Creating A Software Engineering Culture

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Creating A Software Engineering Culture ***2023-07-10***

CABRERA MELINA

Measure What Matters Addison-

Wesley Professional
Do you... Use a computer to perform analysis or simulations in your daily work? Write short scripts or record macros to perform repetitive tasks? Need to integrate off-the-shelf software into your systems or require multiple applications to work together? Find yourself spending too much time working the kinks out of your code? Work with software engineers on a regular basis but have difficulty communicating or collaborating? If any of these sound familiar, then you may need a quick primer in the principles of software engineering. Nearly every engineer, regardless of field, will need to develop some form of software during their career. Without exposure to the challenges, processes, and limitations of software engineering, developing software can be a burdensome and inefficient chore. In What Every Engineer Should Know about Software Engineering, Phillip Laplante introduces the profession of software engineering along with a practical approach to understanding, designing, and building sound software based on solid principles. Using a unique question-and-answer format, this book addresses the issues and misperceptions that engineers need to understand in order to successfully work with software engineers, develop specifications for quality software, and learn the basics of the most common programming languages, development approaches, and paradigms.
39 Engineering Challenges Addison-Wesley Professional

Writing and running software is now as much a part of science as telescopes and test tubes, but most researchers are never taught how to do either well. As a result, it takes them longer to accomplish simple tasks than it should, and it is harder for them to share their work with others than it needs to be. This book introduces the concepts, tools, and skills that researchers need to get more done in less time and with less pain. Based on the practical experiences of its authors, who collectively have spent several decades teaching software skills to scientists, it covers everything graduate-level researchers need to automate their workflows, collaborate with colleagues, ensure that their results are trustworthy, and publish what they have built so that others can build on it.

The book assumes only a basic knowledge of Python as a starting point, and shows readers how it, the Unix shell, Git, Make, and related tools can give them more time to focus on the research they actually want to do. Research Software Engineering with Python can be used as the main text in a one-semester course or for self-guided study. A running example shows how to organize a small research project step by step; over a hundred exercises give readers a chance to practice these skills themselves, while a glossary defining over two hundred terms will help readers find their way through the terminology. All of the material can be re-used under a Creative Commons license, and all royalties from sales of the book will be donated to The Carpentries, an

organization that teaches foundational coding and data science skills to researchers worldwide.

Rules, Tools, and Insights for Managing Software People and Teams Mohammed Hamed Ahmed Soliman

Today, software engineers need to know not only how to program effectively but also how to develop proper engineering practices to make their codebase sustainable and healthy. This book emphasizes this difference between programming and software engineering. How can software engineers manage a living codebase that evolves and responds to changing requirements and demands over the length of its life? Based on their experience at Google, software engineers Titus Winters and Hyrum Wright, along with technical writer Tom Manshreck, present a candid and insightful look at how some of the world's leading practitioners construct and maintain software. This book covers Google's unique engineering culture, processes, and tools and how these aspects contribute to the effectiveness of an engineering organization. You'll explore three fundamental principles that software organizations should keep in mind when designing, architecting, writing, and maintaining code: How time affects the sustainability of software and how to make your code resilient over time How scale affects the viability of software practices within an engineering organization What trade-offs a typical engineer needs to make when evaluating design and development decisions

Research Software Engineering with Python Addison-Wesley

Over the last few decades, research, activity, and funding has been devoted to improving the recruitment, retention, and advancement of women in the fields of science, engineering, and medicine. In recent years the diversity of those participating in these fields, particularly the participation of women, has improved and there are significantly more women entering careers and studying science, engineering, and medicine than ever before. However, as women increasingly enter these fields they face biases and barriers and it is not surprising that sexual harassment is one of these barriers. Over thirty years the incidence of sexual harassment in different industries has held steady, yet now more women are in the workforce and in academia, and in the fields of science, engineering, and medicine (as students and faculty) and so more women are experiencing sexual harassment as they work and learn. Over the last several years, revelations of the sexual harassment experienced by women in the workplace and in academic settings have raised urgent questions about the specific impact of this discriminatory behavior on women and the extent to which it is limiting their careers. Sexual Harassment of Women explores the influence of sexual harassment in academia on the career advancement of women in the scientific, technical, and medical workforce. This report reviews the research on the extent to which women in the fields of

science, engineering, and medicine are victimized by sexual harassment and examines the existing information on the extent to which sexual harassment in academia negatively impacts the recruitment, retention, and advancement of women pursuing scientific, engineering, technical, and medical careers. It also identifies and analyzes the policies, strategies and practices that have been the most successful in preventing and addressing sexual harassment in these settings.

