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Summary

As a CTO with decades of computing technology and product leadership ranging from operating systems and medical ultrasound diagnostic imaging to retail products across industries for startups through major corporations, I bring a passion for building systems and creating well running teams.   I've run teams as large as 225 people to build products and services to millions of customers and managed significant budgets. I also am a hand- on technologist, enjoying the startup pace and its intense energy, architecting systems for scale, and working with very smart and nice people.   I now work on large scale problem solving, whether a technical, design, or business problem. My goal is to work on something that provides real good, which for me is primarily in the realms of medicine or healthcare or some major social good.   As a recipient of numerous grants and awards in experimental art including from the National Endowment for the Arts, I am open to the many path available to solve problems, working with people from diverse backgrounds, and building innovative products.

Work History

Bridgecrest Medical Inc. CTO.   San Francisco. 2015 – present.
Bridgecrest Medical focuses on healthcare analytics which it obtains from IoT, wearables, and bio-sensors. We mine this data in near real-time and obtain information applicable to the health and safety of workers and businesses. I manage all product and technology from native iOS and Android apps to Web; design and oversee development of a scalable, micro-service system architecture behind our services; coach and manage local & remote teams using Agile processes; improve processes to ensure product quality such as moving to continuous integration (CI); revamp mobile & web-based products for better customer experience.

Ruby on Rails, AWS, Scrumm, Kanban, Agile, Redis, Capybara/RSpec, micro-service architecture, multiprocessing & multithreaded design, analytics, scaling, performance improvement, iOS, Android, JIRA, Javascript, SPA, push

Inventivity.com LLC. CTO, Founder. San Francisco, Palo Alto, NYC. 1986 – present.
A boutique CTO consulting practice providing corporate technology strategy & technology assessment, product & project management, process improvement, and system development. From a solo consulting practice, I gathered an impressive array of CTOs with skills and experience ranging from Bioengineering and AI, to scalable technology powering DoubleClick (bought by Google), to building cameras for the Lunar Orbiter and Mars rovers.
Clients:
        Siri - pre-Apple, Tangoe (NYSE), Rocketseed, HearPlanet, Aptegrity, Om-direct, Liberty

Travel, Aon/Hewitt, Scient, Verizon, Rovi, Bell Laboratories, Hewlett Packard Labs (HP), Investor Growth Capital, Inxight (Xerox Parc spin-out), FSMLabs,
For these I consulted in a variety of capacities ranging from management to hands-on engineering with roles such as system architect, product manager, and CTO.

LinesPuzzle.com. Founder, CTO. San Francisco. 2013 – present.
A mobile game app available in the AppStore, built in JavaScript, HTML5, NodeJS, Express, and MongoDB. Wrote 100% of the code & system. Managed outsourced design, advertising, and game UX resources.

Tweettronics.com. Founder, CTO. San Francisco. 2009 – 2015.
I created one of the first brand tracking services for Twitter data, and later for Facebook. This required the invention of a custom sentiment engine technology using language modeling, Bayesian methods, and the Mechanical Turk. This scalable system with its multiple, real-time data pipelines, served customers in nearly 100% automated fashion. Sold business.

Meemli. CTO. San Francisco. 2007 – 2008.
As CTO of this education focused startup, I presented to Angels and helped obtain funding. I worked with CEO on product definition, and I built MVP in full LAMP .

Liberty Travel. CTO. San Francisco, NYC, & Ramsey, NJ. 2006 – 2008.
Liberty Travel is located in the northeast US (especially NYC) and has been the largest purveyor of leisure travel in the US through on-line full-service offerings to consumers, and B2B PAAS services including running all of American Airlines Vacation travel, and serving to 4,000 internal travel agents and 10,000 external agents and travel agencies. My job was to provide all technology for the company including product innovation, cost management, customer service, data center operations, contract negotiation, HR & ERP systems, desktop services all through a team of 225 people. Secondly my job was to maximize value of the company technology as part of a plan to sell the company. This involved triaging a large-scale, long-term, multi-million dollar development effort, and converting live running mainframes and their code to next generation hosting and cost efficient management, and rescuing damaged morale. Finally I represented the business technology strategy to potential top-tier buyers, and the business was sold in 2008 for nearly $200mm.

Inxight. Consulting System Architect. Mountain View. 2004 – 2005.
As systems architect to the CTO of this state-of-the-art Xerox Parc spinout, my focus was on next generation NLP and search technology for a NASA aimed product. Based on large-scale search systems using taxonomies, NLP, and automatically generated metadata.

