## Professional Experience

**Software Engineer, Allscripts; Raleigh, NC – February 2019–April 2022**

JAMStack: I deployed a JAMStack with Gatsbyjs’ static site generator (SSG). Due to the growing popularity in North America and India, the CMS was eventually ported over to SSR (server-side rendered) Nextjs web app hosted on Azure Blob Storage and Azure App Service. To accommodate the growing worldwide userbase and to serve content with faster response times, the web app is hosted from a nodejs memory cache. Also, the web app utilizes single-sign on workflow through Azure Active Directory.

Lift and shift: I created an infrastructure deployment template for Microsoft Azure that deploys VMSS (virtual machine scale sets) and load balancers, which then spins up instances of flatcar OS (fork of coreOS) that hosts an etcd cluster and a docker swarm of microservices of netcore, nodejs, and golang containers. Etcd and docker are spun up through systemd. The infrastructure template was eventually deployed to production and hosted webservices with four nines (99.99%) which were utilized by end users within the United States.

24/7 load generator: I developed a golang container that applies constant rate of http calls (up to 200 rps) to a system-under-test which then displayed the performance results in Datadog and deployed the load generator into a kubernetes pod through helm chart. This constant load and real-time performance results feedback allowed the developers to push software changes with performance optimizations within hours instead of months.

OIDC Server: I created and tested C# code that utilized cryptographic algorithms (like ECDSA and RSA) to generate digitally signed JSON Web Tokens (JWT) and securely managed secret keys. I studied copious amounts of RFCs, NIST papers, and technical specification documents before writing any code. I personally contributed on developing software modules that handled OAuth DPoP tokens, authorization code flow and client credential grant.

Isomorphic reactjs app: I developed and deployed an isomorphic reactjs app as a docker container in order to eliminate an unpopular jquery page. Eliminating jquery pages helped reduce the platform’s overall security vulnerabilities.

Legacy system maintenance: I developed numerous bug fixes and critical security patches for an IAM (Identity-Access Management) system which can provision an account for a human or machine user in a domain through the wiring of IDP (identity providers like Active Directory Federation Server), STS (security token services), and Microsoft SQL Server instances.

**Software Engineer, Issuer Direct; Morrisville, NC – July 2016–October 2018**

Conceptualized, architected, designed, developed, and deployed a financial accounting application that meets the regulatory disclosures mandated by the Stock Exchange Commission (SEC) that caters to an audience of accountants, auditors, and lawyers. The team employed scrum methodology with CI/CD environment with Jenkins churning user stories/developer tasks into usable software every two weeks. The green-field project, part of Issuer Direct’s Blueprint product line, is deployed in Google Cloud Platform with a docker/kubernetes setup. The software application follows a multi-tier architecture that involved the following: a single page application built with reactjs/reduxjs; and a .net core docker container with MemoryCache, MySql client, ElasticSearch client, and business logic layer. The business domain involved heavy business analysis of the financial and accounting domain knowledge: specifically, the technical specification of XBRL (eXtended Business Reporting Language) and its application to financial accounting concepts such US GAAP taxonomies, mutual fund/risk return taxonomies, and IFRS taxonomies. The software product is stovepipe engineered into Disclosure Management System, Issuer Direct’s flagship product and a SaaS business communication platform.   
  
Other tasks included: Assisted in development or bug-fixing of new and legacy Angular components and yii (php) modules. Developed a rate-throttled event-driven sticky session load balancer in Golang as part of an incubation project of a nginx http routing middleware. Developed a JSON-based Convergent Replicated Data Type (CRDT) with reduxjs and .net core as part of an incubation project of a real time collaborative document editor that employed B.A.S.E. data consistency and real time collaboration within 10,000 milliseconds. Developed jQuery plugins for froala, a popular richtext editor.

