

Aaron Wesley Schacht

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PROFESSIONAL SUMMARY

Java software developer with professional experience in Agile, paired programming, and Test-Driven Development (TDD) environments. Independent researcher and language designer with deep background in object-oriented design, clean code practices, and novel programming language development. Proven track record across enterprise backend systems, legacy modernization, and medical device interfaces. Seeking backend or full-stack development roles where disciplined engineering and original thinking are valued.

EDUCATION

Bachelor of Science, Computer Science

TECHNICAL SKILLS

Primary Languages

- Java (primary), JavaScript, SQL

Secondary Languages & Scripting

- Python — scripting, automation, data processing
- Shell / Bash — scripting, task automation, system-level tooling

Engineering Practices

- Agile Development, Test-Driven Development (TDD), Paired Programming, Unit Testing

Core Concepts

- Object-Oriented Design, Clean Code Practices, System Integration, Compiler Design, Agent-Based Architectures

FEATURED PROJECT: PCB LANGUAGE

Pocket Cup Box (PCB) Language | cuppcb.com

Independently designed and implemented a novel programming language from the ground up in Java. The project spans the full lifecycle of language creation — from grammar and syntax design through to a complete compiler pipeline and working runtime interpreter.

Key technical components:

- Full compiler pipeline including Scanner (lexical analysis), Grouper (parsing/AST construction), and KnotRunner (semantic analysis and code generation)
- Bidirectional execution model — a novel runtime paradigm enabling execution flow in multiple directions, expanding the expressive power of the language
- Custom runtime interpreter written in Java, demonstrating deep understanding of memory management, evaluation strategies, and program execution
- End-to-end ownership: language specification, toolchain implementation, and published documentation at cuppcb.com

This project demonstrates first-principles thinking in computer science — applying data structures, algorithms, and systems design in a context where there are no off-the-shelf answers.

ADDITIONAL INDEPENDENT PROJECTS

Manifold Workbench

- Browser-based simulation system built with Three.js featuring heat diffusion modeling, topological geometry, and a real-time kernel program architecture
- Demonstrates applied knowledge of agent-based systems, computational geometry, and GPU-friendly rendering pipelines

PROFESSIONAL EXPERIENCE

Software / Web Developer | *AAA Life Insurance*

- Contributed to enterprise software systems supporting core business operations
- Participated in paired programming within an Agile development team
- Applied unit testing practices to maintain and enhance legacy systems
- Supported and extended web-based applications with focus on reliability and code quality

Software Developer / Technical Consultant | *Menlo Innovations*

- Developed software solutions in a team-managed Agile environment
- Practiced Test-Driven Development (TDD) on client projects across multiple industries
- Contributed to development of medical device interfaces requiring deterministic, reliable behavior
- Collaborated closely with cross-functional teams to deliver integrated systems

Software Co-Instructor (Java) | *Game Start School*

- Taught Java programming fundamentals using Minecraft as an applied learning platform
- Designed curriculum translating complex programming concepts into accessible instruction
- Reinforced object-oriented programming principles and computational thinking

ADDITIONAL EXPERIENCE

Customer Service & Operations — State Theater, Michigan Theater

Demonstrated professionalism, reliability, and operational responsibility in fast-paced environments.