

ALEXEI KHACHATRIAN

Founding Engineer • Full-Stack & Infrastructure • 10+ Years Shipping Production Systems

Yerevan, Armenia • alexey.khachatryan@gmail.com • +374 98 888 142 [khachatryan.dev](https://github.com/alkhachatryan) • github.com/alkhachatryan • linkedin.com/in/alexei-khachatryan

SUMMARY

Senior software engineer with 10+ years building and operating production systems end-to-end — from architecture and infrastructure through team leadership. Comfortable owning the full lifecycle: design, backend, deployment, billing, auth, ingestion, scaling. I've led distributed teams across multiple continents, shipped financial and security SaaS products at scale, and operated my own products in production. Strongest in backend and system design; also work across embedded systems (ESP32, ESP-NOW, LoRa, custom optical protocols) and AWS infrastructure. Pursuing a PhD in Computer Science (expected 2029) with applied research in bioinformatics automation.

SELECTED PROJECTS & PRODUCTS

JobsRadar — Founder & Sole Engineer

jobs-radar.com

2024 — Present

Global remote-job aggregation platform. Built solo and operated in production. Ingests listings from multiple job-board sources into a Laravel + PostgreSQL + Redis stack with Python pipelines; cron-based sync every few hours; CloudFront + AWS infrastructure; SEO-driven indexing strategy; multi-channel distribution via Telegram and LinkedIn experiments.

Stack: Laravel, PostgreSQL, Redis, Python, AWS (CloudFront, EC2, RDS).

Virtual Publicist — Lead Engineer & SysAdmin (built at iNexus)

virtualpublicist.com • Music-industry PR & outreach platform

2017 — 2020

Built from scratch as sole engineer, then grew the team. Music-industry PR platform connecting artists directly with editors, bloggers, influencers, advertisers, labels, and venues through a curated contact database with segmentation, campaign management, outreach automation, and analytics. The contact dataset reached the multi-million-row scale before public release. Joined iNexus and started the project alone; over three years recruited and led two frontend engineers, one backend engineer, and a QA, and coordinated closely with designers, content writers, and marketing on product direction and execution. Also acted as sole sysadmin for the production server — DNS, WHM/cPanel administration, Linux server hardening and security, hosting configuration, mail and queue infrastructure, and overall operations. Shipped to production before I left iNexus; the platform has continued evolving since.

Stack: Laravel, PostgreSQL, Redis, Elasticsearch, AWS (SES, SQS), dedicated Hetzner CentOS server, WHM / cPanel, custom outreach automation.

ReserveX — Co-Founder & Lead Engineer

B2B booking & management SaaS (discontinued)

2023 — 2024

Multi-tenant white-label SaaS for service businesses (salons, clinics, fitness, etc.) with per-company subdomains. Built a Laravel 10 + PHP 8.2 API backend with JWT auth, Stripe Cashier billing with tiered plan limits enforced via middleware, multilingual entities, fine-grained RBAC (~40 permissions), complex calendar service with smart free-slot generation and conflict checking, client CRM, and Elasticsearch-powered discovery. Infrastructure on AWS with CodeDeploy, Supervisor queues, Sentry, and Docker. The original team included a designer, frontend engineer, HR, sales, and marketing — over time team members stepped away, and the project was wound down despite the platform reaching production-ready state.

Stack: Laravel 10, PHP 8.2, JWT, Stripe Cashier, MySQL, MongoDB, Redis, Elasticsearch, AWS (S3, DynamoDB, CodeDeploy), Sentry, Docker, Nginx, React (separate frontend).

Activeo — Founder & Sole Engineer

Gym management SaaS (discontinued)

2024 — 2025

Multi-tenant SaaS for gym operators with Company → Branch → Coach/Package hierarchy. Built and operated the full stack: Laravel backend, React dashboard, Stripe billing with subscription enforcement, Keycloak SSO/JWT auth, SSR public gym sites, multilingual content (EN/RU/HY) with fallback logic, tenant isolation, and AWS deployment. Discontinued for commercial reasons.

Stack: Laravel, React, Stripe, Keycloak, PostgreSQL, AWS, SSR.

DTLP — Data Transmission Laser Protocol

github.com/data-transmission-laser-protocol

Custom bidirectional laser-based communication protocol I designed and implemented on dual ESP32 boards. Eight parallel laser channels per machine yield ~8 kbit/s throughput by transmitting one byte (8 bits) in parallel per millisecond. Built on ESP-IDF with FreeRTOS task pinning to core 1, custom handshake (all-channels-high for 100 ms), bit-level synchronization, optional XOR encryption and LZ4 compression, and a TFT status display. Hardware design includes NPN transistor low-side switching to drive 5 V lasers from 3.3 V GPIOs, careful handling of strapping pins, and an aiming mode for physical alignment.

Stack: ESP32, ESP-IDF, FreeRTOS, C/C++, PlatformIO, ILI9341 SPI display.

ADDITIONAL OPEN-SOURCE

- **HomeSauron** — Laravel 11 home-surveillance aggregator that pulls MJPEG streams from IP cameras (including my own ESP32-CAM nodes), restreams them via Redis pub/sub, records MP4 archives with ffmpeg, and backs them up to Google Drive.
- **MeshLink** — ESP-NOW wireless sensor mesh on ESP32 with environmental sensors, custom packet framing and ring-buffer deduplication, plus a Python FastAPI dashboard pushing live updates over Server-Sent Events. Planned extensions: relay modules and motion sensors for home automation.
- **Molehole** — Cross-platform authenticated remote-shell tool for security research, built on Python + Socket.IO and shipped as a portable PyInstaller binary.

