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I exploit opportunities to drive technical and design intervention for organizations and products. Special powers when working with domain experts to turn existing assets and knowledge into tangible innovation.

Independent
March 2015-present

Independent product design and build. I draw on my experience to apply appropriate tools and techniques to a broad range of needs, engaging colleagues as needed, while offering a flexible working model to facilitate collaboration with artists and startups.

Highlights:

- After several months working unsuccessfully with outside designers to define a user-facing product, a data infrastructure startup engaged me to help. I identified the key gaps in understanding, worked quickly through a soup-to-nuts design process with the founder, salvaged elements of the previous work, and brought excitement back with a clear path to MVP. With my product direction and architectural guidance, the team started to move forward on defined streams. I built key assets, screens, and logic at high fidelity, integrated with the emerging backend. All this in 4.5 weeks.
- Design and implementation of a trade-show vision demo of a multi-sided consumer rewards platform. My work led directly to an engagement with a major banking partner.
- Delivered a design toolkit and UI implementation of a desktop-based CAD add-on for an on-demand manufacturing service, allowing them to launch in weeks rather than months.
- Conceptual design for setup and training of an in-home robot – a simple multimodal model immediately adopted by the client as their key direction.
- Joined the design team to create the next-generation vision demo of a major television platform, shown publicly and privately around the globe. Key contributions included: opening new design possibilities to the team by manipulating video with GL shaders; smartwatch integration; and service discovery for easy deployment to the sales force.

Kimono Labs
Director, Research & Development
June 2014 – February 2015

Kimono Labs was a Y-combinator backed startup – now part of Palantir – building a simple tool to structure and extract data from the web and use it through an API. A design-led approach and

straightforward programmer model had early promise. I joined the team to identify, build, and integrate core improvements, partners, and long term strategy. While there I redesigned and rebuilt the core UI to broaden usability and encourage an ecosystem, brought architectural rigor to the codebase and process, and shepherded integration of capabilities from partners and research staff.

Frog Design
Principal Technologist
June 2005 – May 2014

frog design provides strategy, design, technology, and manufacturing expertise when stakes are high and tactics unclear. I strive to ensure that we take appropriate advantage of technology while delivering sustainable value.

- Responsibilities: concept and ideation, concept prototyping, strategic technical analysis, technical proofs-of-concept, usability prototyping, technical architecture, implementation team leadership and oversight, program definition for business development.
- Work: scalable design systems, web/desktop/mobile applications, educational tools, novel television UIs, connected device ecosystems, long-lived home appliances, actor-driven future product demonstrations, medical devices, applications, …

Highlights:

- Concept, hardware and software implementation, and fabrication and installation oversight for a digital lobby installation in two parts: a 30-foot wall of HD screens and magnetic flip-dots, paired with a 40-foot-long LED display integrated into an escalator. Both elements contained custom hardware to capture sensor input and C++ software to drive the displays. I joined the Shanghai-based team to develop the creative concept; worked with building management and contractors for demolition, fabrication, and installation; and led a small team developing the custom hardware and software components that brought the installation to life.
- Built a set of prototype interactive wireless networked toys and local infrastructure to support them, then integrated with a DMX-based lighting control system for live performance in a fully interactive set.
- Defined the architecture for GE's Industrial Internet Design System, accelerating development and imposing good design principles across a massive portfolio of connected hardware products. Since its initial delivery in 2012, our system has been successfully extended into new domains and continues to evolve under the GE Predix brand.
- Called in as part of a crack team to build and launch a high profile content driven consumer product web site in less than two months. I architected and implemented core back end elements for high scalability and availability including: scalable image processing; a build system leveraging automated testing to allow us to make rapid changes without sacrificing quality; and front end feature design and development. The site was completed early and launched without incident, exceeding conversion expectations. The architecture has since been used by our client for other properties.
- Led concept design and development of an imaging-driven mobile diagnostic and recommendation tool. We developed a user experience and design language for image

capture and product recommendation that is scalable across brands, product types, and locales, taking it to early-stage international market research. I drove the UX with a technical proof-of-concept applying computer vision to the problem of color accuracy; worked with the client's R&D leaders to translate existing IP to cross-platform product cores; developed the initial iOS applications expressing the user experience; and worked with an offshore team for porting to additional platforms.

- Technical and design direction for a large-scale project applying modern medical visualization to a consumer-facing anatomy experience. Working with GE's R&D team as well as outside medical experts, we defined and prototyped an end-to-end approach to the creation, management, and visualization of a massive database to describe and visualize human anatomy and disease, as well as a consumer-facing visual exploration experience for web and iPad. This digital "Human Atlas" will be a useful body of freely available data for researchers (who are starved for such data), with our cinematic visual explorer as a consumer-facing first application.
- Designed and implemented a live networked data visualization for a digital billboard in Times Square.

Collaborative Drug Discovery
December 2007 – February 2008

Collaborative Drug Discovery helps academic, nonprofit, and commercial drug researchers share and mine small molecule experimental data. CDD uses test-driven development, pair programming and other agile techniques with the ruby on rails framework. I worked to improve usability while focusing on feature development, as well as delineating an approach to the integration of genomics features.

Wireless Generation
PDA Technical Lead
Jan. 2005 – April 2005

Wireless Generation develops PDA applications that enhance the K-6 teacher-student experience. Millions of students have been assessed using their products. I took charge of the flagship DIBELS product, adding features and fixing bugs while preparing the code for a move from Palm OS to cross-platform.