**IT Specialist, Department of Defense; Raleigh, NC – June 2013–July 2016**

Transformed a hodge-podge ColdFusion 4 application into a modernized PHP 5 (Zend Framework 2) application. Assessed the situation and analyzed the issues surrounding the business process in order to develop cost-effective strategies to efficiently automate the business process. Engaged in interactive meetings with users to produce valuable requirement definitions. Deployed an object-oriented web application with a MVC (Model-View-Controller) design pattern while persevering to maintain the spaghetti code ColdFusion application. Employed data binding between forms and model that instantiated model instance capable of foolproof data validation. Utilized zf2 abstract classes for database tables that hydrates a model from a database row. Designed and deployed a normalized, scalable database that improved query performance by 100 milliseconds. Conceived zf2 modules for authentication, authorization, and accountability of the web application. Improved UI experience with JavaScript and CSS (bootstrap). Fueled colleagues with motivation to learn methodologies and best practices for application development and maintenance.  
  
Other tasks included: 24 x 7 high availability and disaster recovery of 85+ vSphere VMs through Veeam Backup and vSphere Fault Tolerance with at least 99.5% uptime; patched web servers and database servers to mitigate against common vulnerabilities and exposures (CVE) listed by MITRE (<https://cve.mitre.org>); enforced confidentiality and data integrity throughout the network by eliminating insecure telnet connections and encrypting database connections through SSL/TLS. Occasionally maintained and administered classified (SIPRnet) email accounts and servers (requires SECRET clearance).

**Software Engineer Intern, International Business Machine; Durham, NC – January-June 2011**

Shadowed a software engineer who analyzed user stories and delivered lines of code within IBM Websphere under the Project ICON (Image CONstructor). Project ICON’s goal is to deploy an appliance that can create images of a virtual machine in an .ovf file that can be utilized by a planetary virtual machine load balancer as part of a IaaS cloud computing system. Personally developed Java classes, manually tested Java class methods, and wrote bash script. Worked well within a team of worldwide software developers that were separated into many timezones and divided by language barriers through emails and instant messaging. Personally created several useful Java classes that are capable of: establishing TCP sockets with an IP address; listen for certain TCP events (SYN, ACK, FIN); and executing command line scripts based on host machine’s operating system. Demonstrated insightful understanding of TCP/IP stack, thread management, state machines, array operations, and different sorting algorithms.

## Education

Bachelor of Computer Engineering and Electrical Engineering

North Carolina State University

Raleigh, NC

2011

Training and certifications

* Fundamentals of Engineering Exam - Electrical and Computer Eng.: Passed, 2015, National Council of Examiners for Engineering and Surveying (NCEES) Candidate ID: 1587535
* Microsoft 70-640 (Windows Server 2008 Active Directory, Configuring) Exam: Passed, 2015, Microsoft Candidate ID: MS0610108322
* CompTIA Security+: Certified, 2013, CompTIA Career ID: COMP001020644328

## Military Background

Served in the North Carolina Army National Guard from 2008-2017 filling in multiple roles: Assistant Operations Officer (S3), Executive Officer, Platoon Leader, and Infantryman. Notable duties and achievements are:

* Successfully kept multiple government facility renovations, each budgeted no more than $1 million and spread throughout the State of North Carolina, under budget and on schedule by drafting Gantt charts, bills of materials, and project roadmaps.
* Authored multiple military plans that covered operations going out 36 months into the future for a military formation of 1,000+ Soldiers by actively seeking the mission statements from senior leadership and US Army commanders.
* Raised the organization's logistical readiness of $10 million worth of US Army property and vehicles to be able to carry out global and statewide missions by conducting routine inventory of all assets on the books every quarter.
* Led a military formation of 20+ Soldiers and $2 million worth of US Army equipment and vehicles capable of carrying out different missions like roadside bomb detection, riot control, and inclement weather disaster response by organizing training schedules for the team with 6+ months of preparation.
* Conducted multiple explosive demolitions with absolutely zero loss of life and unwanted property damage with a career total of over 8,000 pounds of explosive materials detonated by employing risk management and loss prevention before and during the hazardous operations.