The Essence of Software Engineering John Wiley & Sons

This is the digital version of the printed book (Copyright (c) 1996). Written in a remarkably clear style, " Creating a Software Engineering Culture " presents a comprehensive approach to improving the quality and effectiveness of the software development process. In twenty chapters spread over six parts, Wiegers promotes the tactical changes required to support process improvement and high-quality software development. Throughout the text, Wiegers identifies scores of culture builders and culture killers, and he offers a wealth of references to resources for the software engineer, including seminars, conferences, publications, videos, and on-line information. With case studies on process improvement and software metrics programs and an entire part on action planning (called "What to Do on Monday"), this practical book guides the reader in applying the concepts to real life. Topics include software culture concepts, team behaviors, the five

dimensions of a software project, recognizing achievements, optimizing customer involvement, the project champion model, tools for sharing the vision, requirements traceability matrices, the capability maturity model, action planning, testing, inspections, metrics-based project estimation, the cost of quality, and much more Principles from Part 1 Never let your boss or your customer talk you into doing a bad job. People need to feel the work they do is appreciated. Ongoing education is every team member's responsibility. Customer involvement is the most critical factor in software quality. Your greatest challenge is sharing the vision of the final product with the customer. Continual improvement of your software development process is both possible and essential. Written software development procedures can help build a shared culture of best practices. Quality is the top priority; long-term productivity is a natural consequence of high quality. Strive to have a peer, rather than a customer, find a defect. A key to software quality is to iterate many times on all development steps except coding: Do this once. Managing bug reports and change requests is essential to controlling quality and maintenance. If you measure what you do, you can learn to do it better. You can't change everything at once. Identify those changes that will yield the greatest benefits, and begin to implement them next Monday. Do what makes sense; don't resort to dogma.

Making Work Visible Creating a Software Engineering Culture
Managing Humans is a selection of the best essays from Michael Lopp's popular website Rands in Repose(www.randsinrepose.com). Lopp is one of the most sought-after IT managers in Silicon Valley, and draws on his experiences at Apple, Netscape, Symantec, and Borland. This book reveals a variety of different approaches for creating innovative, happy development teams. It covers handling conflict, managing wildly differing personality types, infusing innovation into insane product schedules, and figuring out how to build lasting and useful engineering culture. The essays are biting, hilarious, and always informative.

Creating Softwre Eng Cul Pragmatic Bookshelf
While there is a lot of appreciation for backend and distributed systems challenges, there tends to be less empathy for why mobile development is hard when done at scale. This book collects challenges engineers face when building iOS and Android apps at scale, and common ways to tackle these. By scale, we mean having numbers of users in the millions and being built by large engineering teams. For mobile engineers, this book is a blueprint for modern app engineering approaches. For non-mobile engineers and managers, it is a resource with which to build empathy and appreciation for the complexity of world-class mobile engineering. The book covers iOS and

Android mobile app challenges on these dimensions: Challenges due to the unique nature of mobile applications compared to the web, and to the backend. App complexity challenges. How do you deal with increasingly complicated navigation patterns? What about non-deterministic event combinations? How do you localize across several languages, and how do you scale your automated and manual tests? Challenges due to large engineering teams. The larger the mobile team, the more challenging it becomes to ensure a consistent architecture. If your company builds multiple apps, how do you balance not rewriting everything from scratch while moving at a fast pace, over waiting on "centralized" teams? Cross-platform approaches. The tooling to build mobile apps keeps changing. New languages, frameworks, and approaches that all promise to address the pain points of mobile engineering keep appearing. But which approach should you choose? Flutter, React Native, Cordova? Native apps? Reuse business logic written in Kotlin, C#, C++ or other languages? What engineering approaches do "world-class" mobile engineering teams choose in non-functional aspects like code quality, compliance, privacy, compliance, or with experimentation, performance, or app size?

Creating a Software Engineering Culture

IT Revolution

“Mantle and Lichty have assembled a guide that will help you hire, motivate, and mentor a software development

team that functions at the highest level. Their rules of thumb and coaching advice are great blueprints for new and experienced software engineering managers alike.” —Tom Conrad, CTO, Pandora “I wish I’d had this material available years ago. I see lots and lots of ‘meat’ in here that I’ll use over and over again as I try to become a better manager. The writing style is right on, and I love the personal anecdotes.” —Steve Johnson, VP, Custom Solutions, DigitalFish All too often, software development is deemed unmanageable. The news is filled with stories of projects that have run catastrophically over schedule and budget. Although adding some formal discipline to the development process has improved the situation, it has by no means solved the problem. How can it be, with so much time and money spent to get software development under control, that it remains so unmanageable? In Managing the Unmanageable: Rules, Tools, and Insights for Managing Software People and Teams , Mickey W. Mantle and Ron Lichty answer that persistent question with a simple observation: You first must make programmers and software teams manageable. That is, you need to begin by understanding your people—how to hire them, motivate them, and lead them to develop and deliver great products. Drawing on their combined seventy years of software development and management experience, and highlighting the insights and wisdom of other successful managers, Mantle and Lichty provide the guidance you need to

manage people and teams in order to deliver software successfully. Whether you are new to software management, or have already been working in that role, you will appreciate the real-world knowledge and practical tools packed into this guide.