PROFESSIONAL EXPERIENCE

Senior Software Development Engineer

NGA — Next Generation Advanced

Dec 2023 — Present

- Building automation software for emergency-services platforms deployed internationally, primarily in the US.
- Operating one of our platforms at approximately 600 requests/second and architecting the path to 1000 RPS; backend systems where reliability and latency are non-negotiable.

Python Developer

Wildbox.ru

Mar 2023 — Dec 2023

- Built analytics features for a Wildberries-marketplace platform on a ~2 PB PostgreSQL dataset.
- Worked on query performance, ingestion, and feature development under heavy data volume.

Lead Software Development Engineer

Akvelon, Inc.

Mar 2022 — Mar 2023

- Led a developer team building an information-security SaaS B2B product.
- Ran one-week sprints, daily stand-ups with client and team, code reviews, and CI/CD pipelines.
- Architected and operated infrastructure across Azure, GCP, and AWS in parallel.

Senior Software Development Engineer

2amigos Consulting Group

Aug 2020 — Mar 2022

- Delivered backend systems across financial, messaging, and accounting verticals.
- Worked across multiple stacks and teams; collaborated closely with DevOps, frontend, and QA.

Lead Software Development Engineer

iNexus

Oct 2017 — Mar 2020

- Built Virtual Publicist (virtualpublicist.com) from scratch as the lead engineer — a music-industry PR platform on Laravel + PostgreSQL + Redis + Elasticsearch, deployed on a dedicated Hetzner CentOS server with AWS SES / SQS, scaled to a multi-million-row contact dataset before release.
- Recruited and led a team of two frontend engineers, one backend engineer, and a QA over three years; coordinated cross-functionally with designers, content writers, and marketing.
- Operated two dedicated CentOS Linux servers hosting 50+ WordPress sites for clients and volunteers.
- Owned security: penetration testing and exploit testing across our infrastructure and client sites.

Freelance Backend Lead (side work)

Self-employed

Apr 2017 — Aug 2020

- Led a distributed backend team across Spain, Russia, Ukraine, Armenia, and Israel for an Israeli-American e-commerce project.
- Acted as lead developer setting architecture, code standards, and delivery cadence.

Web Developer

Web Foundation

Aug 2016 — Apr 2017

- Built sites and platforms across WordPress / WooCommerce, CodeIgniter, CakePHP, Magento 1.9 and 2.0, and custom PHP / JS stacks.

Web Developer

Ayrosa — Digital Marketing Agency

Jun 2016 — Aug 2016

- Built a Yii2-based personal account system for users of an online store on SimplaCMS; handled backend, frontend, server, and hosting.

RESEARCH

PhD Researcher — Bioinformatics Lab Collaboration

European University of Armenia / Bioinformatics Group (Armenia)

Mar 2025 — Present

Applied research at the intersection of computer science and bioinformatics. Building Python-based automation tools for molecular and protein analysis, including: (1) an aggregator that pulls data from major protein banks (e.g. RCSB PDB) into a unified internal dataset; (2) an AI-driven recommendation system that infers a researcher's interests from their browsing behavior across our protein catalogue and surfaces related entries; (3) a drug-design automation pipeline that takes a candidate molecule from a pharmaceutical lab and simulates its interaction against every human protein in multiple binding positions to predict whether it would help or damage the target. Heavy compute workloads run on the Aznavour supercomputer.

OPEN SOURCE

Active contributor since 2017 — author and maintainer of libraries across web, security, and embedded domains. GitHub organizations: Electro0Hub, data-transmission-laser-protocol, krypt0ra. Recent focus: ESP32 protocol design and Python security research tooling.

SKILLS

Languages: PHP (Laravel), Python (Django, Flask), JavaScript / Node.js, C / C++, Bash, SQL

Backend & Architecture: REST / JSON APIs, microservices, multi-tenant SaaS, Stripe / Cashier, Keycloak SSO / JWT, Socket.IO, Elasticsearch + Kibana, Redis, Selenium

Databases: PostgreSQL (incl. PB-scale), MySQL, MongoDB, DynamoDB, SQLite

Cloud & Infra: AWS (EC2, RDS, S3, CloudFront, Route 53, Cognito, Elastic Beanstalk, CodePipeline / Deploy / Build, CloudWatch, SES, SNS, SQS, IAM, DynamoDB), GCP, Azure, Docker, Nginx, Supervisor

Embedded / IoT: ESP32, ESP-IDF + Arduino framework, FreeRTOS, ESP-NOW, ESP-MESH, LoRa / LoRaWAN, custom protocol design, PlatformIO

Security: Penetration & exploit testing, red-team tooling, authenticated remote shells, JWT / OAuth / Keycloak

Leadership: Distributed team leadership, requirement analysis, estimation, risk planning, hiring, technical design

Operations: Ubuntu Server, CentOS, Kali Linux, CI/CD, GitLab / GitHub, Atlassian

EDUCATION

PhD in Computer Science (in progress)

European University of Armenia

2024 — 2029

Research focus: software automation. Applied work at the intersection of computer science and bioinformatics — automation tools for molecular and protein analysis, including protein-bank data aggregation, AI-driven research recommendation, and drug-interaction simulation on the Aznavour supercomputer.

MSc in Computer Science

European University of Armenia

2021 — 2023

BSc in Computer Science

European University of Armenia

2011 — 2017

CERTIFICATIONS

- **Laravel Certified Developer** — Laravel.com (2021)
- **TestDome PHP — Gold** (Top 10% Worldwide, 2018)

PERSONAL

Open-source coding, swimming, gym, chess, football. Reader of detective fiction (Agatha Christie, Daniel Cole).