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Technologist building both systems and organizations that are secure, scalable, cost-effective, and most of all, promote human flourishing. Well-versed in programming languages, cloud technologies, people management, and business development, especially in the public sector. Experienced with the entire engineering lifecycle, from ideation and sales, to requirements development, to architecture and implementation, to maintenance and support. Also an avid runner, amateur musician, and owner of every iteration of the Raspberry Pi.

Project Highlights

2024 *Workforce Development Ecosystem*

- Led the team that built a suite of applications implementing a governor's strategic workforce initiative
- Supported the jobseeker / employer matching algorithm development, providing ideas for factors to incorporate into the machine learning model, suggestions on optimization include vector store choices, and a mechanism for automated evaluation using large-language models
- Developed unemployment insurance features for the application suite, including an automated work-search tracking tool in Amazon Connect and an API wrapper for the mainframe system of record; this work enabled the state to retire older apps with poor user experience and drive adoption of the platform
- Researched and integrated a Generative AI solution for natural language querying and visualization creation using joined data from the platform's data lake and publicly available data sets from the Bureau of Labor Statistics; this system directly supported providing outcome data to the governor's office

2020 *Emergency Unemployment Modernization*

- Designed a cloud-based batch process architecture to insulate an aging AS/400 system from unprecedented user load due to the COVID-19 pandemic, and implemented both a serverless web application (on AWS Lambda) and automated phone system (on Amazon Connect) to collect claimant information using this architecture
- Launched minimum viable product in 10 days, which increased throughput of transactions a hundred-fold, and allowed the agency to clear its payment backlog
- Sold and led a year-long iterative improvement effort through design conversations with stakeholders, translation to technical requirements, and cross-functional team implementation and deployment

2017 *Online Voting Platform Rewrite*

- Rearchitected and gradually rewrote a legacy platform through a strangler pattern migration to new microservices running on a multi-zone cloud-based Kubernetes cluster deployed using terraform, achieving 99.998% uptime over its first year of operation
- Migrated to a distributed database to provide high write throughput with eventual consistency that mimicked typical election process for ballot submission, increasing system throughput by an order of magnitude
- Implemented a cryptographic process for ensuring vote privacy, secrecy, and integrity that was trusted to host an election of board members for a \$500 billion pension fund

2015 *Voter Registration System Upgrade*

- Converted legacy code to a new webserver and database platform, saving \$100,000 annually in licensing
- Built a zero-downtime deployment system using Jenkins and Chef that pushed updates and ran integration tests across 20+ on-premises locations, reducing turnaround time from hours to seconds; process was used on election day to fix a critical bug without disruption
- Designed and sold a multi-year rewrite project based on a consolidation in AWS GovCloud while maintaining each jurisdiction's individual business rules, then hired the cross-functional team to implement and deploy it

Career Experience

Present Research Improving People's Lives
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2023 *Chief Technology Officer*

- Led ideation, selling, and building of solutions that help government agencies achieve their policy objectives in domains such as workforce development, wage and hour, unemployment, and public safety
- Secured multimillion-dollar philanthropic grants and government contracts through relationship-building with both policy and IT stakeholders, technical proposal writing, and implementation of demonstrable prototypes
- Championed using build partners for collaborative pursuit of new opportunities and elastic scaling of development capacity; developed relationships across diverse vendors such as large ISVs, cloud providers, and small development shops to best match resources to project needs
- Launched initiatives using cloud-based data analytics tools, artificial intelligence, and verifiable digital credentials; presented these solutions in public and private fora to build company reputation as a leader in applying innovative technology to improve government efficiency and effectiveness
- Drove engineering excellence by developing a robust hiring process, establishing estimation and project tracking methodologies, improving CI/CD approaches, leading company-wide certification and training initiatives, and mentoring technical leaders

2023 Amazon Web Services
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2019 *Delivery Practice Manager*

- Led the professional services team that built transformative solutions for US-based education and state & local government customers
- Scaled the delivery organization from 8 to 40 people, mentoring both individual contributors and front-line managers, and participating in recruiting and DEI efforts within the group
- Collaborated with sales teams to book and then deliver several multi-million-dollar projects in areas such as unemployment insurance, elections, health care, and online learning
- Published both internal and public-facing software packages and other technical artifacts (see GitHub link for details)
- Interviewed 180 candidates for both technical and non-technical roles across Amazon; was primary decision maker as a Bar Raiser in 60 of them, and mentored 6 others through the Bar Raiser training program
- Developed, documented, and drove adoption of a suite of internal automation tools used by dozens of teams Amazon-wide, saving the company millions of dollars annually

2019 Votem Corp
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2018 *Chief Architect*

- Led the team responsible for software architecture and design across a suite of election products, with a particular focus on security, modularity, scalability, availability, and cost-effectiveness
- Spearheaded company-wide security initiatives such as LastPass and YubiKey adoption to build a culture of transparency, integrity, and customer success
- Served the election industry by participating in the NIST Cybersecurity and Interoperability groups, and by chairing the DHS Election Infrastructure Sector Coordinating Council's Cybersecurity Working Group

