Tim Cull

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Seeking to address climate change as a Head of Engineering in clean tech. Biggest strengths include: data systems and pipelines, architecting for repeatable stability and extreme scale, and people management and technical coaching. Some highlights include:

- *Ran several data teams at truly extreme scale*
- *Turned around a dozen failing production applications*
- *Worked both in small startups and large companies like Adobe and BlackRock*
- *Operated as a telescoping, hands-on leader running numerous teams from 5 to 35 people*
- *Founded, bootstrapped, and successfully grew my own company to seven people over 5 years*
- *Grew as a polyglot technologist with commercial experience in 9+ languages over 25 years*
- *Accumulated fluency in climate data, advertising data, financial services data and ecommerce data*
- *Currently acquiring a growing specialty in GIS and geospatial data*

"I cannot understate how incredibly important Tim's contributions were in 2022" - *performance review*

"By far the best engineering leader I have worked with" - former colleague, head of people operations

"Tim is part of a secret Software Special Forces unit trained to tackle software challenges others run away from" - *LinkedIn testimony from former boss*

"Excellent understanding of how to manage complexity and mitigate risks" - *LinkedIn testimony from former client*

"An excellent software architect across all aspects of the job, being a first class software designer and developer with a good knowledge of the business, a great communicator, a diplomat when required and an all round nice guy to boot" - *LinkedIn testimony from former boss*

"The best boss I've ever had" - *former employee*

UrbanFootprint, Principal Software Architect. Berkeley, CA. 2021-present.
(Python, Flask, React, Postgres, PostGIS, BigQuery, Kubernetes)

Built geospatial software and analytics, specializing in the relationships among land use, community traits, and climate and physical hazards with respect to financial assets, utility grid assets and government assistance programs.

Highlights include:
- Processed geospatial data in the hundreds of billions of rows per dataset
- Stretched the team to think bigger and faster around scale, especially data scale
- Led the hiring and management of directors and individual contributors alike
- Invented a highly-scalable data pipeline for converting raster climate and hazard data to vector-based spatial indexes for analysis in BigQuery
- Smoothed out operational processes with a special eye towards eliminating handoffs among humans and reducing "wall time"
- Formalized an "insight mountain" based product strategy for selling to big 5 consultancies

- Brought in an organized quarterly roadmapping process
- Filled in missing leadership capacity, as needed, by running, at various times, the product, data science, data engineering and application engineering teams

Swing Left, Head of Technology. Oakland, CA. 2019-2021.
(Python, Flask, Angular, Klaviyo, Postgres, PostGIS, Heroku)

Very hands-on role running a scrappy, fully-remote team of technologists and product people in the 2020 election cycle. Technical owner of all end-user platforms, marketing sites, data integrations, email, business intelligence and data analytics. Executive manager of the product and design teams.

Highlights include:
- Delivered disproportionate value under extremely constrained budgets
- Hired and managed both the engineering and product teams of up to seven people
- Worked directly with field organizers and volunteers to develop highly usable software products for a very low tech audience
- Directed or personally wrote data integrations (in Python/Postgres) with ActBlue (donations), ActionNetwork (events), Mobilize (events), and Klaviyo (email)
- Directed the development of timely landing pages and mini-apps in response to world events
- Maintained software systems (Python/Flask/Angular) that seamlessly and economically scaled down to nearly zero traffic and up to nearly 10,000x traffic instantaneously (for example, when Hillary Clinton tweeted about us unexpectedly on an otherwise quiet day)
- Wholly owned email and email deliverability to millions of subscribers

Adobe, Director of Engineering. Emeryville, CA. 2016-2019.
(Java, Kafka, Aerospike, Hive/Presto, Druid, Qubole, Snowflake)

Ran the 35-person real-time big data group for Adobe Advertising Cloud. Owned five distinct software systems (largely in Java) at extreme scale, processing 30,000 to 100,000 real-time events per second (4-100 billion/day), 24 hours a day, seven days a week: ad impression tracking, user behavior tracking, ad optimization model inputs, monthly accounting, and reporting. Managed or worked closely with teams across China, Ukraine, Romania and India.

Highlights include:
- Hired and managed 35 people across five teams with direct reports of both managers and ICs
- Owned the ad impression tracking and user segmentation systems for AdCloud
- Owned the business intelligence group for the business unit
- Owned the accounting systems group for the business unit
- Directed the scaling of two different real-time, Java-based pipelines 4-6x in two years while reducing downtime by 80%
- Drove more structured and disciplined approaches to resilience, stability, data analysis and troubleshooting
- Owned tens of millions of dollars a year in technology spend on Snowflake, AWS, Vertica, Aerospike, Druid and Quoble
- Directed the technical turnaround of an extremely unstable system from no better than 80% availability to 99.9% (processing more than 4 billion individual realtime ad impression events per day)
- Helped create a more formal roadmapping process for the business unit to replace the adhoc chaos that came before

Touch of Modern, Vice President of Engineering. San Francisco, CA. 2015-2016.
(Ruby on Rails, Postgres, Sailthru, Sendgrid)

A very hands-on role running day-to-day engineering at a rapidly-growing, $100 million eCommerce company. Maintained and enhanced all of the back office, front end, mobile, email, and warehouse management software in Ruby on Rails.

