

Morad Zubedat

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Software Engineer • B.Sc. Software Engineering, Shenkar College of Engineering and Design (2026)

Backend and full-stack developer with C++ systems work. Final project (NavSight, a GPS-denied navigation engine) graded 100/100. Three business systems I built are in daily production use.

EDUCATION

B.Sc. Software Engineering — Shenkar College of Engineering and Design | Graduated 2026 · Final project (NavSight) graded **100/100**

EXPERIENCE

Software Developer — Freelance (self-employed) | Haifa, Israel | 2025 – Present

Design, build and maintain desktop and web systems for local businesses, with requirements gathered from the people using them. Clean Architecture and TDD (Jest, Vitest) throughout; Hebrew Excel reporting, crash-safe auto-backup, code-signed auto-updaters.

- **B.H Nur Ops** (React, Node.js/Express, MongoDB, Electron, GitHub Actions) — construction fleet, fuel-logistics and payroll system for a family construction company (**20+ vehicles**, fuel deliveries from **5+ depots**, parts invoicing, worker advances); added a role-based web portal where site managers report daily hours from their phones and the owner approves pay; **66 tagged releases** via in-app auto-updater.
- **XPlanner** (TypeScript, React, Node.js, MongoDB, Electron) — shift-and-payroll system **used daily by 2 accountants for a 250+ employee company**; constraint engine enforces labor rules (55-hour weekly cap, night-shift rest); real-time multi-client sync via MongoDB Change Streams.
- **TopGear** (Tauri/Rust, React, TypeScript, Dexie/IndexedDB) — offline-first RTL Hebrew garage-management app **run daily by a mechanic workshop**; appointments, jobs, parts inventory with atomic stock deduction, tax-invoice PDFs, vehicle-registry plate lookup; 19 code-signed releases.

Manager — B.H Nur Supermarket | Jan 2017 – Aug 2020

- Ran daily operations, staff training, inventory and vendor relations.

PROJECTS

NavSight — GPS-Denied Navigation Engine | B.Sc. final project, grade 100/100 | 2026

C++, Kotlin, Jetpack Compose, OpenCV, Android NDK, JNI, CMake, OpenStreetMap

- Built a C++ visual-inertial odometry engine (15-DOF error-state EKF, KLT optical flow, IMU preintegration) that held **91–93% distance accuracy** under real GNSS jamming that froze the phone's own GPS for 61 s and inflated a 1,280 m route by 33%.
- Derived metric speed from ground-plane optical flow and pinned position with an on-device Viterbi HMM map matcher over a local OpenStreetMap graph; **15.4 ms/frame**, 13/13 system tests passing; a deterministic replay harness re-runs recorded rides in CI.
- Preprint published on Zenodo: doi.org/10.5281/zenodo.21115254.

Skambil — Multiplayer Card Game | Live at skambil.netlify.app | 2026

C#/.NET, ASP.NET Core WebSockets, TypeScript, React, Three.js, Vite, Docker, Netlify (client), self-hosted match server

- Wrote the rules engine as a dependency-free C# library shared by the server and three bot tiers; fuzz-tested across **100,000 complete games** (13,000 games/s) with seed-plus-action-log replay determinism.
- Built an authoritative WebSocket server (private rooms, quick match with bot backfill, turn timers, reconnect with resync, rate limiting) that sends each seat only its own view; an audit over a full match with 4 real clients found **0 leaked cards**.
- Built a first-person 3D web client (Three.js on WebGPU/WebGL2 with an accessible HTML fallback; Arabic, Hebrew and English, RTL-first) that contains no game logic.

ZOBIDAT — Fashion Brand Site | In production at zobidat.com | 2026

Astro, TypeScript, GSAP, Lenis, OGL/WebGL, GLSL, Cloudflare Pages

- Scroll-pinned 3D WebGL lookbook with custom GLSL shaders; **Lighthouse Performance 100 desktop / 88 mobile, 0 CLS**.
- Responsive AVIF/WebP pipeline (~99% smaller backgrounds) and self-hosted subset fonts; auto-deployed to Cloudflare Pages on push.

Zoobar Red/Blue — RCE Chain & Integrity Ledger | Advanced Cyber course final project | 2026

Python, C, Flask, SQLAlchemy, x86 Assembly, SHA-256

- Chained three vulnerabilities into **unauthenticated RCE on a privilege-separated server**: path traversal in the C URL parser, a world-writable microservice socket, and an SQLAlchemy aliasing flaw that minted money on self-transfers.
- Detected it with a SHA-256 block-chained ledger that flags the exploit's silent database mutation as tampering.

Additional Projects

- Event-driven **AWS ETL pipeline**: S3 → SQS → Lambda → Postgres, idempotent upserts, dead-letter queue, LocalStack local dev.
- Network security lab (Layer 2): automated **DHCP spoofing and ARP MITM** in Scapy, then defeated both with DHCP Snooping and Dynamic ARP Inspection.

SKILLS

Languages: C, C++, C#, Python, TypeScript, JavaScript, Kotlin, Rust, SQL, Bash

Backend & Data: Node.js, Express, ASP.NET Core, REST APIs, WebSockets, JWT, MongoDB, PostgreSQL, MySQL, Socket.IO

Frontend & Desktop: React, Astro, Electron, Tauri, Three.js, TailwindCSS, Vite, GSAP, WebGL/GLSL

Systems & Vision: Linux/POSIX, threads/sockets, OpenCV, JNI (C++/Kotlin bridge), Android NDK, CMake

Cloud & DevOps: AWS (S3, SQS, Lambda, RDS), Docker, Docker Compose, LocalStack, Cloudflare Pages, GitHub Actions (CI/CD), Git

Security & Networking: Network security, web application security, Wireshark, Scapy, DHCP/ARP attacks & defenses, packet analysis, exploit chains

Practices: Test-Driven Development (Jest, Vitest, pytest), fuzz testing, Clean Architecture, Repository Pattern, code review

ADDITIONAL

Languages: Arabic (native), Hebrew (fluent), English (fluent) • **Award:** 1st place, Forms UX Challenge (Shenkar) • **Volunteer:** Education for Excellence program with Bank Hapoalim