

Summary

Technology leader with 30 years of experience building products from concept through implementation and commercial release.

Software Development	Algorithms, architecture, scalability, design patterns, object-oriented design, frameworks, SaaS; thrive on solving conceptually difficult problems
User Experience and UI	Analyzing and understanding user behaviors, contextual inquiry/design, affinity analysis, heuristic evaluation, scenarios, personas, interface patterns
Management	Building, managing, and mentoring teams, working with partners, strategic planning; enjoy enabling teams to be more than the sum of their parts

Professional Work Experience

Software and User Experience Consultant **Groupthink Labs** 2003-present

Software architecture, design, development, and organizational consulting; user experience consulting; startup incubation. In addition to Puzzazz (below), highlights include:

- Ported applications to run natively on Apple's M1 processor for a Fortune 500 software company.
- Designed and built a custom multi-tenant shopping cart system and database for multiple clients.
- Designed and built an optimized constraint-based problem solving system for a set of domain-specific problems for a startup.
- Designed and implemented a large-scale web application development and customization system for an S&P 600 company.
- Created a high-performance instrumentation system for a petabyte-scale database and distributed web service for a Fortune 100 company.
- Created a HIPAA-compliant database encryption system for a startup.
- Designed and architected an advanced internet/intranet search system (acquired by Zetta Research).
- Built FriendMosaic, a custom photomosaic service and website (acquired by Mosaically).
- Hardware consulting includes: UX design for consumer products company, UX design for a medical devices company with "headless" devices connected to a smartphone interface.

Chief Technology Officer **Puzzazz** 2008-present

Created the first interactive puzzle ebooks and the first ebookstore for puzzles.

- As CTO, created product design and software architecture, established software development process. Hired engineering team; managed team using agile methodologies; planned, designed, and led implementation of entire product line.
- Designed and implemented major parts of: the Puzzazz puzzle engine which supports hundreds of types of puzzles; TouchWrite with Auto Pencil, Puzzazz's handwriting recognition system based on machine learning techniques (*GeekWire* 2013 Innovation of the Year); and content pipeline, publishing tools, and cloud service. Designed and published the ipuz standard for puzzle publishing.
- Launched 6 major versions of the Puzzazz app for iOS with more than 100 puzzle books of all types including crosswords (traditional, cryptic, variety), Sudoku, KenKen, acrostics, cryptograms, logic puzzles, drop quotes, and many unusual and unique puzzles previously solvable only on paper.
- As CEO, defined mission and vision, created the business model, raised capital, hired a team, did biz dev with independent authors and partners, managed the business of the company. Achieved industry-leading metrics in revenue per active user, long-term customer value, usage per day, customer satisfaction, customer conversion, and retention.

Director of User Experience**Sampa**

2007-2008

Personal private cloud-based social networks for friends and families. Designed Sampa v2, a new experience for site owners, administrators, and contributors, resulting in a doubling of engagement, and Sampa v3, a new, highly engaging user experience for site visitors. Drove all user experience and UI design implementation, including planning and conceptualization.

Senior Architect**DreamBox Learning**

2006-2007

Online educational software startup. Designed and architected adaptive machine learning engine from the ground up for in-lesson adaptation, lesson navigation, and individual assessments based on educational standards. Originally launched in DreamBox Learning K-2 Math, the platform provided for the creation and delivery of highly flexible and adaptable educational content over the internet, automatically tailored to student needs as they use the system. (Acquired by Charter Fund)

Technical / Lead Program Manager**Microsoft**

1998-2003

- Led the development of client user interfaces for Office collaboration including designing core component UI and managing overall UI design and partner relationships.
- Convinced the Passport team to add delegated administration, which became Microsoft Accounts.
- Designed and architected the authentication and security system for the NetDocs hosted service and bCentral Communications Center. Led a project to understand, measure, and improve the scale of the service.
- Managed the design and implementation of a server-client notification architecture.
- Designed a pen and handwriting input system for a mobile productivity suite.
- Led data access pages team for Access.