Highlights include:
- Scaled the engineering team from 1 to 6 people in six months under a tight budget
- Wholly owned email and email deliverability to millions of subscribers, pushing daily emails that drove 40% of revenue
- Helped create a more formal roadmapping process for the company to replace the adhoc chaos that came before
- Scaled pageviews 100% while cutting server counts by more than half
- Directed or personally shipped code for the front end website (Ruby on Rails), iOS and Android applications, email delivery (Ruby on Rails) and all warehouse management and operations software (Ruby on Rails)

Pollen.io, Founder and Managing Director. Berkeley, CA. 2009-2015.
(Ruby, Java, C#, Snowflake, MySQL, Hive/EMR, Greenplum)

Founded a boutique software consultancy specializing in high-impact software architecture and development. Immensely proud to say every project we did for clients over five years hit its schedule *and* its budget. Grew the company from 0 to 7 people without outside funding.

Highlights include:
- Creating all the back office and middle office systems for a new hedge fund (Java)
- Creating data processing and quality assurance systems for a new cash bond ETF indexer (Java)
- A data pipeline to publish millions of products from a $200 million eCommerce site to shopping engines daily like Google, Amazon, and eBay (Ruby).
- Web application for reporting election ad spend to Congressional and Presidential political candidates (Java/Play framework).
- Fraud and loss prevention systems for a $400 million textbook rental company (Ruby on Rails)
- Data pipeline stability improvements for a cable channel (Python)
- Shopify add-in to automatically send hyper-targeted email to eCommerce customers (Ruby on Rails).
- Various projects for several mid-to-large scale eCommerce sites (Java, PHP, Ruby on Rails)
- Systems integration and expansion for public safety records management systems (Java)
- Various API-heavy extensions to Freshbooks, Instagram, CafePress and Google (Ruby).
- A warehouse management product migration from on-prem to AWS cloud (C#/.Net).
- A healthcare record SaaS product re-shoring project (C#/.Net).

BlackRock Financial Management, Vice President/Application Architect. San Francisco, CA. 1999-2010.
(Java, Sybase, Perl, Oracle Coherence Grid, Python, VB6, Sybase, Ruby on Rails)

Most of this experience was from Barclays Global Investors (BGI), the largest asset manager in the world at the time, acquired by BlackRock, the third largest asset manager in the world at the time, in 2009.

Managed billion-dollar trading systems, data systems, and software architecture at the world's largest asset manager with $1.5 trillion in assets under management. Projects ranged from market data systems, to data warehouses, to front office trading systems. Architected, coded, and/or lead engineering

for dozens of financial systems managing trillions of dollars in assets and billions of dollars in trades per day for institutional investors, hedge funds, and index data providers.

Highlights include:

- Developed technical integration strategies from BlackRock's purchase of BGI
- At various times, held either direct line management responsibilities or indirect leadership responsibility for a half dozen teams from 3 to 12 people across SF, Tokyo, London, Toronto and Sydney
- Owned all the trading and market data pipelines for trading and portfolio management systems
- As part of the central Application Architecture team, set software standards and turned around struggling technical projects
- Technical lead launching iShares before the world knew what Exchange Traded Funds even were
- Technical lead for the creation of a new $1 billion global equity and bond trading system
- Permanently rescued two different trading systems that had been experiencing chronic, catastrophic outages
- Helped migrate the company from bespoke data islands to a central enterprise data bus
- Co-invented a system in Ruby on Rails for tracking dependencies among the company's 800 separate software systems
- Worked formally as an architect under Eoin Woods and Nick Rozanski, the authors of *Software Systems Architecture* (a book I was also a reviewer for in the 2nd edition)

Additional Experience

2021 - Pollen.io: Created a data product and business partnership to surface Coupled Model Intercomparison Project (CMIP6) data in the Snowflake data marketplace

2013 - RetentionFactory.com: Created a SaaS to fully automate email marketing for Shopify merchants

2013 - Developer Week: Speaker, "API-heavy Ruby on Rails Applications"

2012 - Business of Software: Speaker, "Locked in Mistakes"

2011 - FeatureViz.com: Created a Zapier-like SaaS application for tying together various APIs

2011/2010 - Infoq.com: Authored numerous articles: http://www.infoq.com/author/Tim-Cull

2010 - Published study: Blair, Stuart; Cull, Tim; Watt, Richard. "Responsibility Driven Architecture." *IEEE Software*, March/April 2010.

2001 - i2 Technologies: Senior Software Engineer at supply chain management company

1999 - Epit Systems: Lead Software Engineer in financial services startup

Education

University of California, Davis. BS in Computer Science

Misc
The most up-to-date copy of this resume can be found at http://pollen.io/TimResume.pdf

Non-trivial, commercial, production experience in all of these languages and technologies over 25 years:

General Languages (deep)	Python, Javascript, SQL, Ruby, Java, VisualBasic, C#
General Languages (shallow)	Go, Scala, C, C++, Perl, PHP, Groovy
Front End Frameworks	React, Angular, Vue.js, Java Swing, AWT, .NET thick client, Eclipse RCP
Back End Frameworks	Flask, Ruby on Rails, Java Spring, JSP, ASP.net, Play, Node.js, Grails
Markup Languages	JSON, HTML, XML, XSL, CSS
Distributed Computing	Kubernetes, Kafka, Celery, Redis, JMS, Sidekiq, Resque, CORBA, DCOM, J2EE, Weblogic, Jboss, Oracle Coherence, webMethods
Databases and Big Data	PostgreSQL, PostGIS, Snowflake, BigQuery, Aerospike, Quoble, HiveQL, Sybase, MySQL, MSSQL, EMR, Vertica, Greenplum, Teradata
Cloud Environments	AWS, Google Cloud, Azure, Heroku
Misc	Terraform, DBT, Shopify, Bootstrap, JQuery, Apache Camel, SQLAlchemy, ActiveRecord, Hibernate, RSpec, FactoryBot, Capybara, JUnit, Nginx, Apache HTTP Server, Jetty, ColdFusion, Unicorn, Sendgrid, Klaviyo, Jenkins, Ant, make, Filemaker