DevOps For Dummies CRC Press

In Improving Software Development Productivity, legendary software engineering expert Dr. Randall Jensen introduces a proven quantitative approach to achieving high productivity through management support, the ability to communicate, and technology. Jensen demonstrates how to measure organizational capacity and productivity, and use that information to build more accurate estimates and schedules -- and, more broadly, to improve many facets of developer and team performance. Students will learn to quantitatively predict the productivity impact of management decisions related to personnel and management style, development environment, product constraints, technology, development systems, and more.

Engineering Culture Addison-Wesley Professional

Right Your Software and Transform Your Career Righting Software presents the proven, structured, and highly engineered approach to software design that renowned architect Juval Löwy has practiced and taught around the world. Although companies of every kind have successfully implemented his original design ideas across hundreds of systems, these insights have never

before appeared in print. Based on first principles in software engineering and a comprehensive set of matching tools and techniques, Löwy's methodology integrates system design and project design. First, he describes the primary area where many software architects fail and shows how to decompose a system into smaller building blocks or services, based on volatility. Next, he shows how to flow an effective project design from the system design; how to accurately calculate the project duration, cost, and risk; and how to devise multiple execution options. The method and principles in Righting Software apply regardless of your project and company size, technology, platform, or industry. Löwy starts the reader on a journey that addresses the critical challenges of software development today by righting software systems and projects as well as careers—and possibly the software industry as a whole. Software professionals, architects, project leads, or managers at any stage of their career will benefit greatly from this book, which provides guidance and knowledge that would otherwise take decades and many projects to acquire. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine Addison-Wesley

This is the digital version of the printed book (Copyright © 1996). Written in a remarkably clear style, Creating a

Software Engineering Culture presents a comprehensive approach to improving the quality and effectiveness of the software development process. In twenty chapters spread over six parts, Wiegers promotes the tactical changes required to support process improvement and high-quality software development. Throughout the text, Wiegers identifies scores of culture builders and culture killers, and he offers a wealth of references to resources for the software engineer, including seminars, conferences, publications, videos, and on-line information. With case studies on process improvement and software metrics programs and an entire part on action planning (called “What to Do on Monday”), this practical book guides the reader in applying the concepts to real life. Topics include software culture concepts, team behaviors, the five dimensions of a software project, recognizing achievements, optimizing customer involvement, the project champion model, tools for sharing the vision, requirements traceability matrices, the capability maturity model, action planning, testing, inspections, metrics-based project estimation, the cost of quality, and much more! Principles from Part 1 Never let your boss or your customer talk you into doing a bad job. People need to feel the work they do is appreciated. Ongoing education is every team member’s responsibility. Customer involvement is the most critical factor in software quality. Your greatest challenge is sharing the vision of the final product

with the customer. Continual improvement of your software development process is both possible and essential. Written software development procedures can help build a shared culture of best practices. Quality is the top priority; long-term productivity is a natural consequence of high quality. Strive to have a peer, rather than a customer, find a defect. A key to software quality is to iterate many times on all development steps except coding: Do this once. Managing bug reports and change requests is essential to controlling quality and maintenance. If you measure what you do, you can learn to do it better. You can't change everything at once. Identify those changes that will yield the greatest benefits, and begin to implement them next Monday. Do what makes sense; don't resort to dogma.

#noprojects: A Culture of Continuous Value "O'Reilly Media, Inc."

