Thiago Butignon

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SOFTWARE DEVELOPMENT SUMMARY

Software engineer and AI consultant with 11+ years of experience designing clean, test–driven systems and leading cross–functional teams (engineering, product, design, business, and legal). Pragmatic, dimensional thinker with strong grounding in Clean Architecture, SOLID, and TDD, and a deep understanding of how frameworks and third–party libraries work — allowing deliberate decisions on when to depend on external tooling and when to build core capabilities in–house. Proven track record of impact, including reducing CI/CD pipeline time from 60 minutes to 10 minutes and cutting infrastructure costs by ~80%, enabling secondary NFT sales features that increased revenue by 200%, achieving 100% automated test coverage and a 50% reduction in delivery time on an NFT rental marketplace, supporting products with 1B+ monthly page views, and helping architect an agentic AI platform capable of generating ~500k lines of code (LOC) per week with a small engineering team through grammar–based automation. Tech stack includes React, Next.js, Node.js, Python, Swift, React Native, FastAPI, Express, Material UI, Tailwind, ShadCN, Model Context Protocol, Highcharts, LangChain, ChromaDB, Gemini AI, and OpenAI.

EMPLOYMENT & EXPERIENCE

InsightLoop – *CTO & Co–founder – May 2024 – Present – Part–time* – Remote, BR
- Shaping the systemic architecture and long–term technical vision of an agent–oriented AI platform, with strong separation of concerns and clean architecture principles.
- Designing and implementing protocols for ethical governance, democratic decision–making, and model oversight, including human–in–the–loop review and transparent audit trails.
- Leading multidisciplinary teams across AI research, evolutionary multi–agent systems, product development, and engineering, from prototype to production.
- Ensuring product alignment with regulatory standards, social responsibility, and real–world business and societal needs.
- Architecting and implementing Model Context Protocol (MCP) servers and tools to expose internal services, agents, and data pipelines to external LLM clients in a safe, discoverable way.
- Researching and building evolutionary agent systems (self–evaluating agents, curiosity–driven exploration, replay buffers, and continual learning loops) to improve performance over time while controlling risk.
- Designing orthogonalization strategies (for example, parameter and behavior regularization between experts and tasks) to support multi–lingual continual learning and reduce catastrophic forgetting and interference.
- Experimenting with Liquid Neural Networks and other temporal architectures to handle long–horizon reasoning, streaming inputs, and adaptive behavior under changing conditions.
- Engineering a hard–cache strategy with Redis for LLM calls, achieving ~90% cache hit rates and driving query costs down to the order of US$ 0.001 per request in many production scenarios.
- Developing an internal "Universal Grammar for Clean Architecture" inspired by Chomsky, using a BNF–based specification language to drive deterministic Vibe Coding, dramatically increasing template accuracy and enabling teams to consistently reach 500k lines of code per week with a reduced number of developers.

Technologies and Languages: Python: FastAPI, Conda, Pandas, OpenAI SDK, Gemini SDK, **JavaScript / TypeScript:** Next.js, Vite.js, Node.js, Deno, ShadCN, Material UI, **Databases & Vector Stores:** PostgreSQL (with pg–vector), ChromaDB, Supabase, Redis, Vault, **Caching & Messaging:** Redis–based hard caching for LLM orchestration and system services, **LLMs & AI Stack:** OpenAI, Gemini, Claude, Groq, Llama, DeepSeek, custom fine–tuning, ElevenLabs (TTS), custom chain–of–thought orchestration for non–reasoning models (for example Llama), **Agents & Orchestration:** MCP Server, CrewAI, LangChain, LlamaIndex, Microsoft AutoGen; custom evolutionary agents with replay, curiosity and health metrics, **Infrastructure & Data:** Docker, Kubernetes, Databricks, Azure, AWS, **Other Tools Concepts:** RAG applications, contextual hashing, auditability pipelines, grammar–based code generation using BNF, Vibe Coding for Clean Architecture, GitPython for automation, Mermaid diagrams for architecture and process visualization

TownSq – *Senior Frontend Developer V – Dec 2023 – Apr 2025* – Remote, US
- Collaborated on implementing new features for the Community Management ERP using Angular, TypeScript, AG Grid, AWS S3, and Nx in a microapps architecture.
- Led Site Reliability Engineering (SRE) efforts, implementing new pipelines on Bitbucket, conducting SonarCloud analyses, and creating scripts to generate pipelines automatically when a new microapp is added to the monorepo.