FsmLabs. Consulting Product Management. New Mexico. 2004 – 2005.
MVP Product plans and product development for this leading innovator of reliable-time operating systems and technology products. Linux and Windows.

Yackpack. Consulting CTO. San Francisco. 2004 – 2005.
Develop technology strategy, budgets, and plans for Stanford professor founded startup.

Zogo. Consulting Product Manager & Systems Architect. San Francisco, New York City. 2004 – 2005.

Product planning, technology strategy, budgets, scalable architecture, and development of a
web-based dating application.

StealthCo. Consulting Systems Architect. San Francisco. 2004 – 2005.

Product planning, architecture and coding of a Web/RSS and Windows-based product for financial and investment industry.

SanDisk / Rio Audio. Product & Engineering Manager. Cupertino. 2003 – 2004.

For the #2 maker of handheld MP3 players world-wide, managed outsourced development of key iTunes plugin-ins, and initiated an innovative music search product.   Provided product management of the music search offering including: UI/UX direction, branding, budget, and the implementation approach.

Rovi / Sonic Solutions. Consulting Project & Process Management, & Linux Porting Engineer.

Bay Area. 2002 – 2003.

For the world leader in CD & DVD technologies, led senior corporate executives to focus on improving company-wide engineering processes and instigated a variety of initiatives that yielded measurable and rapid ROI for three business units, involving 75 engineers. Hired and managed first outsourced development forays to scale-up development. Consulted on projects delivering software to Sony and Hitachi HiFi devices.   Hands on porting of their strategic C++ codebase from Windows to Linux.

Aon / Hewitt / Scient. Consulting CTO. San Francisco. 1999 – 2000.

For a multi-billion dollar company provided technology strategy and architecture, and managed development of   large-scale insurance/HR spin-out serving Fortune 50 customers.   Started with providing technology strategy as part of the business definition then went on to architect a solution and build a team of 70 engineering staff to implement. Day-to-day work with engineering managers, project managers, designers, and the CIO of Hewitt. System self-hosted in custom built, self-run, fiber connected datacenters in the midwest.

Hewlett-Packard Corp. / HPLabs. Consulting Senior Software Engineer / Researcher. Cupertino, CA. 1999.

Programming and software architecture for HP Labs' effort to create a market for internet services. Early SAAS including service discovery at scale.

Siemens / Acuson Corporation. Software Engineering Manager, Project Management, Research. Mountain View, CA. 1996 – 1999.

• Authored two patents and participated in a third all related medical diagnostic ultrasound.
• Project managed multiple simultaneous projects. Oversaw FDA ISO9000/MDD/TUV/CE
conformance, hired developers, and managed schedules.
• Invented new web-based medical product demonstrated by CEO of Cisco to VP Al Gore as
future use of Web.
• Architected and managed development of DICOM networking stack on top of TCP/IP used in

ultrasound machines, PCs, and Macs.
- Lead and participated in several company-wide strategic engineering investigations.

Verizon / NYNEX. Consulting Systems Architect & Software Manager. NYC. 1993 – 1996.

Managed and lead architecture and development of the front-end UI and supporting backend systems for a $100-million dollar project revamping the residential telephone service billing service for the northeast of the US. I performed technology due diligence on 3rd party applications and server technology, and I oversaw the design of the system's software architecture involving a team of 5 system architects.

NewTools. Co-Founder & CTO. New York City.1991 – 1994.

Sought venture funding, landed a publishing deal, designed and developed one of the very first drag & drop, iconic interfaces for Windows: *Aporia* (shareware), then commercialized as *WinTools* and *WinDesk*. Products were recommended by PC Magazine (cover), Byte, PC World (cover), and other computer tech magazines, and also featured in books including "Windows Power Tools" by Bantam, and "Killer Windows Apps" by Que Books. Product was sold in leading large box software retail outlets.

Verizon / Nynex Science and Technology Research. Consulting Lead Engineer.
White Plains, NY. 1989 – 1991.

I managed technical requirements for a research application aimed at improving the handling of residential telephone service problems in the northeast US. I then built that application which involved C++ and included porting Lisp AI code to C++.

Prodigy. Consulting Advanced Technology Lead Engineer. White Plains, NY. 1986 – 1988.

