

# Crystal Hansen

## Professional Profile

Full-Stack Developer with **18+ years** of experience building scalable web applications, APIs, and data-driven systems using **Angular, React, Java, Python, and PHP**. Skilled in integrations, migrations, **DevOps**, and **performance** optimization across **enterprise** and **cloud platforms**. Continuously **upskilling** through **freelance** and **self-initiated** projects to stay current with modern frameworks and development best practices.

## Technical Skills

- **Programming Languages:** Java, Node.js, Python, PHP, .NET (C#, VB)
- **Web Development:** Angular / React / TypeScript / JSX / HTML5, CSS3, JS, BS5
- **Backend & APIs:** Drupal/PHP, WebAPI, Spring Boot, Flask, FastAPI, JDBC, RESTful APIs
- **Database Management:** MySQL, PostgreSQL, SQL Server, MariaDB, SAS EG
- **Content Management & Migrations:** Drupal, WordPress, custom modules, SEO file optimizations, Google Search Console, GTM, LinkedIn/Google Ads
- **Server & Deployment:** Tomcat, Catalina, Apache, Nginx, Docker, Ubuntu, Unix, Linux
- **DevOps & CI/CD:** Git/SVN, GitHub, GitLab, Jenkins, GitHub Actions, TFS, Drush, Composer, CI/CD pipelines, Agile methodologies
- **Cloud Platforms:** AWS, Azure, GCP
- **Security & Optimization:** DKIM, SPF, OAuth, Basic Authentication, RBAC

## Experience

### **FREELANCE DEVELOPER, Self-employed | Remote | April 2025 - Present**

Built and maintained client websites, applications, and internal tools independently. Specialized in full-stack development ( **Angular 17-19, React, Node.js, Java, Spring, PHP** ) with **DevOps** and CI/CD deployment experience. Integrated and developed complex systems including APIs for calendar booking, chatbot APIs, real-time availability, PDF generation, SEO, and e-commerce tools.

#### **Client Project: Zackly-Rite Massage Therapy - Esterhazy, SK**

##### **React SPA + PHP API | Production | Paid Client Work**

- Redeveloped basic site into a single-page booking app integrating **RESTful** APIs, calendar availability, PDF/email confirmations, reCAPTCHA, and SEO using React Helmet.
- CI/CD pipeline for deployment on AWS & shared hosting.
- Visit: [zackly-rite.ca](https://zackly-rite.ca) | GitHub: [zackly-rite-spa](#) , [PHP-API](#), [Bookit](#)

#### **Founder & Independent Projects** *Various Startup Prototypes | Ongoing*

##### **Authentication & Login Feature — React 19, Context-based, Session or Cookie | Production**

- Designed and implemented a **modular authentication feature** using React and TypeScript, including login, signup, email verification, and password reset flows.
- Built a centralized **Auth Context** to manage authentication state (user, loading, authReady, authMessage) and share it safely across the app.
- Implemented **route guarding** with protected and public routes to prevent unauthorized access and eliminate UI flash during auth initialization.
- Integrated frontend authentication flows with backend APIs, handling **async state, error messaging, and success feedback** consistently.
- Refactored authentication layout logic into a **feature-scoped AuthLayout**, decoupling UI structure from route guards for improved maintainability.

- Implemented secure **token-based API requests** and standardized payload handling for login, email confirmation, and password reset endpoints.
- Built reusable, accessible **form components** (email, password, confirm password) with validation and real-time user feedback.
- Debugged and resolved complex issues related to **React synthetic events, state propagation, and async race conditions**.
- Applied ESLint rules and best practices to enforce **consistent code style and predictable state behavior**.
- Improved developer experience by structuring the auth feature as a **drop-in module** that can be reused across projects.
- Currently integrates with Github: [php-auth api](#) TBD Java Authentication (in dev)
- Demo: [auth.crystalhansenartographic.com](http://auth.crystalhansenartographic.com) | GitHub: [login-feature](#) | Blog: [Login Series](#)

#### **Unwind** — *React 19, Context-based, Data Model, Recommendation Engine | Production*

- Designed and developed a modern, calm-focused wellness application using **React** with a modular component architecture and reusable UI patterns.
- Implemented **multi-context state management** (Library, Recommendations, Check-ins) with **local persistence**, enabling personalized content based on user interactions and quiz data.
- Built dynamic dashboards that surface recommendations, saved content, and progress insights derived from user behavior.
- Developed and tested form flows (daily check-ins, worksheets, quick assessments) with a focus on emotional clarity, accessibility, and low-cognitive-load UX.
- Wrote unit and integration tests to validate UI behavior, data flow, and edge cases across recommendation logic and library interactions.
- Established consistent **design tokens, layout systems, and responsive grid patterns** to support scalability and theming.
- Intended to be an Integration with **Happy2Be** Backend.
- Demo: [unwind.crystalhansenartographic.com](http://unwind.crystalhansenartographic.com) | GitHub: private