- Prioritized feature development for hard deadlines (dictated by the school year).
- Led refactoring of tangled code base in preparation for cross-platform implementation.
- Worked with managers toward holistic, iterative design/development process, improving quality of UI implementation.
- C++ on Palm OS and Windows CE, plus PL/SQL and java.

Thinkmap, Inc.
Senior Interface Developer; Consultant
July 2000 – Dec. 2004

Thinkmap (formerly Plumb Design) offers a Java-based SDK for developing dynamic data-driven interfaces, using physical simulation and advanced animation techniques. I worked to develop the flagship software, as well as working with a design team to develop applications for clients.

- Developed a custom GUI framework for flexible visual design and rapid development, closely integrated with Thinkmap core. The emphasis was on performance, code size, and understandability, including the ability to define GUIs through XML/CSS.
- Integration of cross-platform java software into the Mac OS X operating system.
- Ongoing development of core library, including improvements to the physical simulation engine, graphical richness, performance, and overall architecture.
- Client projects included mobile applications, educational tools, scientific visualization, product catalogs, financial analysis, knowledge management, and network security.
- Primarily java development. Also JSP, struts, XML, HTML, javascript, Flash, C++.

Collective.net
June 2003 – February 2004

- Rearchitected java-based web application to improve flexibility, understandability, and speed. Enabled a front-end overhaul.
- Cocoon, hibernate, java and JSP with a PostgreSQL database.

Awards/Performances/Publications/Ventures

Pipas Labs
December 2015-present

Pipas Labs is building a platform to enhance the experience of play across space and time. The Pipas Conectadas product, developed in collaboration with artists and the “pipeiro” community in Rio de Janeiro, is a lightweight BLE device attached to a Brazilian fighting kite to capture, share, and compete through real-world play. I am building hardware and software prototypes to refine the experience and the engineering as it moves towards production.

TRUESee
June 2012-present

A patent-pending slate, simple software, and sophisticated analytics brings calibrated, repeatable measurement to wound care, improving both accuracy and efficiency.

I initially advised True-See on the design of a system with sophisticated digital color as a key building block. I architected the solution and shepherded through offshore construction. I have continued to provide technical and design guidance, most recently directing a white-labeled tablet app for caregivers to use in home visits.

Healthy Commute
August 2010

Our design and prototype of a mashup between google maps and community data won first prize in this day-long hackathon, establishing frog's presence in the "hackathon scene" and leading to participation and involvement at other events including Health 2.0.

Engineering Longevity (Design Mind)
October 2007

A look at technologies that have proven to have staying power, drawing lessons that show how to architect systems that enable change by remaining stable.

GE.com
2005-present

frog's redesign of GE.com and the GE intranet has won 30 industry awards, from information design to marketing. I established key elements of the technical infrastructure that made it possible to bring structure to the content and voice of a sprawling organization.

Visual Thesaurus
October 2003

Communication Arts Interactive Annual Award of Excellence. The Visual Thesaurus is a 3D interactive reference tool. It creates an animated display of words and meanings: a visual representation of the English language. The Thinkmap visualization places your word in the center of the display, connected to related words and meanings. You can freely browse related meanings to explore further. It is targeted at an educational audience as well as adult end users.

Vernacular
April 2003

"Vernacular Live from Electronic America is a software android driven by the idea that new media interface culture inspires new means of information exchange. Functional as a standalone application, a Net-based tool, and a multi-media performance instrument."

Vernacular is a Mac OS X application featuring 3D graphics, spatialized sound, and a physical simulation engine. The initial version premiered at EAI's Web Projects Launch in April 2003. It is freely downloadable from EAI. Since the exhibition it has been under continued development, displayed around the world. More information is available in the software section.

- Designed and implemented, under artist direction, application featuring 3D graphics, varied media support, spatialized sound, and physical simulation.
- C++ and Objective-C with OpenGL, Cocoa, and CoreAudio.

Voyzeck
March 2003

This production of Voyzeck required custom software and hardware to incorporate performers' brain waves into the music.

- Created a suite of audio processing applications and software instruments for live performance. Interfaced with custom input devices, digital and acoustic instruments.
- C++ and Objective-C with OS X libraries. MIDI, custom serial.

Skills and keywords

Languages & Platforms– C/C++, Obj-C, R, python, ruby, Java, scheme, XML, HTML, javascript, swift, es6, mobile, desktop, embedded, distributed, backend, full stack, agile, …

Frameworks & Libraries – GraphQL, React, Ember, Unity, iOS, Android, NodeJS, OpenGL, GLSL, Arduino, OpenCV, OpenFrameworks, Qt, mbed, Linux, BLE, Java Swing/AWT/servlets/ J2ME, POSIX, STL, Max/MSP, Flash/Flex, Director, …

Architecture & Implementation – UML modeling, roadmap, planning and estimation, rapid prototyping, animation, physical simulation, signal processing, networking, threads, embedded systems, …

Design – creative direction, technical direction, content direction, experience design, interaction design, user testing, usability testing, iterative development, wireframes, mapping, …

Domains – enterprise software, consumer software, data visualization, medical visualization, CPG, white goods, VR, …

Software – Adobe CS, Sketch, OmniGraffle, Keynote, Powerpoint, Word, Excel, Tableau, ….

Education

Wesleyan University
B.A. Religious Studies
Spring 1999

Major in comparative religions: a cross-disciplinary field encompassing anthropology, philosophy, and critical theory. Coursework included a variety of computer science.