

Miguel Aguiar

Systems Developer - Programming Languages, Full-Stack Applications and Game Engines

Brazil | miguel.aguiar1906@gmail.com | mirvox.xyz | github.com/mirvoxtm

SUMMARY

Systems developer who designs programming languages, full-stack applications and game engines. Currently building on-premise document verification, an autonomous import/export ERP and AI agents at Rigtank Global. Creator of the Bern programming language and the Markers markup language, both in Haskell, and lead developer of Semicollon Estúdios' engines and games in Odin. Experienced in leading multidisciplinary teams of up to 12 people.

EXPERIENCE

Rigtank Global 2026 - Present
Mid-Level Systems Developer

- Develop on-premise applications for highly sensitive document verification, combining open-source and proprietary OCR technologies.
- Design and implement enterprise infrastructure and in-house applications in TypeScript, Python and Haskell.
- Built Sapoti ERP, an autonomous ERP for import/export logistics with a self-improving translation system and automated DUIMP filings, Bills of Lading, Packing Lists, Commercial Invoices and Certificates of Analysis.
- Designed a hybrid chatbot/agent architecture integrating OpenJev, Claude and rule-based techniques into a fully autonomous agent.
- Automated operational and financial workflows, turning PDFs, spreadsheets and e-mails into structured controls for sourcing plans, freight rate auditing, invoice and extra-cost tracking, damage claims and shipping documents.
- Performed multi-entity, multi-currency bank reconciliation (BRL, USD, EUR), producing vendor-level action plans.
- Mapped business processes and specified requirements for an ISO tank fleet management system, standardized the DUIMP product catalog methodology and set up IT project governance.

RDC Promotora de Crédito LTDA. Jan 2024 - Aug 2025
Independent Contractor, formerly Intern

- Led full-stack development and maintenance of web applications with C#/.NET.
- Developed cross-platform desktop applications with Electron, JavaScript, Express and EJS, RESTful APIs, and web applications with Vue and NuxtJS.
- Built Kortex, the company's main CRM: prospecting from client bases and campaigns, call tabulation, negotiation tracking, role-based permissions, real-time dashboards and a sales analytics module, with Astro, React, TypeScript, Node.js/Express, MongoDB and PostgreSQL.
- Developed BlackConsult and BlackFilters, real-time banking data collection, aggregation and retrieval services in TypeScript, JavaScript, C#, Python and Haskell, as well as the company website and administration system.
- Built automation and scraping tools in Python and JavaScript with Selenium, and Linux CLI tools in Node.js; managed MySQL and MongoDB databases, domains and VPS servers.

Co-Founder, Lead Game Developer and Programmer (voluntary CTO)

- Co-founder and board member of a nonprofit game studio, serving as voluntary Chief Technology Officer and developer since its inception.
- Designed the studio's proprietary engines in Odin with raylib: the Noue Engine, a 2D platformer engine with an in-game level, pixel art, lighting, cutscene and dialog editor suite and Interlope, a content versioning system built on a MongoDB client written from scratch; and Cedilla, a WYSIWYG visual novel engine with its own scripting languages.
- Created Chessed, a game engine written in Haskell with its own scripting language.
- Team lead at Global Game Jam 2025 (Cassiopeia) and 2026 (LARVIS); grew LARVIS into a full release on Steam with story, adventure and roguelike modes, multiplayer, Steam achievements, localization into four languages and an Android build pipeline.
- Led multidisciplinary and multicultural teams of 4 to 12 members and trained junior developers and artists; built the studio's multilingual website.

SELECTED PROJECTS

- **Bern** - interpreted, dynamically typed programming language in Haskell, with auto-currying, lazy ranges, pattern matching, a REPL, standalone builds and a VSCode extension. github.com/bern-lang/Bern
- **Markers** - academic markup language in Haskell with ABNT export and its own math notation, subject of my undergraduate thesis. markers.mirvox.xyz
- **Jogue Shogi** - online shogi platform in Portuguese with live games, a computer opponent, a rules course, a community wiki and a forum. jogueshogi.com
- **milk, spoil and lactase** - X11 desktop environment, file manager and OpenGL compositor written in Odin. github.com/mirvoxtm/milk
- **Miragem** - writing and publishing platform, originally a Markers IDE with real-time collaboration via CRDT. miragem.app.br
- **Teto** - APL-inspired array programming language in Haskell. teto.mirvox.xyz

SKILLS

Languages: Haskell, Odin, TypeScript, JavaScript, Python, C#, Java, Lua, Dart, SQL

Web and Back-End: Node.js, Express, Astro, React, Vue, NuxtJS, .NET, EJS, Tailwind CSS, REST APIs, Swagger

Databases: PostgreSQL, MySQL, MongoDB

Desktop and Games: Electron, Tauri, Flutter, raylib, Box2D, shaders, custom game engines and editors

Language Implementation: parsers, interpreters, virtual machines, garbage collection, DSL design

AI and Automation: LLM integration (Claude), AI agents, OCR, Playwright, Selenium, workflow automation

Infrastructure: Docker, Linux, VPS, on-premise deployment, Git

Practices: Agile (Scrum, Lean), Jira, requirements specification, business process mapping, IT project governance

EDUCATION

Technologist Degree in Systems Analysis and Development

2022 - 2025

FATEC Rubens Lara (Centro Paula Souza), Santos, SP, Brazil

- Academic Title of Brilliant Student (Mar 2025) for the development of the Markers markup language.
- Undergraduate thesis: "Markers: Development of a Markup Language", on building an interpreted markup language with pure functional programming in Haskell.