Michael Pearce

Nonprofit Founder & Full-Stack Developer

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Street Ninja	https://streetninja.ca

Summary

Self-taught full-stack developer with a strong focus on scalable web architecture, API design, and real-world impact. Creator of Street Ninja, a nonprofit initiative delivering real-time SMS-based assistance to homeless individuals. Passionate about building purposeful software and solving meaningful problems through thoughtful design and reliable systems. Seeking a developer role where I can contribute to user-centered, high-impact projects.

Technical Skills

Languages:
Python, TypeScript, JavaScript (ES6+), HTML5, CSS3, SCSS, Bash, PowerShell, C#

Frameworks & Libraries:
Django, Django REST Framework (DRF), Next.js, React, FastAPI, Pydantic, Tailwind CSS, Bootstrap, Playwright, BeautifulSoup

Databases & Backend:
PostgreSQL, Redis, Celery, RESTful APIs, Tortoise ORM, JSON serialization & schema validation, relational schema design

Tools & Platforms:
Docker, Git, GitHub Actions, Vite, systemd, Nginx, Gunicorn, Uvicorn, SSH, Linux CLI

Infrastructure & DevOps:
CI/CD pipelines, IaaS deployments, Linux server setup, containerization, process management

Focus Areas:
API design, async programming, full-stack development, web scraping, GIS data, open-source development, cybersecurity (TryHackMe, VulnHub)

Experience

Street Ninja – Founder & Lead Developer

2024 – Present
Python, Django REST Framework, PostgreSQL, Redis, Celery, Celery-Beat, Docker, Twilio

A nonprofit platform that provides real-time, SMS-based assistance to homeless individuals by aggregating city resources (shelters, food, water, hygiene, Wi-Fi) and organizing them by geolocation proximity to the user's location.

The system is stateful over SMS, allowing users to ask follow-up questions or receive walking directions to a selected resource.

- Built a full-stack application using Django REST Framework, Next.js, PostgreSQL, and Redis with an API-first architecture
- Containerized the system with Docker for easy deployment and environment consistency
- Developed a stateful SMS assistant through Twilio, supporting follow-up queries, resource lookups, and step-by-step directions
- Engineered a custom location parser to extract intersections, addresses, and landmarks from unstructured SMS input
- Implemented a high-performance caching system with Redis and Celery for blazing fast lookups and fault-tolerant background updates
- Designed an extensible integration layer for 3rd-party open data sources (e.g., Vancouver OpenData API, OpenRouteService)
- Built robust error monitoring with issue-based email alerts for failed jobs, location parsing errors, and 500 status codes
- Optimized the entire system for low-tech environments — no GPS or smartphone required, just SMS text messaging
- Fully open-source at github.com/FirstFlush/street_ninja

Notable Projects

Street Ninja Website – Public Outreach & Interactive Map

TypeScript, NextJS / React, TailwindCSS

A companion site for government agencies, NGOs, grant-issuers, and other interested parties to learn about Street Ninja, try it out, and explore real-time resource data.

- Built with an interactive map to visualize shelters, food programs, public washrooms, and other essential city services
- Integrated with the Street Ninja API to provide live resource data directly from the backend
- Developed a web-based SMS simulator, allowing users to preview the service directly in the web browser

- Designed for public engagement, funding outreach, and institutional transparency

Stegosaurus – Steganography & Encryption
C#, .NET, CI/CD

- Developed a C# steganography tool for hiding messages in images using LSB encoding
- Implemented AES encryption with PBKDF2 for secure key generation
- Employs a pseudo-random number generator for further obfuscation of encoded bits
- Published as a package on NuGet with CI/CD pipeline

Fingerprint Defender – Browser Fingerprint Spoofing Extension
TypeScript, Vite, WebExtensions API

- Builds a spoofed browser environment to defend against fingerprinting and tracking
- Analyzes the user's real browser environment (e.g. hardware, network, localization, media) to generate realistic but altered values
- Ongoing project with a focus on deep browser internals—exploring low-level APIs, engine quirks, and fingerprint surfaces

Webweaver – Async Web Scraping Framework
Python, FastAPI, Playwright, aiohttp, BeautifulSoup, Pydantic, PostgreSQL

- Combines aiohttp for mass async requests with Playwright for human-like async browser automation
- Includes tools for scraping, HTML parsing, data normalization, and pipelining to DB via Tortoise-ORM
- Built to explore scraping architecture, async design, and anti-bot countermeasures

Education

- **Independent Developer** – 4+ years of hands-on learning through real-world projects, open-source contributions, and continuous self-education.
- **TryHackMe (Top 1% rank globally)** – Completed penetration testing and security challenges as part of broader developer training.
- **Open-Source Package Author** – Published libraries in both PyPI (tire_codes, canatax) and NuGet (Stegosaurus for .NET)

Additional Information

- Open to remote & local developer roles, full-time preferred
- Passionate about technology for social good
- Extremely comfortable in Linux environments and terminal-based workflows
- All projects are open-source on GitHub
- Full portfolio at michaelpearce.tech
- Based in Vancouver, BC, Canada