Bahul Neel Upadhyaya

Professional Summary

Seasoned software architect and developer with over 20 years of experience in building large-scale, innovative software solutions. Adept at data platform development, web systems, and enhancing team performance. Regularly engages with academic research and industry trends to stay at the cutting edge of technology. Open about living with ADHD and awaiting assessment for ASD, and committed to promoting neurodiversity in the workplace.

Professional Experience

Hybr Ltd

Senior Full-stack Web Developer _ - _

- Developed and maintained the Hybr product and platform.
- Introduced semantic web concepts.
- Led the effort to build a design system.

Contxt

Contract ML Architect and Senior Developer _ - _

- Conducted initial investigations and consultations on model and architecture options.
- Developed a proprietary synthetic data generator to train models without sensitive customer data.

Elsevier (RELX)

Data Platform Architect _ - _

- Led architectural design and strategy for the Entellect data platform.
- Mediated between product and engineering teams to enhance platform functionality, supporting trial customers and retaining internal users.

Honeybee Solutions (Synchronoss Technologies Inc.)

R&D Lead, Architecture Team / Senior Platform Architect _ - _

- Developed a rules-based solution for a product recommendation service using Datalog derivatives.
- Integrated a domain-specific layer for a schemaless product catalog with a recommendation engine using JSON-LD and RDF.

Janrain Inc.

Independent Contractor _ - _

- Built a rule-based system with Clojure, ClojureScript, and Datomic, enabling runtime business logic modifications without core code changes.

Eckoh plc

Head of Research & Development _ - _

- Managed a small R&D team, exploring new technologies and advising on best practices.
- Focused on data-driven architectures and industry-academic technology advancements.

BraveNewTalent

Senior Developer / Team Lead _ - _

- Led a scrum team, transitioning from a monolithic platform to discrete services.
- Introduced new technologies including ElasticSearch, Jenkins, and Vagrant.

Eckoh plc

Senior Developer _ - _

- Developed and maintained the PHP/VoiceXML platform.
- Implemented internal coding and security standards (PCI/DSS) and mentored development teams.

365 Corporation plc / Eckoh plc

Developer _ - _

- Maintained and improved a C++ IVR platform, enhancing uptime and developing voice applications.

Total Perspective Tech

Founder & Lead Developer _ - _

- Founded Total Perspective Tech to provide cutting-edge software solutions.
- Developed and maintained several open-source projects including 'oolon', 'megadodo', and 'pondermatic'.
- Implemented Bloom filters in Clojure/ClojureScript for efficient data querying.
- Created a functional effect system driven rules engine for Clojure/ClojureScript.

Projects

Pondermatic

Status: Active **Type:** Open Source **Description:** Functional effect system driven rules engine for Clojure/ClojureScript. **Repository:** https://github.com/totalperspective/pondermatic

- Developed core engine using functional programming principles.

- Integrated with Asami for efficient data storage and querying.

- Extended support for JavaScript environments including NodeJS and browser.

- Implemented rule-based logic using O'Doyle Rules.

- Published the project on Clojars and npm for easy accessibility.

Oolon

Status: Superseded **Type:** Open Source **Description:** Bloom implementation for Clojure/ClojureScript leaning on Datomic datalog. Superseded by Pondermatic. **Repository:** https://github.com/totalperspective/oolon

- Developed Oolon, a purely declarative language for building systems that manage state over time.

- Implemented modules and rules in Oolon to handle state and asynchrony in distributed systems.

- Leveraged DataScript for internal state management within Oolon.

- Utilized Oolon's data-oriented DSL to facilitate integration with Java and JavaScript environments.

JeltzJS

Status: Work in Progress **Type:** Open Source **Description:** Unlock Vogonian Precision: Craft Fluent APIs with JeltzJS. **Repository:** https://github.com/totalperspective/jeltz-js

- Documented JeltzJS usage and purpose.

Nuxt Fluree

Status: Active **Type:** Open Source **Description:** Nuxt module for the Fluree graph database, needs updating to match Fluree's new API. **Repository:** https://github.com/totalperspective/nuxt-fluree

- Developed Nuxt module for easy integration with Fluree.

- Ensured compatibility with the latest Nuxt and Fluree versions.

- Updated module to match Fluree's new API.

- Added comprehensive documentation and examples for quick setup and usage.

Bartfast

Status: Work in Progress **Type:** Open Source **Description:** Bartfast is a design language builder inspired by Douglas Adams' character Slartibartfast, emphasizing clarity, modularity, and reusability in digital design. **Repository:** https://github.com/totalperspective/bartfast

- Created modular design components for reuse.

- Adopted a declarative and incremental approach to design language definition.

- Promoted composability, extensibility, and serializability.

- Implemented the Slarti DSL for defining design tokens and principles.

- Includes a Languim based language server for enhanced development experience.

Groove Dojo

Status: Work in Progress **Type:** Commercial **Description:** Groove.dojo is the ultimate AI-powered solution for creating the perfect soundtrack for any occasion. With seamless Spotify integration, customizable rules, and collaborative features, Groove.dojo ensures a personalized and engaging listening experience that adapts to your ever-changing moods and activities. **Site:** https://www.groovedojo.app

- Created comprehensive Design System using Svelte, shadcn-svelte, and TailwindCSS.

- Will integrate AI for personalized music recommendations.

- Will develop collaborative features for shared playlists.

- Will implement dynamic playlist creation.

- Will integrate with Spotify for user login, permissions, and playlist control.

- Will integrate FlureeDB for data storage.

Technical Skills

Programming Languages: PHP, JavaScript (ES6), TypeScript, Node.js, C/C++, Clojure, ClojureScript, Perl, Java, Python, SQL, SPARQL, Datalog.

Web and Markup Technologies: HTML, CSS, SVG, VoiceXML, CCXML, JSX, React, Redux, GraphQL, WebRTC, Pug, WebWorkers, Schema.org, Vue/Nuxt, Pinia, TailwindCSS, Vuetify, Svelte 4, Next.js.

Databases and Data Management: MySQL/MariaDB, Postgres, ElasticSearch, Datomic, MongoDB, FlureeDB, Redis.

Development and Deployment Tools: Storybook, NATS, Docker, Chromatic, AWS, AWS Cognito, N8N, RabbitMQ, Kafka, ZooKeeper, Langium, GitHub Actions, ESLint, Histoire, SST (Ion), Terraform.

Artificial Intelligence and Machine Learning: Tensorflow, statistical methods, production-rule systems, AI planning, synthetic data generation, ChatGPT, Custom GPTs, GPT Agents, Vector Symbolic Architectures, Google Colab, PyTorch.

Methodologies: TDD, BDD, Domain-Driven Design, Scaled Agile, Lean, Scrum, Kanban, SAFe.

Architectures: Distributed architectures, micro-service architectures, event/streaming architectures, data-driven architectures, serverless architectures, C4.

Compliance: PCI DSS, GDPR.

Additional Tools: Notion, Figma, PostHog.

Knowledge Engineering: RDF, Semantic Web, JSON-LD, Schema.org, OWL.

Education

BSc in Physics Imperial College London