For this joint and far-sighted IBM, Sears, and CBS startup, I co-developed one of the first CDROM authoring tools of the day that could integrate video, sound, and text content. It's first application included entertainment and integrated ads from Macys.   The 'back' button may well have been invented here.

Bell Laboratories / Bell Communications Research. Consulting Lead Engineer and Instructor. New Brunswick, NJ, Naperville Illinois. 1984 – 1989.
- Designed and supervised development of a C and UNIX-based distributed filesystem and network router for AT&T 800 & 900 services
- Taught Unix Internals (Virtual memory, buffer subsystem, filesystems, terminal i/o, TCP/IP, streams, vnodes, swapping/paging, db filesystems) , and C portability and style to Bell Labs engineers.

Auragen Systems Corp. Unix Kernel Architect. Englewood Cliffs, NJ. 1982 – 1984.

Helped architect and develop a state-of-the-art UNIX kernel capable of software fault-tolerance. Designed and implemented Process services, Virtual Memory Paging services, and portions of the Filesystem services. Designed and implemented 90% of Unix System 5.3 system calls including signals. Added 4.2BSD features to System 5 including Fast-File Systems features. Low-level debugging, some in assembly on new hardware, using bus analyzers and instruction

traces. Detailed knowledge of computer hardware issues and implications on software debugging of operating systems. Also, high-level language debugging of C language. Supervised CS graduate students in file system work.

UCSD. AI Software & Firmware Programmer. San Diego, CA. 1979 – 1982.
For Harold Cohen's AI project AARON, I designed and implemented real-time firmware (ROM) for a plotter, helped operate one of the early UNIXes on the Internet, and read through and at times patched the UNIX kernel.   See
http://www.aaronshome.com/aaron/gallery/IF-recent-gallery.html .

Education
MFA, Visual & Performance Art and computer art, University of California, San Diego (UCSD).
BA, Bioengineering, University of California, San Diego (UCSD)   3.8 GPA:
Academic awards: William W. Stout Foundation Academic Scholarship, Louis B. Mayer Scholarship, Provost's Honor List .

Patents Awarded
• 6,511,426: Medical diagnostic ultrasound system and method for versatile processing.
        Multiple citations
• 6,514,201: Voice-enhanced diagnostic medical ultrasound system and review station. Multiple
        citations

Press (selected)
▪ "Acuson Joins Cisco in Live Internet Ultrasound Demo For VP Gore and Russian Prime
        Minister Chernomyrdin"
        Dignitaries View Acuson's WebPro(TM) Package and Cisco Technology, Making
Far-Reaching Internet Diagnoses Possible Today
http://www.prnewswire.com/news-releases/acuson-joins-cisco-in-live-internet-ultrasound-demo-for-vp-gore-and-russian-prime-minister-chernomyrdin-77100102.html
▪ WinTools and WinDesk were reviewed and recommended by PC Magazine (cover), Byte, PC
        World, and other computer tech magazines, and also featured in books including
        "Windows Power Tools" by Bantam, and "Killer Windows Apps" by Que Books.
-        "WinTools offers the most powerful tools for customizing the Windows desktop that
                PC Week Labs has tested…" —   PC Week
-        "A revolutionary revamping of the way Windows works and looks! ...You'll love
                WinTools." — PC Magazine
-        "WinTools is the most gracefully graphical way to work in Windows… Get Wintools.
                It's great stuff." —   Computer Shopper
-        "If you're a Windows fanatic, you'll love it…" — From John Dvorak

Talks, Publications & Teaching
▪ "Advanced Technology for Public Safety". Connect15 – ConnectTalks. San Mateo Board of
        Supervisors forum (2015) https://youtu.be/U9kbCTHoGBY
▪ "Applied UML for Engineers". Courses (2003)
▪ "Best Practices Software Management" Seminars (2002)
▪ Papers and work on A I related to the game of Go at http://inventivity.com/opengo and

sourceforge http://opengo.sf.net
- "Architecture of Circlet on Windows", 1998.
- "Expert Supplied Random Functions in Genetic Programming as a Means to Reducing the Search Space of Very Large Problems", 1997.
- "The Evolution of Circlet: A "Learning"; Go Program Using Genetic Programming.", 1997.
- "Breeding Software to Play the Game of Go", 1995.
- "Architecture of a Go Programming Environment", 1997.
- "Use of Voice Technologies in Ultrasound Radiology" presentation at Society for Computer Applications in Radiology.   1998
- WebPro app. reviewed by: Advance for Administrators in Radiology & Radiation Oncology. 1998
- "Use of Voice Technologies in Ultrasound Radiology".Presented at Society for Computer Applications in Radiology (1998)
- "Overview of Genetic Programming" – Engineering Seminar (1997)
- "Unix Internals", and courses in Effective Software Techniques Courses at Bell Labs and Bell Communications Research, now Lucent.