2018
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2014

Everyone Counts, Inc
Director Of Engineering

- Guided the engineering team through a stressful and prolonged acquisition, with no voluntary resignations during the process
- Provided technical and organizational leadership for a 25-person development team, regularly applying Conway's Law so the resultant products had the desired architecture, and promoting cloud-first CI/CD methodologies
- Hired and then led a 6 person team that architected, implemented, deployed, and maintained an online voting system that used modern cryptographic techniques, and was scalable to 10M+ voters with multi-zone deployments; system enjoyed over 99.998% uptime during its 18 months of operation, and was used for the largest online election in the United States as of September 2017
- Maintained a legacy online voting system used by several high-profile clients
- Migrated a legacy voter registration web application to open-source operating systems and databases, saving \$100,000 annually in software licenses

2014
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2001

Northrop Grumman Corp
Senior Software Engineer

- Championed a CI/CD process that reduced the build/test/deploy cycle from multiple hours to less than one minute
- Designed and implemented generic HTTP REST APIs and a common Android user interface for multiple heterogeneous radio systems, which increased operator efficiency and reduced setup errors
- Built a web-based communication planning tool for ground and airborne radios, which allowed warfighters to maximize comm-link effectiveness while minimizing risk
- Invented a technique for generating real-time flight path updates optimized for changing mission constraints (e.g. aircraft performance, flight time, threat envelopes, weather), which won the Northrop Grumman Strategic Intellectual Property Award
- Developed a moving map display for displaying terrain, navigation aids, threats, and other tactical information

Personal Entrepreneurship

2019
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2019

KNOWiNK, LLC
Independent Consultant

- Architected the AWS GovCloud deployment of a voter registration platform, optimizing for security, availability, performance, and cost
- Implemented a complete CI/CD pipeline using infrastructure-as-code and scalable compute
- Collaborated with outside security teams at the Department of Homeland Security to ensure monitoring and compliance requirements were met
- Trained the in-house engineering team on cloud technologies and best practices

2019
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2016

Boxmaeker, LLC
Co-Founder

- Built a device that communicates to a variety of weighing scale brands, publishing their measurements over Internet of Things protocols
- Used cloud infrastructure to record data, collect status information, and push software updates to on-site devices, greatly simplifying maintenance
- Developed a cross-platform mobile app for display and control of device data
- Implemented a mobile B2B app for a third-party supplier, generating over a million dollars of sales to date
- Sold the solution to a scale manufacturer for integration into their marquee product line

Skills and Competencies

Coding	Python, Node.js, JavaScript, TypeScript, Java, C, C++, C#, Perl, Bash, LaTeX
Infra	AWS, GCP, GovCloud, FastAPI, Docker, Kubernetes, Helm, Terraform, CDK, Linux, MacOS, Windows
Data	MySQL, PostgreSQL, MongoDB, Cassandra, Elasticsearch, BigQuery, Pandas, NumPy, Generative AI
Tools	GitHub, GitLab, Monday, Mural, Jira, Confluence, Markdown, Microsoft Office, Google Workspace
People	Engineering Management, Recruiting, Interviewing, Remote Collaboration, Public Speaking, Classroom Training
Domains	Defense, Education, Elections, Workforce Development, Unemployment Insurance, Public Policy, Open Source

Professional Certifications

2025	Amazon Web Services, <i>Certified Solutions Architect - Professional</i>
2025	Amazon Web Services, <i>Certified Solutions Architect - Associate</i>
2025	Amazon Web Services, <i>Certified SysOps Administrator - Associate</i>
2025	Amazon Web Services, <i>Certified AI Practitioner</i>
2023	Google Cloud Platform, <i>Professional Cloud Architect</i>
2023	Google Cloud Platform, <i>Cloud Digital Leader</i>
2023	Amazon Web Services, <i>Certified DevOps Engineer - Professional</i>
2023	Amazon Web Services, <i>Certified Security - Specialty</i>
2020	Amazon Web Services, <i>Certified Machine Learning - Specialty</i>
2020	Amazon Web Services, <i>Certified Data Analytics - Specialty</i>
2020	Amazon Web Services, <i>Certified Database - Specialty</i>
2020	Amazon Web Services, <i>Certified Advanced Networking - Specialty</i>
2019	Amazon Web Services, <i>Certified Developer - Associate</i>

Formal Education

2023	Stanford Online, <i>Ethics, Technology, and Public Policy for Practitioners</i>
2013	San Diego State University, <i>Advanced Certificate, Web and Mobile Applications Development</i>
2010	Northrop Grumman Corporation, <i>Emerging Leaders Program</i>
2001	Cedarville University, <i>Bachelor of Science, Computer Science and Mathematics</i>