# Nelson K. Psenjen

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**Computer Engineer, Cloud Architect, Team Leader**

## Summary

Highly skilled Principal Software Engineer with extensive experience designing and delivering scalable, cloud-native systems and AI-driven applications from concept to production. Proven leader across startups and enterprise-grade platforms, with deep expertise in cloud and distributed systems, AI integration, and scalable infrastructure. Passionate about embedded and space systems, with a track record of driving innovation across diverse technology domains.

## Skills

- **Architectures:** Microservices, Monolithic, Serverless, Service Oriented Architecture (SOA), Event Driven
- **Databases:** MySQL, PostgreSQL, DynamoDB, Redis
- **Languages:** C#, Python, Java, Go, C/C++, Typescript, Bash, Go
- **Specialized Software:** Apache Kafka, Kubernetes, NASAs Core Flight Executive/ Core Flight Executive System (cFe/cFS)
- **Cloud Technologies:** Amazon EKS, Amazon EventBridge, SQS,
- **Miscellaneous Skills:** Algorithm development, strong logical and abstract thinking, fast learner, team player, able to take ownership of products and features, always self-motivated and a passion for getting things done

## Certifications

**AWS Certified Solutions Architect**

Issued Jan 2024 – Expires Jan 2027

## Talks/Presentations

**Flight Software Workshop, The Johns Hopkins University, Applied Physics Laboratory (JHU/APL) - Oct 2015**

**Title**: Toward a suite of Middleware Services for Enhanced Spacecraft Configuration and Capability.

**CHREC Annual Workshop, Kennedy Space Center (KSC), FL – Dec 2015**

**Title**: CHREC Space Middleware Demo

To my knowledge this was the first attempt of creating a truly distributed High Performance Computing (HPC) system in space

## Open-Source Contributions

**Contiki OS - 2013**

Contiki OS is a compact, open-source real-time operating system (RTOS) designed for memory- and power-constrained embedded devices and IoT sensors. It is implemented in C.

I enhanced its JSON parser to support better array handling especially for resource constrained MSP430 microcontrollers.

**Nasa Core Flight System (cFS) - 2015**

CFS is an open-source, platform-independent software framework designed to streamline the creation of real-time flight software for spacecraft. It has been used by over 40 NASA missions

I developed a telemetry downlink application in C and integrated it with COSMOS: an open-source ground station software

**Low Level Virtual Machine (LLMV)**

LLVM is a tool that helps turn code from different programming languages into fast, optimized machine code that can run on many types of computers.

I created an extra compilation step (pass) to perform static analysis on Linux device drivers for potential race conditions

## Education

**University of Florida - NSF Center for High Performance Reconfigurable Computing (USA)**

**Doctor of Philosophy (PHD), Electronic and Computer Engineering· (2015 - 2017)**

Led a team of 5 building fault-tolerant distributed middleware (ADDAM) for aerospace applications in partnership with NASA, Lockheed Martin, and Honeywell.

My main research area was on adapting Off the Shelf (OTC) middleware software such as Kafka, DDS (OpenDDS, CoreDX), Message Brokers (RabbitMQ, ZeroMQ) for use in space computers. This was the first attempt to bring High Performace Computing to space!

Currently on Hold

**University of Trento-Sant'anna School of Advanced Studies (Italy)**

**Masters of Science (Msc), Computer Science and Engineering · (2012 - 2015)**

Specialized in Real-Time Embedded Systems.

Thesis: Evaluation of RealTime distributed messaging systems for constrained environments.

Grade: 28.5/30

**Politecnico di Torino (Italy)**

**Bachelors of Science (BSc), Electronic and Computer Engineering · (2009 - 2012)**

Thesis: Simple Knowledge Organization System (SKOS)-Based graphics visualizer for the Semantic web

Grade: 99/110

**Strathmore University (Kenya)**

**Diploma, Business Information Technology · (2008 - 2009)**

Final project: Mobile Bus Reservation system using Java 2 Micro Edition (J2ME)

Grade: Second Class, Upper Division

## Professional Experience

**Motion Agentic AI – Principal Software Engineer** January 2025 – Present

Motion Agentic AI is a startup that aims to develop AI powered motion retargeting applications for sports training, dance mastery, video game characters and social media content.

My role is to design the initial deep learning models and the backend architecture

- Designed and build Dance Demon: an AI-powered motion retargeting application for creating viral dance videos and social content.
- Developed, trained and deployed a CNN and GAN based deep learning model from scratch for actual motion retargeting using Pytorch, OpenPose and Google Vertex AI as the inference server.
- Optimized motion model inference and dynamic visual feedback.
- Technologies: PyTorch, OpenPose, Python, React Native, Google Vertex AI

**Tyler Technologies – Senior Backend Cloud Engineer** June 2022 - December 2024

Tyler Technologies is the largest company in US creating software solutions solely for public sector clients (State and federal governments, Police and fire departments, public school systems)

My role was to design and build a cloud-native provisioning tool that will be used by clients to setup Tyler Products to the Cloud.