Art & Technology + Recognition
- In 2015 I began the '**with (software) art();**' an art & technology meetup in San Francisco. That is a critical and supportive forum for apps-as-art and for the generation of software-artworks across genres.
- I also am a student of West African drumming, and am engaged with transposing that music into works keyboards and groups.
- I was the Founder & Managing Editor of The ACT - a journal of advanced art, and founder of Performance Project Inc. 501(c)3 non-profit in NYC. http://www.inventivity.com/PP . My art activity has been supported through numerous grants from:
    - National Endowment for the Arts
    - Ford Foundation
    - New York State Council for the Arts
    - Art Matters Inc. (and others)
- Some coverage of my art activities are in: *The Drama Review*, *Art Papers*, *Printed Matter*, *The ACT*,   *The New York Times*, *Village Voice*, *Art and Artists*, *The New Art Examiner*, *High Performance Magazine, The Library Journal*, and others.
- Art lectures, performances, and visiting artist at: Bucknell University, University of Tennessee, Maryland Art Institute, Franklin and Marshall College, Chicago Art Institute, Nova Scotia College of Art & Design, and Ohio State University.
- Volunteer Technical Group at Presidio Hills School

Skills Listing

Overall: Deep technology development including operating systems, scalable architectures, network protocols built on TCP/IP, language interpreters, AI and ML, SPA front-end technology, mobile apps, multi-server processing pipelines, project management and process thinking, and product management.

Machine Learning and Algorithms: genetic algorithms, bayseian learning, sentiment analysis, Monte Carlo search, MCTS, alpha-beta techniques, neural nets,   Research into AI, machine learning, and Go Programming. Investigating   automatic acquisition of knowledge: patterns, tactics and strategy.Involves Hidden Markov Models, search theory, pattern acquisition, hierarchical and adversarial goal planning, neural networks, genetic & evolutionary algorithms., JPEG/MPEG DCT and color-space compression, LZW

Systems: 24x7 fully fault tolerant architectures, Security challenges, UNIX/Linux OS internals, Caching systems, queuing systems, scatter/gather processing (ala hadoop), AIX, Solaris, Sparc Hardware, IBM hardware, NPM, mainframes, rack systems,   networking stacks, data center technology, Solaris, SunOS, LynxOS, MacOS, UBUNTU, Windows APIs, TCP/IP, Streams, EC2, EBS, S3, Mechanical Turk, LAMP,   Node.js, NPM, app servers, MySQL, Memcache, CorbaMed, EMR,

Languages: JavaScript, PHP, C++, Java, Perl, Python, VB, C,   Shell, HTML5, CSS, Java JDK 1.2, C++, Python, VB, lint, bison/yacc/lex, XSLT, XML, VoiceXML

Frontend libraries: Dojo, JQuery, custom, micro-libraries on GITHUB

Network and data transport protocols: TCP/IP, Streams, SLP v1&2 (LDAP alternative), multicast & unicast socket technology, X.25, TLI., DICOM 3.0, HL7, CorbaMed, CometD, sockets.io

Interface Technology: Speech to Text, Text-to-Speech (SAPI),   Language Translation, haptic and voice interfaces,

Mobile Apps: Apple Connect & iTunes, Apache Cordova, Xcode, Testflight, headless testing, TDD, Apache Cordova, PhoneGap

Software architectures: STL, Patterns, MVC, CodeIgniter

3rd party APIs: Twitter, Facebook, Authorize.net, Credit Card Processing, Mixpanel.com,

UX: usertesting.com, user interviews

SCCS: Git, SVN, SCCS, PVCS

Processes: metrics based, agile/scrum, TDD/BDD, web metrics, advertising metrics

Ad Vendors: AdMob, inMobi, MobFox

Business systems: content management, Wikis, Blogs, RSS, content aggregation, link testers, uptime monitoring services, ITIL reviews, security reviews, ERP, CRM, call-center support technology

Business Sectors
Diagnostic Medical Equipment, Healthcare, Travel, Education, Insurance, HR, Retail, Telecom, Consumer Electronics, High Technology, Financial, Venture, Marketing, Games, Apps,

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