#### **Studio Booker** — *Angular 18, FullCalendar, html2pdf, localStorage, Store | Production*

- Built a studio management **SPA** with scheduling, rentals, PDF invoices, and calendar views using **Angular 18** standalone components and **reactive forms**.
- Demo: [booker.crystalhansenartographic.com](http://booker.crystalhansenartographic.com) | GitHub: [studio booker](#) | Blog: [tutorial](#)

#### **Crystal Hansen Artographic** — *React 19, Node.js, Express, PHP API | Production*

- Full-stack portfolio and storefront with dynamic image galleries, studio scheduler, automated **SEO** via **React Helmet** and **.htaccess** routing.
- Included cron-based data automation, backend maintenance, and CI/CD pipelines.
- Visit: [crystalhansenartographic.com](http://crystalhansenartographic.com) | GitHub: [chartcom](#) , [PHP-API](#)

#### **Orbie AI (Fortune.ai Chatbot SaaS)** — *React , Spring Boot, OpenAI GPT, AWS EC2 | Production*

- Developed a **microservice**-based chatbot API for fortune prompt and custom prompt workflows. Integrated API with scalable deployment via AWS EC2 instance.
- Live Demo: [orbie.crystalhansenartographic.com](http://orbie.crystalhansenartographic.com) | GitHub: [fortune-ai](#), [react-chatbot-widjet](#)

#### **Happy2Be App** — *(ChatBot SaaS in dev ) Spring Boot, Flask & FastAPI (Python), OpenAI GPT*

- Developed a **microservice**-based chatbot API for positive messages to aid in objectivity when feeling blue using java spring boot Java architecture, service, controller, DTO and repository layers.
- Flask/FastAPI developed python script to handle the happyfaces binary sentiment-analysis model, English prompt and customized prompt workflows. Passes to Java app

- Integrated API with scalable deployment via **AWS EC2 RDS**.
- GitHub: [happy2be](#) , [happyfaces](#)

### **FlashLearn App — AI-Driven Study Platform — Angular 19, Spring Boot, OpenAI GPT |**

#### *Production Partial*

- Built a full-stack Spring Boot + Angular application that generates personalized flashcards and study sessions using OpenAI GPT.
- Developed modular backend services for AI content creation, text-to-speech synthesis, and user interface with PostgreSQL.
- Implemented a clean modular layered Java architecture using Spring Boot with distinct controller, service, repository, and DTO layers for scalability and maintainability and improving separation of concerns and testability.
- Designed an interactive front-end with Chart.js analytics, animated quizzes, and secure auth-guarded study dashboards.
- Visit: [flashcards.crystalhansenartographic.com](https://flashcards.crystalhansenartographic.com) | GitHub: [flashcards-app](#)

### **Data Trend Generator — Python, Flask, Drupal Cron PHP | Production**

- Created a mock sales data generation tool simulating photography trends in Python and an API using Flask which generates a csv to load into a Drupal user [dashboard](#). This tool mimics a live business model of generating data, and Api to connect systems.
- A Drupal Cron Job using php was implemented to make the api call. This demonstrates data knowledge, api integrations and cross system generalist language skills requirements.
- Github: [user\\_profile\\_account](#) , Python [flask-generate-sales](#)

### **Bookit App Platform ( Legacy Revamp ) — Angular 17, Spring Boot, Java APIs / Production v1**

- Migrated and consolidated legacy booking systems featured in 2021 into a modern Spring Boot platform with REST endpoints, html and virtual deployed into AWS cloud.
- Converted legacy system into modern layered Java architecture with distinct controller, service, repository and DTO layers. JWT Tokenization
- Database management using RDS
- View: (AWS/GCP) [AWS](#). GitHub: [Bookit](#)

## **WEB DEVELOPER (FULL-STACK), PGSTECH; — March 3, 2021 - April 4 2025 |**

### **Montreal, QC**

- Developed and maintained **emptp.com** (PHP) with optimized performance and security.
- Coded HubSpot and Website **data migrations & SEO optimizations**, ensuring URL consistency and file naming standardization.
- Stack Technologies used: **HTML/CSS3/Javascript, PHP / Mysql**, Composer, Drush, **Docker**, Form testing
- Integrated **HubSpot APIs, Brevo API, PayPal gateway** using PHP within a Drupal framework for automated lead management coupled with forms and email marketing, deals and sales.
- **Processes** implemented deployment pipelines, monitoring, infrastructure.
- Built **custom modules** for file handling, ratings, and email subscriptions.
- Optimized website **PHP/Drupal API performance**, resolved caching issues, and implemented **security best practices**.

