

# Nicholas Adamou

Senior Software Engineer, [M.Sc., Computer Science](#)

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## WORK EXPERIENCE

### [Lockheed Martin](#)

#### Senior Software Engineer, Backend (TS/SCI)

December 2024 – Present

Joined [Lockheed Martin Space Security](#) to support critical space software projects, ensuring the security and reliability of LM/US space missions.

- Maintainer of a GitLab monorepo **supporting 100+ developers**; achieving continuous integration delivery for **~40+ microservices on AWS** deployed via **Kubernetes**.

Designed SHIELD, a containerized cross-domain virus scanning platform for secure malware detection between low- and high-side air gapped environments. Optimized for **20+ GB files**, achieving **99.8% scan accuracy**.

- Built a secure, standalone, file integrity verification tool in **Python** to validate downloaded content using **MD5, SHA-1, and SHA-256**, with **8KB chunking** and optional self-deletion, enhancing secure file transfer workflows between low-side and high-side environments.
- Designed and deployed an automated McAfee DAT file management microservice **to handle >100MB antivirus updates**, featuring 3x retry logic, MD5 validation for 3 critical DAT files, and atomic deployment with rollback, ensuring high availability in k8s-based environments.

Architected and maintained Automated Checkout Tool (ACT) serving **100+ engineering teams** and **reducing manual checkout processes by 85%**.

- Built distributed microservices architecture using **Node.js, Express.js, and Docker**, integrating **OAuth 2.0/OIDC authentication** with **Keycloak**, **Redis** caching, and **PostgreSQL** databases to support multi-tenant development environments.
- Created self-service developer portal with **Vue.js** frontend and real-time status updates, enabling **100+ engineering teams** to independently provision and manage isolated development environments without infrastructure team intervention.

### [Apple](#)

#### Senior Software Engineer, Backend (Contract)

September 2024 – November 2024

Joined Apple's iPhone Tech Ops as a contractor via [TEKsystems](#), implementing strategies that improved manufacturing efficiency; drove optimized workflows leading to significant productivity gains in the production of over 2 million units monthly.

- Transitioned from **npm** to **pnpm**, achieving a **30% decrease in disk space consumption** and a **60% faster package installation time**, optimizing the development workflow.
- Streamlined authorization protocols by migrating from outdated **DAW** methods to robust **OAuth2** and **OIDC** solutions using **Spring Security**, enhancing user access management.

### [IBM](#)

#### Senior Software Engineer, Full Stack (Expert Developer)

May 2019 – August 2024

Joined [NS1 Connect](#) to develop a bespoke Zero Trust Managed DNS SaaS solution used by millions of IBM's global customer base.

- Designed a comprehensive end-to-end (E2E) testing framework using pytest, poetry, dnspython, Amazon AWS boto3, and DRF Spectacular efficiently utilizing an API SDK generated from an OpenAPI 3 specification.
- Presented to **100+ developers** on implementing an end-to-end (E2E) testing framework, emphasizing the use of an API SDK from an OpenAPI 3 specification to enhance testing and improve software quality.
- Implemented the "Policy Chains" feature for Zero Trust Connect, enabling the chaining of policies with inherent priority order using Python Django (serializers, models, and views), and integrated it with a GoLang application utilizing Open Policy Agent (OPA) and gRPC for prioritized policy processing.
- Architected a robust [python-based DNS querying solution](#) that supports DNS over HTTPS (DoH), DNS over TLS (DoT), and DNS over mTLS with public-private key cryptography using dnspython, bolstering security.

Designed a robust Intercompany Agreement (ICA) SaaS solution for ~5,000 of IBMers.

- Launched a multi-threaded Exporter Service for legal documents using Spring Boot, Apache POI, LibrePDF, **handling hundreds of exports**.
- Engineered a robust multi-threaded RESTful mail notification service leveraging Spring Boot, Thymeleaf, and DB2; **supported delivery of hundreds of user email notifications monthly while enhancing system reliability by 35%**.


Replaced IBM's legacy Ledger with IBM's next generation Global Ledger SaaS application used by ~16,000 IBM accountants.

- Developed a sophisticated chatbot using Angular v16 and Node.js with JWT-based user authentication, integrated [Box.com](#) media embedding and *reducing emails to Global Ledger support for frequently asked questions by 90%*.
- Implemented a Search UI with multi-faceted filters and pagination using React.js and Java Spring Boot, JDBC SQL with DB2, **achieving a 40% reduction in load times and a 25% increase in user engagement**.
- Architected the Direct File Input (DFI) feature **supporting 24k+ documents a quarter** and the **management of ~150k files during year ends and quarterly close periods**.
- Designed a [custom sidebar component](#) using React.js, Styled Components, and CSS3, providing a highly customizable and responsive navigation element tailored to the application's specific requirements.

Spearheaded initiatives to advance IBM's inner-source strategy through the design and execution of a robust Tekton CI/CD pipeline; this effort empowered over 500 teams with streamlined processes and rapid delivery capabilities.

