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KengOnion

Amateur Developer · Cross-disciplinary Maker

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PROFILE

I build project-based explorations across scientific modeling, interactive mathematics, local security observation, game development, and frontend interfaces. My process turns a question into a scoped prototype, tests assumptions and failure cases, and communicates limitations rather than hiding them. Ecolab strengthened my interest in how computation can turn biological questions into models that can be tested, challenged, and improved.

SELECTED PROJECTS

Ecolab

COMPLETED · SCIENTIFIC MODELING

A bilingual, local-first workspace for exploring *E. coli*-antibiotic population dynamics through a versioned model core. It combines an interactive learning sandbox with data-quality checks, parameter scans and fitting, uncertainty propagation, sensitivity analysis, locked held-out evaluation, and auditable exports. It is designed for teaching and research-oriented analysis—not clinical decision-making—and preserves limitations and negative validation results.

Developed: Scientific model design; data-quality reasoning; reproducible analysis; uncertainty and sensitivity evaluation; honest communication of limitations.

Collatz Reverse Tree Visualizer

COMPLETED · INTERACTIVE MATHEMATICS

A browser-based tool that constructs the cycle-pruned reverse Collatz tree rooted at 1. It supports adjustable depth, raw-integer and $n = 6m + k$ coordinate views, graph navigation, forward-trajectory inspection, and PNG export. Its mathematical core shares automated Node.js tests; the work is presented as computational visualization, not proof of the Collatz conjecture.

Developed: Graph construction; algorithmic reasoning; coordinate representation; automated testing; explaining the boundary between visualization and proof.

LEARNING JOURNEY

2015 **Scratch** – first experiments with logic, sequence, and interaction.

2019-2022 **LEGO Mindstorms EV3** – connected software decisions with movement, sensors, and iterative troubleshooting.

2021 **Python** – moved from visual blocks toward text-based code and broader computational ideas.

2026 **AI-assisted workflow** – combined earlier foundations and project experience with implementation assistance and faster iteration.

PROJECTS IN PROGRESS

Velvet Ember

The Ending C route is implemented in Godot 4.7 with core narrative and state smoke tests. Manual playthrough, performance, and Windows/macOS export validation are next.

NETRUNNER

Local collection, normalized SQLite history, baselines, and explainable risk prioritization are implemented with offline protocol and data-layer tests. Real macOS and dual-architecture packaging validation are next. This is an experimental observation tool, not intrusion detection.

Handheld Matrix

An interactive frontend prototype filters an eight-device sample dataset and compares up to four handhelds. Data provenance, version consistency, export wiring, browser smoke tests, and a hosted demo remain in progress.

PROJECT-EVIDENCED SKILLS

- Scientific and data-quality reasoning
- Reproducible analysis and model evaluation
- Graph construction and algorithmic reasoning
- Automated and smoke testing
- Data modeling and evidence integrity
- Explainable risk prioritization
- Narrative and state-driven systems
- Information architecture and comparison UX
- Data visualization and frontend state design

AI-ASSISTED DEVELOPMENT DISCLOSURE

I am responsible for problem definition, requirements and scope, architectural direction, testing and debugging, result review, and visual and interaction refinement. AI is used for implementation assistance, code suggestions, and faster iteration. I do not claim that every line of code was completed independently.