Chakshu **Tandon**

SOFTWARE ENGINEER · DEVOPS ENGINEER

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Work Experience

Sirius XM Radio, Inc.
New York, NY

DEVOPS INTERN — *Jun 2019 - Aug 2019*

- Built full-stack automation tool for enterprise user management and reporting. Deployed to Atlassian products achieving simpler policy control.
- Implemented Rundeck jobs for self-service report generation.
- Identified and patched an API performance regression in high-traffic application due to sequential database queries. Contributed to testing suite to avoid future regressions.
- Wrote selenium script to automate JIRA project management using tickets in a Jenkins pipeline.
- Decreased exposure risk by migrating application secrets from environment variables to Hashicorp Vault.
- Led product demos to other business units while gathering valuable feedback.

The JCK Foundation, Inc.
New York, NY

DEVOPS ENGINEER — *Nov 2016 - Sep 2018*
SOFTWARE ENGINEER — *Apr 2015 - Nov 2016*

- Employed Terraform and Ansible for ephemeral pre-production and cost-efficient production infrastructure in Google Cloud.
- Centralized application monitoring and logging to the Elastic (ELK) stack for better visibility into KPIs. Further developed analytics and reporting.
- Practiced continuous delivery of Node.js application with end-to-end pipelines using Gitlab CI/CD .
- Broke down silos by providing self-service business-intelligence to colleagues and managers.

Disrupt Tech Labs
Piscataway, NJ

CO-FOUNDER, TECHNICAL LEAD — *Jan 2017 - Apr 2018*

- Designed micro-service architecture for pediatric application targeted towards neurodegenerative disease and clinical study.
- Strengthened communication skills by simultaneously managing two development teams for 26 (weekly) sprints.
- Hardened application using automatic AST security testing in gosec, code quality analysis, and dependency scanning inside Gitlab CI/CD. Led HIPAA compliance and auditing workshops to protect patient data.
- Oversaw administrative goals including grant-writing, outreach, incorporation.

Rutgers University
New Brunswick, NJ

GRADER, DEPARTMENT OF MATHEMATICS — *Sep 2017 - Dec 2019*

- Provided instructional support for undergraduate probability and linear algebra.

Skills

DevOps	GCP, AWS, Terraform, Docker, Gitlab CI/CD, Kubernetes, Nomad, Consul, Vault, Serverless
Programming	Python, Golang, C, Java, Bash
Back-end	gRPC, REST, Node.js, SQL, GraphQL
Front-end	Vue.js, Bootstrap, HTML, CSS, JS, Markdown
Communication	English, Hindi, Basic Spoken Mandarin

Projects

Year	
2020	**Raft**, Distributed consensus algorithm written in Golang.
2019	**Page Fault Pre-alloc**, Reduced amortized page fault latency in the Linux kernel by 50% by pre-allocating memory pages.
2019	**RDPv1,** A Reliable Data Transport Protocol over python DGRAM sockets.
2018	**GoKV**, Lightning fast in-memory key value store written in Golang and Haskell.

Education

Rutgers University | Honors College Scholar
New Brunswick, NJ

B.SC. HONORS COMPUTER SCIENCE — *GPA: 3.9/4*
B.A. STATISTICS — *Summa Cum Laude*
MINOR IN MATHEMATICS — *Sep 2016 - May 2020*

- Four-time recipient of the Henry Rutgers Scholarship and Trustee Awards. Awarded dual major and minor with the highest honors.

Research and Publications

Guaranteeing Mutual Exclusion in Transactional Systems
ACID, Intel MPK

HTTPS://CHAKSHUTANDON.COM/RESEARCH/TSX_MPK.PDF — *Ongoing*

- The ACID properties of transactions may be violated by uncaught semantic errors in locks or shared data structures. We provide a fail-stop solution to enforce and easily debug improper mutual-exclusion in large transactional systems. With negligible runtime overhead, our library eliminates almost all data races with minimal source rewriting.

libppkey: In-Process Memory Isolation for Modern Linux Systems
Security, Linux VM, Intel MPK

HTTPS://CHAKSHUTANDON.COM/RESEARCH/LIBPPKEY.PDF — *2019*

- Existing memory protection such as Data Execution Prevention (DEP) and Address Space Randomization (ASLR) are not enough to protect applications from severe vulnerabilities. Memory Protection Keys (MPK) show promise but ignore safety for multi-threaded applications. With our library, libppkey, and minor Linux kernel changes, we attain true memory isolation in process address space with ∼14x latency reduction.