- Built and scaled CI/CD DevSecOps platform delivering **~100,000+ monthly builds of critical business applications to ~250,000 IBMers**. Leveraged IBM strategic technologies including OpenShift, Red Hat S2i, Tekton, Node.js, TypeScript, Apache Kafka, and GitHub.
- Created a Python secret updater that **cut CI/CD secret recycling time by 99.99%**, now utilized by hundreds of IBM teams.
- Wrote internal blog posts and hosted IBM Developer Guild office hours to introduce the secrets updater tool to over **351+ developers**.

## ORGANIZATIONS


 **DotBrains** – A collective dedicated to the craft of software engineering whose mission is to make the world better through software.

**set-me-up** ([repository](#)) [docs](#) [article](#) - A toolkit used to automate macOS and Debian Linux development environment setups, cutting the time from new machine setup to productive developer by 99%.

**ConfigSync** ([repository](#)) [docs](#) [article](#) - A command-line tool for managing macOS application settings and configurations with centralized storage and syncing across multiple Mac systems.

**argocd-selective-sync** ([repository](#)) [article](#) - GitOps configuration repo demonstrating selective syncing with ArgoCD ApplicationSets. Manages Kubernetes apps across dev/staging/production environments where changes only trigger deployments for affected applications. Includes helper scripts, multi-env manifests, and comprehensive docs.

**ghw** ([repository](#)) - A command-line tool that acts as a wrapper around the official GitHub CLI (gh). It provides enhanced functionality for cloning repositories like GoLang while passing through all other commands to the official gh CLI.

 **Daily Coding Problem** - *Attain exceptional coding interview skills through daily problem-solving.*

**Mail Service** ([repository](#)) *Java, Spring boot, Docker, Linux, PostgreSQL, GitHub Actions*


A modular service that constructs the "daily coding problem" emails.

**API Service** ([repository](#)) *Java, Spring boot, Docker, Linux, PostgreSQL, GitHub Actions*

API Service a modular service that obtains LeetCode problems and study plans from the database.

**ChatGPT Spring Boot Starter** ([repository](#)) *Java, Spring boot, Docker, Linux, PostgreSQL, GitHub Actions*

A modular starter service that exposes an API to interact with ChatGPT.

 **You Build It** – Helping you become a better software engineer through coding challenges that build real applications.

**youbuildit.dev** ([repository](#)) [article](#) [demo](#) *Next.js, TypeScript, Tailwind CSS, Framer Motion, MDX, Prisma, PostgreSQL, Clerk, Stripe, GitHub Actions*

## INVOLVEMENT

**IBM Developer Profession, Subject Matter Expert**

**March 2022 – August 2024**

Authored a structured review pathway specifically tailored for L2-certified Developer Profession Champions; identified key areas needing improvement based on feedback from previous applicants, resulting in enhanced applicant satisfaction rates.

## AWARDS

**Technical Collaboration Achievement (TCA)**

**January 2024**

**Awarded for contributions to IBM's developer experience**, including major inner source contributions and developer advocacy through educational articles and presentations and fostering a culture of knowledge sharing within the organization.

**IBM Developer Profession Champion**

**November 2023**

**Recognized for major contributions to the IBM Developer Profession** by guiding employees on advancing through skills, experiences, and training.

## EDUCATION

[M.Sc., Computer Science, Georgia Institute of Technology](#)

**August 2021 – May 2024**

[B.A., Computer Science, Cornell College](#)

**August 2018 – May 2020**

## PROJECTS

**IBM CIO Hackathon – First Place** ([repository](#))

Team leader of F&O team (4 team members). Created a cross-platform mobile app with Google Firebase and React that to connect new IBMers to experienced IBMers through the power of matching.

**SquidLeet** ([repository](#)) [article](#)

Developed a command-line LeetCode practice game, enabling users to solve coding challenges directly in the terminal by leveraging the LeetCode GraphQL API for problem retrieval and solution submission, enhancing coding practice efficiency and user engagement.

**Spring Load Balancer** ([repository](#)) [article](#)

A simple, but functional load balancer implementation using Spring Boot, showcasing *service discovery*, *health checking*, and *round-robin load distribution*.

**PrivyDNS** ([repository](#)) [article](#)

A Python library that facilitates secure DNS record queries over encrypted protocols like DNS over HTTPS (DoH), DNS over TLS (DoT), and DNSCrypt.

**Squash** ([repository](#)) [article](#) [demo](#)

A modern, browser-based image compression tool that leverages WebAssembly for high-performance image optimization.

**Learn Git** ([repository](#)) [article](#) [demo](#)

Learn Git is a free and open-source platform to learn Git. It is designed to be simple and easy to understand for beginners.

**CoolRegEx** ([repository](#)) [article](#) [demo](#)

A carefully curated collection of regex patterns designed for easy copying and use in validating various data formats. Ideal for developers and data analysts looking to streamline their validation processes.

**AVScan API** ([repository](#))

A robust Node.js Express API that provides antivirus scanning capabilities using ClamAV antivirus engine.

**Cloud Tools** ([repository](#)) [article](#) [demo](#)

An AWS cloud-based service that provides users with a platform to convert or compress files.