Shiro Kawai

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https://github.com/shirok

Specialties:
- Programming language design and implementation (compilers and runtime)
- Database engine implementation and cloud-based application development
- Asset and workflow tracking systems in digital content production

Selected past projects:

Programming languages and compiler systems:
- Developed a custom language to describe rules in billing systems of cloud services, using Clojure (Sony Network Communications Inc., Japan, 2015–2021).
- Optimized GLSL compiler for a custom graphics processor using Scheme and C++ (Digital Media Professionals, Inc., Japan, 2014–2015).
- Implemented a CSS rule compiler for faster rendering in browsers using Scheme (Sony Corporation, Japan, 2014–2015).
- Created a Perl-compatible fast regular-expression engine for a commercial Common Lisp implementation (Franz Inc., USA, 2004).
- Has been developing Gauche, a practical Scheme scripting engine, including a compiler and a VM (2001–present).

Database management systems:
- Developed a temporal database system for billing systems of cloud services using Clojure (Sony Network Communications Inc., Japan, 2015–2021).
- Engineered a storage engine for the semantic graph database AllegroGraph using Common Lisp (Franz Inc., USA, 2010–2013).
- Built a data portal of global economic statistics for the National Transfer Accounts project using Scheme (University of Hawaii, USA, 2004–present).
- Designed a flexible digital asset and workflow tracking system for CG film production using Common Lisp (Square USA Inc., USA, 1997–2002).

Other projects:
- Developed a procedural modeling system based on physical constraints using Scheme & Web3D (2023).
- Developing a CG cloth simulation application using C++ (2023-present).
- Created the back-end of a customer management system running on AWS using Clojure (2022).
- Developed for a source-code analyzing SaaS on GCP using Clojure and Go (Sony Network Communications Inc., Japan, 2015-2021).
- Designed medical advisory services that suggest possible diseases and recommend medical institutions from symptoms based on a statistical model (back-end and iOS front-end) using Scheme (Telemedica Co., Japan, 2012–2020).
- Engineered a large network topology mapping tool using Common Lisp (Mathematical Systems Inc., Japan, 2007–2009).
- Developed a natural language dialogue engine for virtual worlds using Scheme (Avatar Reality Inc., USA, 2008–2009).

- Designed a real-time MoCap data cleaning engine using Scheme and C++ (Atlantis Cyberspace Inc., USA, 2008).
- Created Kahua, a continuation-based web application framework using Scheme (2003–present).

Main programming languages & platforms:
- Clojure, Common Lisp, Scheme, C, C++, Go, JavaScript
- Linux, GCP, AWS

Education:
- PhD in Engineering from the University of Tokyo (1996)

Other profession:
- Actor (SAG-AFTRA member)