- Designed and implemented a Cloud Based Software Provisioner to automatically provision and manage cloud tenants on AWS. Design goals were high availability, low latency and highly scalable

- Worked with 15+ product teams to define the specifications to make their products ready for automatic deployment
- Added support for migrating on premise clients to the cloud
- Successfully onboarded ~550 public sector clients with ~300k users regularly using products provisioned by the tool.
- Technologies: Microservices, C#/.NET, Docker, DynamoDB, Kubernetes, Terraform, ArgoCD, Api Gateway, Github Actions

**Fameve Inc – Lead Software Engineer** October 2021 - June 2022

Fameve Inc is a startup building a cloud native platform with the goal of accelerating adoption of digital e-commerce solutions among Small and Medium Scale Businesses (SMBs).

My role was to architect the initial Fameve Cloud Platform with a goal of it being multi-tenanted, cloud-native and cost conscious.

- Build the core microservices in C#/.NET and used gRPC for inter-service communication. I developed the chatbot microservice in Python because most AI tooling and libraries are python native.
- Developed an entire CI/CD pipeline from scratch using bash, Github actions, docker compose and Kubernetes
- Integrated RAG-based AI chatbots and automated dashboard reports for each tenant.
- Technologies: Microservices, ReactJS/NextJS, C#/.NET, Docker, Python, Terraform, Service Mesh (istio), Kubernetes, DynamoDB, PostgreSQL, OpenAI, Google Gemini

**ADL Delivery– Lead Software Engineer** February 2020 - October 2021

ADl Delivery s a regional logistics and parcel delivery company headquartered in Thonotosassa, Florida. Founded in 1999, it specializes in business-to-business delivery, fleet replacement, and final-mile logistics across the Southeast United States.

I led a project to upgrade and enhance a logistics management system initially built on .NET3.5 to .NET Core. The project also involved converting a monolithic application into a microservice based architecture.

- Developed a secure document management solution for contract drivers, integrating DocuSign for eSignature, Checkr for quick background checks and Azure Storage for storing proof of delivery images.
- Implemented a Single SignOn OAuth2.0 authentication across mobile and web using Identity Server 4
- Introduced a CI/CD pipeline with xUnit and GitHub Actions and integrated Azure monitoring tools into the development pipeline.
- Redesigned driver's mobile application from Xamarin to React Native and developed the API backend. The backend served ~10K drivers
- Technologies: C#/.NET, Microservices, API Gateway, React Native, Oauth2.0, eSignature, electronic background checks, Azure

**Pinch A Penny – Lead Software Engineer** Feb 2018 - Feb 2020

Pinch A Penny Pool Patio Spa is a leading American franchised retail and service company specializing in swimming pools, spas, and backyard living

I joined as a Software Engineer but was promoted to lead a team of 4 engineers after 6 months. I led the development and maintenance of a C#/.NET- based field service and repair management application used by over 250 franchise stores across the Southeast U.S.

- Redesigned a payment processing system, increasing its capacity from 1~00 to over 10,000 transactions per minute using Authorize.Net APIs and a cloud deployed .NET console app.
- Migrated the application stack from On Premise servers to Microsoft Azure App Service.
- Collaborated with project manager on sprint planning and delivery.

**Avytel informatica – Lead Software Engineer** Aug 2016 - Dec 2017

Avytel Informatica is an innovative technology company based in Kampala, Uganda, specializing in IT services and consulting. They focus on developing technology-led solutions and championing advancements in the field.

I worked remotely on two key projects from conception, design to deployment in C#/.NETCore.

- Designed, developed and deployed a rental property management system in C#/.NETCore and hosted on Azure. I also developed an android application for renters to make payments.
- Delivered client training and authored technical documentation for deployed solutions

**Center for High Performance Reconfigurable Computing (CHREC) - Graduate Research Assistant** Aug 2015 – Aug 2016

CHREC is the nation's leading academic research center in the field of computer and electrical engineering for mission-critical systems, from spacecraft to supercomputers. It was based at University of Florida college of Electrical and Electronic Engineering.

While there, I led a team of students and industry partners including NASA and Lockheed-Martin to develop space middleware.

- I collaborated with students and industry partners including NASA, Lockheed Martin, and Honeywell to develop the Adaptive Dependable Distributed Aerospace Middleware (ADDAM)—an early effort to enable distributed computing in space environments
- I led the initial development, ported parts of Open-MPI to ARM SoCs, integrated CoreDX C bindings on Linux, and designed a testbed of ARM boards to support testing and deployment.
- Technology: C, OpenMPI, DDS, Message Brokers, Distributed Systems

**Eversnap Inc - Android Developer Intern** July 2014 – Feb 2015

Eversnap, previously known as Wedding Snap, was a photo-sharing experience that has iPhone and Android apps to instantly capture memories of events and celebrations in an online, real-time album.

- I oversaw the development and maintenance of the Android application, optimizing performance by rewriting key components for improved responsiveness across devices and converting portions of the app into native code to enhance speed and efficiency.
- Technologies: Android Framework, Java, Postman