- Reduced the pipeline build and test from 1 hour to 10 minutes using parallel builds, achieving an 80% reduction in infrastructure costs.
- Improved the algorithms used to generate PDFs for large files (1000+ entry points), reducing the time from 5 minutes to 30 seconds.
- Initiated and led weekly strategy and alignment meetings between the Brazilian and American teams, improving collaboration and accelerating decision-making.
- Drove the technical strategy to upgrade the core ERP from Angular 14 to Angular 16 by unblocking the main dependency bottleneck: updating a legacy AG Grid version and coordinating the migration across microapps.

Technologies and Languages: Angular, Ag Grid, Sonar Cloud, Bitbucket Pipelines, Jira, NX, AWS.

NFTGenius – *Principal Frontend Developer in Next.JS – Aug 2022 – Apr 2023* – Remote, US
- Collaborated on implementing secondary sales features, resulting in a 200% increase in revenue.
- Worked on refactoring software with an innovative tagging system, improving overall software efficiency and maintainability.
- Contributed to high–profile NFT projects, enhancing product launches and increasing brand exposure.
- Developed new features and maintained existing functionalities for the OnGaia Marketplace and OnGaia Swap projects, improving user experience and platform stability..
- Promoted cross–functional collaboration, led technical refinements, and upheld software development best practices.

Technologies and Languages: Next.JS, Vite, Typescript, Javascript ES6, GraphQL, REST API, Mobx, React Hooks, Context API, Apollo Client, StrapiCMS, FCL (Flow), High Charts, Dapper, GitHub, Github Actions, Jest, React Testing Library, Heroku, Cloudinary, Mixpanel, Chakra UI and Blockchain.

Freelancer – *International Freelance Software Developer – Jan – Aug 2022* – Remote, US, CA, UK
- Developed ShynApp, an NFT portfolio tracker for Ethereum, Wax, and Flow blockchains using React Native and TypeScript, collaborating on bug fixing, performance improvements, and indexing 100 million data points.
- Created Lum, a solution transforming PDFs into videos using OCR, NLP, and Remotion.JS, enhancing user engagement and content accessibility.
- Built Career Copilot, a data lake identifying startups seeking developers, scraping and compiling data from over 2,000 companies to streamline the hiring process.
- Developed the Flex Project, an NFT rental marketplace, achieving 100% test coverage and a 50% reduction in delivery time through team efforts.

Technologies and Languages: Next.JS, React (including Hooks and Context API), React Native, Blockchain, Ethereum, Flow, Wax, Node.JS, Express, TypeScript, Jest, React Testing Library, Cypress, Solidity, Chakra UI, Rest API, Hard Hat, Strapi, Remotion.JS, Material UI, GraphQL, Ruby on Rails, PostgreSQL, and Python.

Framework – *Senior React Native and iOS Developer – July 2021 – Feb 2022* – Remote, Brazil
- Collaborated on the development and maintenance of the Zarp Já iOS app for Localiza, achieving 85% test coverage.
- Enhanced app code structure and scalability by refactoring into a feature–oriented architecture, enabling efficient use by other teams.
- Worked closely with stakeholders to create new features, maintain existing ones, and eliminate duplicated code.
- **Technologies and Languages:** iOS, Swift, SPM, React Native, Context API, Typescript, Redux, Rest API, Websocket, Jest, React Testing Library, Micro Front–End for UI components, Modularization, Firebase, Cypress, Storybook, TDD, Fullstory, CI/CD with Microsoft Azure.

Impulso Networking – *Tech Lead – Feb – July 2021* – São Paulo, Brazil
- Managed a team of eleven developers for three apps, generating one billion page views per month.
- Improved agile story points by 60% and conducted code reviews, pair programming, training, and mentorship.
- Led the creation of MVPs for paywall and app transactions, improving performance and scalability of iOS and Android apps.
- **Technologies and Languages:** Swift, Java, Kotlin, QA, AWS, Micro Front–End for UI components, Material UI, FastAPI, Modularization and microservice backend with Python.

