR, supporting both native code generation and JIT execution.
- Engineered three optimization passes over the custom dialect: operator fusion for single-use producer/consumer chains, constant folding for tensor fill operations, and static shape inference that catches dimension mismatches before lowering.

AnyLang - Multi-Language Compiler Toolchain | OCaml, RISC-V, Assembly GitHub
- Built a multi-stage compiler toolchain in OCaml using functional programming paradigms, implementing a pipeline from a statically typed ML-like language through Scheme-ish and C-ish intermediate representations down to RISC-V machine code, including lexing, parsing, type checking, and code generation at each stage.
- Implemented control-flow graph analysis with dataflow optimizations and a RISC-V instruction simulator for end-to-end validation of compiled output across 4 compilation stages.