#### **Key Projects:**

- **Star Rating System:** Migrated PHP-based ratings into structured Drupal. [Drupal Star Rating](#)
- **CRM Migration:** Designed and executed HubSpot data migration, licensing api integrations and workflows. Visit: [Hubspot Migration](#)

- **Drupal CMS Migration:** Designed and executed website data migration content types and custom module integrations. Visit [emtp-drupal](#)
- **Brevo API Integration:** email marketing campaigns with API automation.
- **In-App Advertising API:** Developed secure EMTP-based monetization tools. See a public example: [PHP-API](#)

## **FREELANCE DEVELOPER Freelance Projects & Startup Applications (2019 – 2021)**

Consistently built and deployed full-stack applications to stay current with evolving technologies and frameworks, with a focus on **Angular, Spring Boot, and Python**.

### **Studio Booking & Rentals SaaS — Angular 2+, Spring Boot, Java, Hibernate**

- Developed a cloud-based booking and rental management platform featuring interactive calendar views, custom scheduling workflows, and form-driven interfaces.
- Built as a standalone **Angular 2, SPA** with a **Spring Boot, REST API** backend.
- **Role:** Full-stack developer (frontend, backend, deployment) Visit *GitHub:* [studio Calendar](#)

### **Gallery & Portfolio Platform – Angular 2+, Java, Spring Boot, Hibernate**

- Built user-facing features for selling photo prints, showcasing work, and collecting client reviews. Created masonry layouts for image galleries with **lazy loading**, Github: [gallery-loader](#)

### **Data Analysis Tool – Python, MySQL, and BeautifulSoup**

- Built a screen scraping and analysis tool for extracting industry data to support marketing decisions using. Github: [python](#)

## **CANADIAN WESTERN BANK Dec 4 2011 – 2019 | EDMONTON, AB**

### **Manager, IT Risk (2018 – 2019) — Full Stack Java Developer**

- Developed credit risk models and scorecard **applications** using **Java**
- **Built Java applications** using **Angular, TypeScript, JSP, Struts, AJAX, SAS API**
- **Task & Bug Tracking System:** Built a **custom task tracking system** in **Java Angular** with a **parent-child** structure for seamless workflow management following Agile and ITIL methodologies.
- Developed one-page UI/UX forms for scorecards Angular and Typescript
- **Testing & Debugging:** Conducted unit testing, performance tuning, and troubleshooting to ensure application stability and efficiency.
- Containerizations using Docker, Anaconda and GCP;
- **Impact** (speeding up deployments, reducing downtime, improving team collaboration)

### **IT Risk Analyst (2016 – 2018) — Full Stack Java Developer**

- **Designed real-time financial data pipelines for risk analysis and forecasting.**
- Built **risk assessment applications** using **Java, SQL, and REST APIs**.
- Developed data collection and **model validation** for regulatory compliance.
- **Built Java applications** using **Angular, TypeScript, JSP, Struts, AJAX, SAS API**
- **Scorecard Systems:** Engineered **quantitative and qualitative scorecard applications**, integrating automated risk rating logic and real-time data processing.
- **Backend Development:** Developed and optimized **JDBC-based SQL queries** for **Oracle/MySQL,SAS**, ensuring efficient data retrieval and storage.
- **Task & Bug Tracking System:** Built a **custom task tracking system** in **Java Angular** with a **parent-child** structure for seamless workflow management following Agile and ITIL practices.
- **Front-End Development:** Designed UI/UX **SPA, Angular, TypeScript** for streamlined user experience and faster data input.

- **Testing & Debugging:** Conducted unit testing, performance tuning, and troubleshooting to ensure application stability and efficiency.
- **Nominee** Pillar Award Q3 **Achievement Awards**, Canadian Western Bank - 2017

### Application Developer II (2013 – 2016)

- Developed various **Java & .Net** tools to support financial migrations **ETL** processes, **.Net Multi-threading**, transactional log processing tools.
- Develop **SQL SSIS** Testing and deployments for a Temenos T24 banking system migration, optimizing SQL for go-live processing.
- **Transformations** created using **SSIS .NET** tools to transform Accounts, Terms, Transactional Data types in new T24 Standards
- **Tools** used (CI/CD, SVM, version control, automation), GIT, TFS

### Web Developer II (2011 – 2013)

- Developed and maintained various **Java & .Net** tools and apps to support operations
- Develop **SQL databases, Sitecore features and extensions**
- Support javascript within Adobe LiveCycle PDF generation for Account management forms
- **Tools** used (CI/CD, version control, automation), GIT, TFS,

## Education

Northern Alberta Institute of Technology, Edmonton AB — **Computer Systems Technology**, 2009

University of Saskatchewan, Saskatoon, SK - **BA**, 2002-2005

## Reference:

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