Charlie Hotels – *CTO (part time)* – São Paulo, Brazil – *Dec 2019 – June 2020*
- Developed robust architecture for various technology applications, ensuring efficient back–office operations and automation.

- Led the development of technology strategies aligned with business priorities, improving architecture in React and creating an API in Node.JS.

Picoz – *Interim CTO (part time) – Sept – Dec 2019* – São Paulo, Brazil
- Managed IT budget, software procurement, IT governance, and software architecture improvement, increasing feature delivery through Agile methodology.
- **Technologies and Languages:** Ruby on Rails, React, Jest, React Testing Library, Context API, React Hooks, Redux, MySql, Node.JS, Material UI and Heroku.

Cashfly – *CEO and Co–Founder – Feb 2017 – Dec 2020* – São Paulo, Brazil
- Led development initiatives including iOS application development, Node.js and React development, and PostgreSQL database modeling.
- Collaborated with investors and accelerators to raise capital, and managed IT, design, and digital marketing teams.
- Conducted competition analysis and managed regulatory processes with Brazilian financial regulators.
- **Technologies and Languages:** Node.JS, React, React Native, iOS, Swift, Typescript, Jest, Cypress, React Testing Library, Redux, Context API, React Hooks, SPM, Cocoapods, XCTest, Modularity, Clean Architecture, TDD, PostgreSQL and AWS

Beta Quark – *Co–Founder Jan 2016 – Jan 2017* – São Paulo, Brazil
- Launched Lion Tax, a startup for income tax for foreigners, managing all business strategies from discovery to maintenance.
- **Technologies and Languages:** React, React Native, Redux, Mobx, Node.JS, MySQL and Gatsby.

Kloxie – *Junior Developer – Dec 2014 – Dec 2015* – São Paulo, Brazil
- Developed key features for a car-selling marketplace, including landing pages, login, signup, vehicle matching, and payment integration.
- **Technologies and Languages:** Meteor.JS, ReactJS, and PostgreSQL.

AWARDS & ACHIEVEMENTS

1st Place:
- Angelhack Mastercard Shift with Facebook - 2016: OmniPay – early real-time, PIX-style P2P payment solution using QR codes in Brazil (Node.js and Swift)
- Hack The World: Hackathon – Ambev – 2016: Share The Water – Send water to Brazil's Northeast region using water trucks, with an innovative method to collect donations through e–commerce platforms (Node.JS and Swift)
- Flowkathon – Prime Builder – 2016: Pet Shop ERP to manage better small pet shops (Prime Builder no–code platform)
- The Code Force Santander Hackathon – 2016: Piggy – Micro Investments rounding up cents and transform them into ETFs (Node.JS, React, Swift)
- Febraban Hackathon (Brazilian Bank Federation) – 2018: ERP and Payment of Sales inside WhatsApp using a custom keyboard for mobile and Google Chrome Extension (Android, Node.JS, Swift, Javascript, HTML and CSS)

2nd Place:
- Ideation ABC – 2014: Low cost cistern using reusable materials.
- Brazilian Association of Travel Agents – 2017: Blockchain solution to accumulate rewards during travels. (Solidity, React, Node.JS)
- Visa Hackathon – 2017: Micro payments to buy products. (Android and Node.JS)

3rd Place:
- John Deere Hackathon – 2017: Drone to collect data from farm machines. (Android and Node.JS)

Finalist at Hackbrazil (MIT Brazil and Harvard Brazil) – 2017 with Share The Water startup.

Participated in leading Brazilian startup accelerators, including Germinadora (2015), Wayra/Vivo–Santander partnership (2016–2017), Visa Start (2018), and Ahead Banco do Brasil by Startup Farm (2018–2019).

EDUCATION

Fatec – *B.Sc. Civil Construction* – São Paulo, Brazil – *2009 – 2014*
Instituto de Tecnologia Mauá – *B.Sc. Civil Engineer* – São Paulo, Brazil – *2012 – 2014*