Earlier work: designed and implemented SaaS system with voice input for calendaring and group coordination; built a handwriting-based user interface for personal communicators (acquired by AT&T); redesigned a customer management system for IBM, saving a \$150M project; led design, architecture, and development of FullWrite word processor and Globetrotter Web Publisher.

Technologies

C#, C++, Python, Swift, Java, Lisp, JavaScript, TypeScript, React, AJAX/HTML/CSS; targets include iOS, macOS, Windows, .NET, Unix variants, Google App Engine, and the web.

Education

University of Kansas, Bachelor of Science in Computer Science

University of Michigan, Graduate work in Ph.D. program in Computer and Cognitive Science / AI

Other Experience

- **Board Member:** Puzzazz (2008-present), Bridges International Repertory Theatre, Seattle, 2000-2003 (Board President, 2001-2003); Akimbo Systems, 1991-1998 (chair); Hackers Conference, 1990-1992, 1996-2001; Fashion Eyeland, 1981-1993; SoftPlus, 1981-1984 (chair)
- **Arts Commissioner:** City of Redmond, Washington, 2004-2007 (Chair, 2005-2006)
- **Advisor/Mentor:** Seattle Founder Institute, 2011-2017; Startup Weekend, 2009-2011; StartPad UX Office Hours, 2008-2012; Faves.com, 2006-2007; Sampa, 2004-2007.
- **United Way Loaned Executive, representing Microsoft:** Fall 2002

Patents

- System and Methods for Adapting Lessons to Student Needs, US 11,462,119
- System, Method, and User Interface for Organizing and Searching Information, US 10,423,668
- System and method for adapting lessons to student needs, US 10,347,148
- Active agenda, US 10,200,468
- System, Method, and User Interface for Organizing and Searching Information, US 8,019,749
- User Interface for a computer display, US D615,547; US D615,988; US D629,809
- System and Method for Handling Action Items, US 7,571,108
- Context-sensitive content level semantic information propagation system and method, US 7,490,133
- Persistent Authorization Context Based on External Authentication, US 7,401,235
- Method and System for Automatic Insertion of Context Information into an Application Program Module, US 7,392,475
- Delegated Administration of Namespace Management, US 7,330,971
- System and Method for Communicating Audio Data Signals via an Audio Communications Medium, US 6,934,370
- Method for Creating Graphical Images, US 6,236,407

Additional patents pending

Presentations and Public Speaking

- Have given talks about software development, innovation, user experience, startups, puzzles, and games at Microsoft, Google, Startup Weekend, StartPad, PAX Dev, Ignite, Seattle Tech Startups, Seattle Technical Forum, Northwest Entrepreneur Network, Eastside Entrepreneurs, Eastside Incubator, MindCamp, MacHack, Gathering for Gardner, Center on Contemporary Art, the THINK conference, and the Hackers conference.
 - Have taught classes and given seminars at: University of Washington, Indiana University, University of Kansas, DigiPen, and PLAYfest (University of St. Thomas).
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Publications

- “How Hard is This Puzzle Anyway? Leveraging user analytics to measure and understand the difficulty of crossword puzzles,” Puzzazz, 2016
- Two puzzle books in the *Almanaq* series, *Almanaq*, 2015 and 2018 (*The Conjurer’s Almanaq* is one the most-backed puzzle book all-time on Kickstarter).
- 50 puzzle books sold by Puzzazz; editor of 6 others, 2011-2022; acting as Editor in Chief, managed the process of publishing more than 100 puzzle books available in the Puzzazz app, plus 10 additional puzzle books available for Amazon Kindle eReaders.
- ipuz file format specification, released under a Creative Commons license, 2011 (updated 2014)
- *Who-doku: Sudoku with Personality*, puzzle book, Sterling, 2008
- “Building a Fully Extensible Application,” MacHack ’94
- *FullWrite Professional: Advanced Techniques*, Ashton-Tate Publishing, 1989, with Bob Morrish.
- Have had puzzles published in numerous newspapers and magazines, including *The New York Times*, the *Los Angeles Times*, and *GAMES Magazine*.