Prakash Dhimal

Modeling & Simulation Engineer · Software Engineer

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Active security clearance — details available upon request

SUMMARY

Software engineer with 10+ years of experience building modeling and simulation software, cloud infrastructure, and AI-assisted analysis tools for government and defense programs. Practices agentic software development, orchestrating multiple AI coding agents in parallel across separate code repositories to plan, implement, test, and open pull requests, while directing architecture, code review, and quality gates. Proficient in Java, Python, C++, and C, with deep experience in RF propagation analysis and discrete-event simulation, and a long-time Linux user both professionally and personally. Specializes in taking applications from prototype or local development to production: containerizing them, building CI/CD pipelines, and deploying them securely to AWS GovCloud and Azure Government (GCC High). Currently a Modeling and Simulation Engineer developing a discrete-event simulation platform and gated, multi-agent LLM analysis tools in Azure Government.

EXPERIENCE

Modeling and Simulation Engineer
July 2026 – Present

Systems and Thinking Solutions (STS)

- Transitioned a mature discrete-event simulation web application from local developer machines to a production deployment in Azure Government, with automated CI/CD pipelines.
- Develop a discrete-event simulation and experimentation platform (React, Flask, MongoDB) supporting Univariate, Monte Carlo, and Factorial experiments.
- Built AI-assisted tools that analyze simulation experiments and explain results in plain language, including AI MSA — a gated, code-controlled multi-agent LLM pipeline with a rule constitution, hash-verified evidence ledger, and deterministic checks LLM conclusions cannot override.

Principal Software Engineer
October 2025 – June 2026

Cutlass Systems Engineering

- Designed, developed, and maintained high-fidelity simulation models of real-world maritime systems in Java, C++, and Python on Linux.
- Defined and implemented protocols for data and event exchange between simulations, and designed robust APIs for third-party software integration.
- Built prototype tools for simulation control, data reduction, and 3D visualization; implemented solutions to extract and reduce simulation data for mission-critical defense decision-making.

Computer Scientist
August 2016 – September 2025

U.S. Naval Research Laboratory (NRL), Washington, D.C.

- Led development, cloud deployment, and operational support of Interactive Scenario Builder (Builder), a 3D modeling and simulation tool for RF mission planning; deployed its electromagnetic services in AWS GovCloud, enabling massively parallel Navy mission planning computations.
- Built Builder in a Browser (BIB) — Builder running directly in a browser, eliminating dedicated hardware and enabling cost-effective remote training; drew interest from Fleet training (IWTD Norfolk and San Diego).
- Led a team of five researchers building the PCAP FNC Range Prediction tool for the Office of Naval Research; demonstrated at Lockheed Martin Syracuse, now part of SEWIP and deployed during RIMPAC 2022.
- Replaced NASA WorldWind with NRL-SSC/NGA Tile Servers in one month after NASA suspended WorldWind, preventing failure in FAA spectrum-clearance use cases.
- Cut deployment time from one week to two days with CI/CD pipelines; optimized Builder performance — GDAL integration made elevation processing up to 24× faster, and urban modeling updates cut runs from hours to seconds.
- Collaborated with NRL Marine Meteorology Division on cloud EM reachback (NISE Phase I–III) and with defense agencies to integrate geospatial and weather data into mission planning tools; mentored junior engineers.

Research Intern – Computer Vision
June 2015 – August 2015

Air Force Research Laboratory (AFRL), Eglin AFB, FL

- Developed a Python-based georegistration database (OpenCV) to associate Earth imagery with geospatial coordinates.
- Utilized Linux-based tools and scripting to build scalable data processing workflows.

PERSONAL PROJECTS

AskCradle — Calm AI Parenting Assistant askcradle.com
Free AI parenting assistant, pregnancy to age 3. No sign-in, no accounts, no cookies or trackers — privacy by design. Short reviewed guides grounded in AAP / CDC, ask by text or voice, shareable answers, offline guides.
Python, FastAPI, Jinja, Vercel, OpenRouter, Groq · MCP server (search_guides, read_guide, list_guides, get_help) for hospitals and parenting programs.

ELI5 Park — AI-Driven Knowledge Platform eli5park.com
"Big ideas, made small" — 200+ explainers for kids browsing on their own, across technology, AI, money, careers, body & mind, medicine, and cooking. Free, no ads, no sign-up; Pip the squirrel helps kids search, with read-aloud and "Surprise me."
Vanilla HTML/CSS/JS, Node build, service worker, Vercel · MCP server + llms.txt so schools can plug it into Claude and expose kids to AI.

Stepwise — AI Personal-Finance Assistant getstepwise.vercel.app
Free AI personal-finance assistant — "Money decisions, one step at a time." No sign-in. Guides and calculators grounded in Ramsey, Money Guy, Ramit Sethi, and JL Collins; offline-capable PWA.
Python, FastAPI, Jinja, Vercel, OpenRouter · MCP server (search_articles, read_article, list_articles, list_calculators) for financial-literacy programs.

How these get built: with Muse and Claude as a multi-agent team — six experts per site plus independent reviewers; Muse verifies every patch and ships through pull requests.

Stock Predictor — Machine Learning ai-project-tau-ten.vercel.app
Python application using scikit-learn to predict stock prices from historical Yahoo Finance data; includes both GUI and command-line interfaces.
Python, scikit-learn, Yahoo Finance

SKILLS

Programming: Java, Python, C++, C, Bash scripting; Linux (primary development environment)

Cloud & DevOps: Azure Government (GCC High), AWS GovCloud, Docker, Docker Compose, Kubernetes, nginx, CI/CD, Jenkins, GitLab (self-hosted administration, CI/CD, runners)

AI / LLM Engineering: Multi-agent LLM orchestration, structured output & schema validation, RAG, prompt engineering, Ollama, OpenWebUI, Anthropic/OpenAI APIs, Claude Code skills

Simulation & Statistics: Discrete-event simulation (salabim), Innoslate, design of experiments, Monte Carlo, ANOVA, sensitivity analysis, bootstrap significance testing

Web & Security: React, Flask, FastAPI, HTMX, MongoDB, SQLite, nginx, Keycloak / OIDC SSO, Grafana, Trivy CVE remediation

Data & Visualization: RF modeling, simulation tools, weather data integration

Version Control: Git, GitHub Enterprise, Phabricator, GitLab, Maven, JIRA

Agile & Leadership: Team mentoring, Agile methodologies

EDUCATION

Master of Science, Computer Science — George Mason University, Fairfax, VA — May 2021
Coursework: Analysis of Algorithms, Advanced Algorithms, Distributed Systems, Computational Geometry, Data Mining, Mining Massive Datasets

Bachelor of Science, Computer Science (Minor: Finance) — University of West Florida, Pensacola, FL — May 2016

LEADERSHIP

Industry Mentor, University of West Florida — Dec 2022 – Aug 2025
Mentored underrepresented students in STEM through the Industry Mentoring in STEM program: career guidance, technical skill development, and industry insight.