

# Abhilash Nambissan

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## Education

### Rutgers University - New Brunswick

Master of Science in Computer Science (GPA: 4.00 / 4.00)

Aug 2023 - Present  
New Brunswick, New Jersey

- **Relevant Coursework:** Operating Systems Design, Operating Systems Theory, Computer Networks.
- **Research:** Near-memory computing at Rutgers Systems Research Lab.
- **Teaching:** Part Time Lecturer + Teaching Assistant for CS518 Operating Systems Design.

### VIT University

Bachelor of Technology in Computer Science (GPA: 3.75 / 4)

Jul 2014 - May 2018  
Vellore, India

- **Relevant Coursework:** Algorithms, Computer Architecture, Operating Systems, Microprocessors, Computer Networks, Database Systems, Compilers.

## Experience

### VMware

Member of Technical Staff 2

Mar 2022 – Aug 2023  
Bangalore, India

- Designed and implemented several Kubernetes custom resources (CRDs) and controllers for the Tanzu Mission Control platform control plane, for lifecycle management of multi-cloud multi-cluster Kubernetes infrastructure.
- Developed APIs to enable users to provision Kubernetes clusters in AWS and Azure accounts directly from the Tanzu Mission Control platform.
- Overhauled the Package Deployment feature to enable support for recent Kubernetes versions, while maintaining backward compatibility for existing customers. This allowed customers to upgrade the K8s versions on their clusters with zero disruption to their deployed applications.
- Go (Golang), Kubernetes, Docker, PostgreSQL, AWS, Azure, Jenkins

### McKinsey & Company

Software Engineer 1

Jan 2020 – Mar 2022  
Bangalore, India

- Redesigned the architecture of a job queue system of a cloud-based e-learning platform by transitioning from self-managed queues to AWS, which enabled processing of 10x more jobs than before.
- Ported several Python backend services to the new design and delivered it with zero downtime to the services.
- Reduced the memory consumption of the queue worker processes by 70% using performance and dependency analysis.
- Python, Terraform, Redis, PostgreSQL, Vault, AWS, Docker

### McKinsey & Company

Junior Software Engineer

Jan 2018 – Dec 2019  
Bangalore, India

- Developed and optimized a microservice for splitting and sequencing of user tasks into small jobs, and scheduling jobs across multiple job queues, which enabled tasks to be completed 5-10x faster.
- Developed an automated API service for an e-learning course creation app which reduced the timeline for creating a course from 1 day to a few minutes.
- Developed CI/CD pipelines to enable automated builds, tests, containerization and continuous delivery of all microservices.
- Node.js, React.js, Redis, AWS, Docker

## Projects

### Linux OS modules | C, Linux Kernel

- Implemented a software TLB based on contiguous extents in the Linux kernel, and cooperative scheduling in the Linux CFS scheduler.
- Built a user-level virtual memory manager, translation lookaside buffer (TLB), user-level file system, and a user-level threading library and MLFQ scheduler.

### TCP Congestion Control | C, TCP protocol, Linux Kernel

- Implemented a cooperative congestion control algorithm for the TCP protocol, as a Linux kernel module.

### Monitoro | Redis, Node.js, React, HTML/CSS, Bull

- Web dashboard for monitoring distributed Redis-based Bull message queues.

### Log Archive Parser | Go, Elasticsearch, Kibana, Docker, AWS S3

- Extract logs matching specific queries from archived logs on AWS S3 and load into a new Elasticsearch + Kibana container.

## Technical Skills

**Languages:** Go (Golang), C, Python, JavaScript, TypeScript, SQL, HTML, CSS

**Technologies:** Kubernetes, Kubernetes API, Docker, Linux kernel, REST APIs, gRPC, Terraform, Node.js, React.js, Redux, React Native, PostgreSQL, MySQL, Redis, Flask, Git, AWS, Azure, CircleCI, Jenkins, Jira

**Concepts:** Systems Programming, Operating Systems, Virtual Memory, File Systems, Caching, Containers, Databases (SQL and NoSQL), Cloud Computing, CI/CD, Web Development, Full Stack Development, Backend, Frontend, Agile Methodology

**Certifications:** Certified Kubernetes Application Developer (CKAD), AWS Solutions Architect Associate