BISHAL TIMSINA

Software Engineer | Security Analyst

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PROFESSIONAL SUMMARY

Software Engineer with **2+** years of hands-on experience building and maintaining production web applications, backend integrations, Python automation pipelines, data ingestion systems, and cloud-deployed services. Experienced with **AWS, Bash scripting, Python, RESTful APIs, PostgreSQL, SQL, React, Next.js, Docker, Git, and CI/CD**. Built Python-based data pipelines for scraping, processing, validation, de-duplication, historical comparison, and automated reporting across large structured datasets. Also developed an AI-powered self-healing CI/CD system using **LangChain, Open AI, RESTful and FAST APIs, Docker, and AWS**, providing practical exposure to LLM-powered workflows and AI-driven automation. Strong cybersecurity foundation with hands-on experience in secure development, vulnerability assessment, and system security. Comfortable debugging production issues, learning new technologies quickly, and working across the application, data, and infrastructure layers.

EDUCATION

BSc (Hons) in Cybersecurity and Ethical Hacking

Softwarica College of IT and E-Commerce *[First Class Honours]* *2022 – 2025*

+2 Science (Biology)

Southwestern State College *2020 – 2022*

TECHNICAL SKILLS

Security & Pentesting	Programming & Dev	Infrastructure & Soft Skills
Burp Suite, Nmap, Metasploit	Python, Bash/Scripting, PHP	Linux, Cisco Networking, AWS
Wireshark, Redline, SIW	HTML, CSS, JavaScript, C++	CI/CD, Cloud Infrastructure
Windows Forensic Analyzer	Java, Docker, Git, MySQL	Research, Problem Solving
Malware Analysis, VAPT	LangChain,	Attention to Detail, Teamwork

Backend & APIs

Python, RESTful APIs, Node, FastAPI

PostgreSQL, MySQL, SQL

KEY PROJECTS

Secure Self-Healing CI/CD System (AWS, Generative AI, React, Python)

- Designed and developed an AI-powered self-healing mechanism for secure and reliable CI/CD pipelines in AWS cloud infrastructure for five-star hotels in Kathmandu.
- Built Python-based automation components and integrated RESTful APIs to communicate between CI/CD services, monitoring components, and AI agents.
- Integrated LangChain with the Gemini API to build context-aware AI workflows capable of analyzing detected infrastructure, code, container, and pipeline issues and generating structured remediation actions.
- Developed autonomous agents to auto-detect and remediate issues in code, Docker containers, network configurations, and pipeline stages in real time.
- Implemented automated validation and security checks before applying remediation actions to reduce the risk of unsafe changes.

RogueEye: ML-Based Evil Twin Access Point Detection (*Python, Machine Learning, Random Forest, React, Wi-Fi Management Frames*)

- Developed RogueEye, a real-time wireless threat detection system for identifying Evil Twin/Rogue Access Points in hospitality and public Wi-Fi environments.
- Engineered machine-learning features from signal strength, packet behavior, and beacon-frame characteristics, and trained a Random Forest classifier to distinguish legitimate and rogue access points.
- Built a modular full-stack architecture integrating a Python-based detection engine with a React-based interface for real-time threat visualization and monitoring.
- Evaluated the system in both controlled and real-world environments around Kathmandu, accounting for wireless interference and environmental noise.

- Designed the detection approach using passive, non-invasive Wi-Fi management-frame analysis to reduce privacy risks and avoid interaction with user devices.

ShieldXpert Antivirus & Secure Chat Application

- Developed a Python-based antivirus and secure communication system incorporating file scanning, authentication, encryption, secure file deletion, and role-based access control.
- Implemented secure communication workflows using cryptographic techniques and multi-user permission management.
- Applied security-focused design principles to application and data handling.

ADDITIONAL PROJECTS

- **Secure Chat Application:** Python-based custom 3DES + RSA + ElGamal encryption stack with user-level role permissions.
- **CPU Vulnerability Report:** In-depth analysis of Spectre and Meltdown flaws with performance vs. security tradeoff review.
- **GRC Survey on Digital Wallets in Nepal:** Research on Governance, Risk, and Compliance in Nepal's fintech sector; focused on PCI-DSS alignment, third-party risk, and incident response planning.
- **Vulnerability Assessment & Penetration Testing (VAPT):** Conducted offensive security testing on simulated CTF environments; identified system flaws and performed exploit simulations. Produced post-exploitation reports modeled after forensic documentation standards, covering attack vectors and remediation strategies.

WORK EXPERIENCE

Software Engineer (Relevant Research) *2024-Ongoing*

- Developed and maintained production web applications using React.js, Next.js, JavaScript/TypeScript, and RESTful APIs, including reusable component architectures, SSR, accessibility improvements, responsive layouts, and performance optimization across frontend, backend integration, and deployment workflows.
- Built end-to-end data pipelines for U.S. immigration, detention, and enforcement datasets covering historical data collection (including the Wayback Machine and multi-sheet Excel workbooks), Python-based web scraping and ingestion, and multi-source processing into analysis-ready CSV/XLSX datasets.
- Implemented data-cleaning and transformation workflows including schema normalization, missing-value handling, deduplication, change detection, historical comparisons, record matching, categorization, and validation to improve data consistency and reliability.
- Built automated reporting and archiving workflows that process collected datasets into pivot-table-based analysis and structured reports, combining Python-based processing with PDF generation for internal and client-facing use.
- Built and maintained data-driven public applications Detention Reports, Enforcement Dashboard, Detention Mortality Dashboard, and Paradarsita transforming processed datasets into searchable, filterable, interactive interfaces with recurring data updates and backend integrations/RESTful APIs for JSON-based data exchange.
- Worked with PostgreSQL, Prisma, and Redis in production, including schema changes, migrations, query optimization, and investigation/troubleshooting of production database issues.
- Deployed and managed applications and automation workflows on Linux servers, including Docker, Nginx configuration, scheduled jobs, environment and credential management, and Git-based deployments.
- Implemented secure development practices, including input validation, authentication handling, HTTPS, access control, and protection against common web vulnerabilities.
- Collaborated via Git/GitHub code reviews, issue investigation, and iterative development across multiple production projects and international client work.

Freelancer *2023-Ongoing*

- Designed and developed **15+** responsive, high-performance websites using React.js and Next.js, following scalable architecture and reusable component-based design.
- Built SEO-optimized and server-side rendered (SSR) web applications, focusing on performance, accessibility, and search visibility.
- Developed modern, responsive user interfaces with strong attention to accessibility, cross-browser compatibility, and mobile responsiveness.
- Integrated RESTful APIs and backend services to build dynamic, data-driven web applications.
- Optimized application performance through code splitting, lazy loading, caching strategies, and asset optimization to improve load times.
- Worked directly with clients to translate requirements into functional web applications, troubleshoot issues, and deliver production-ready solutions.

Client Portfolio:

International project

- https://americanfamiliesunited.org
- https://penelopeanthias.com
- https://walternicholls.com
- https://juliofernandosalas.com
- https://johnmtorrens.com
- https://grk-it.com
- https://loryrosenberg.com
- https://relevant-research.com
- https://detentionpregnancytracker.com
- https://enforcementdashboard.com
- https://immprof.com
- https://detentionreports.com

Internal Project

- https://paradarsita.com/
- https://sasmitpokharel.com
- https://karkiaayog.tathyaraanka.com
- https://basantapursquare.com/

CERTIFICATIONS & TRAINING

- Digital Forensic Fundamentals: (c4mpus.com/certificate/64e24b819d4810024ecc4253)
- Hack The Box CTF Bootcamp: Softwarica College of IT and E-Commerce