"This remarkable book combines practical advice, ready-to-use techniques, anda deep understanding of why this is the right way to develop software. I haveseen software teams transformed by the ideas in this book." -- Mike Cohn, author of Agile Estimating and Planning "As a lean practitioner myself, I have loved and used their first book for years.When this second book came out, I was delighted that it was even better. If youare interested in how lean principles can be useful for software developmentorganizations, this is the book you are looking for. The Poppendiecks offer abeautiful blend of

history, theory, and practice." --Alan Shalloway, coauthor of Design Patterns Explained "I've enjoyed reading the book very much. I feel it might even be better than thefirst lean book by Tom and Mary, while that one was already exceptionallygood! Mary especially has a lot of knowledge related to lean techniques inproduct development and manufacturing. It's rare that these techniques areactually translated to software. This is something no other book does well(except their first book)." --Bas Vodde "The new book by Mary and Tom Poppendieck provides a well-written andcomprehensive introduction to lean principles and selected practices for softwaremanagers and engineers. It illustrates the application of the values andpractices with well-suited success stories. I enjoyed reading it." --Roman Pichler "In Implementing Lean Software Development, the Poppendiecks explore moredeeply the themes they introduced in Lean Software Development. They beginwith a compelling history of lean thinking, then move to key areas such asvalue, waste, and people. Each chapter includes exercises to help you apply keypoints. If you want a better understanding of how lean ideas can work withsoftware, this book is for you." --Bill Wake, independent consultant In 2003, Mary and Tom Poppendieck's Lean Software Development introduced breakthrough development techniques that leverage Lean principles to deliver unprecedented agility and value. Now their widely anticipated sequel and companion guide shows exactly how to

implement Lean software development, hands-on. This new book draws on the Poppendiecks' unparalleled experience helping development organizations optimize the entire software value stream. You'll discover the right questions to ask, the key issues to focus on, and techniques proven to work. The authors present case studies from leading-edge software organizations, and offer practical exercises for jumpstarting your own Lean initiatives. Managing to extend, nourish, and leverage agile practices Building true development teams, not just groups Driving quality through rapid feedback and detailed discipline Making decisions Just-in-Time, but no later Delivering fast: How PatientKeeper delivers 45 rock-solid releases per year Making tradeoffs that really satisfy customers Implementing Lean Software Development is indispensable to anyone who wants more effective development processes--managers, project leaders, senior developers, and architects in enterprise IT and software companies alike.

Building software that makes research possible O'Reilly Media

The #1 guide to using Visual Studio 2010 in team development: insider coverage of this huge release, from the leader of the VSTS team * *Focuses on succeeding with new VS 2010 ALM products in real-world environments, with exclusive 'Lessons Learned at Microsoft'. *Thoroughly covers VS 2010's massive new capabilities for team development. *Contains extensive new coverage of implementing Scrum and

related practices. *Covers the entire lifecycle: requirements, architecture, construction, build, test, and more This is the most practical, valuable guide for every member of the software team who intends to run or participate in software projects using Microsoft's Visual Studio 2010. Written by a top Microsoft Visual Studio development team leader and a leading Visual Studio implementation consultant, it focuses on the real challenges development organizations face. The authors identify powerful lessons and best practices learned at Microsoft, and cover the entire development lifecycle, from requirements gathering through testing and beyond. This edition adds extensive coverage of VS 2010's extensive new team features, as well as new coverage of using VS 2010 to actively support teams that practice Scrum. Throughout, the authors focus on showing how to use VS 2010 to reduce waste, increase transparency, and accelerate the flow of value to the end customer. Coverage includes: * *Requirements: vision, user stories, use cases, storyboards, satisfiers/dissatisfiers, and more *Running the project: self-managing teams, metrics, sprints, and dashboards *'Value-up' views of software architecture, construction, and testing. *Build and lab: check-in, team build, continuous integration, build verification tests, reporting, deployment, and lab automation/virtualization. *Troubleshooting the project: overcoming issues ranging from scope creep to build failures

Righting Software "O'Reilly Media, Inc." Hoshin Kanri has been used successfully by Toyota and other top-tier companies in Japan and the United States to achieve strategic business and lean goals. The underlying power of a successful hoshin kanri process relays on how Toyota creates an environment of continuous improvement. Toyota is a strong business because of its people, and people are the value of its system. This book focuses more on people rather than the process. Management behavior, motivation, core organizational values and teamwork, leadership development, and culture change are the real factors of any business success. Akio Toyoda said after several recent recalls that the rate of the company's growth was higher than the rate of the development of its people. Successful businesses need to invest in the people and put the people before the process. Read this book and you will see why a gap remains between successful and less successful companies in terms of process management, people management, and the adaptability of culture.

Doing What Works to Build Better Software Faster "O'Reilly Media, Inc." In a microservices architecture, the whole is indeed greater than the sum of its parts. But in practice, individual microservices can inadvertently impact others and alter the end user experience. Effective microservices architectures require standardization on an organizational level with the help of a platform engineering team. This practical book provides a series of

progressive steps that platform engineers can apply technically and organizationally to achieve highly resilient Java applications. Author Jonathan Schneider covers many effective SRE practices from companies leading the way in microservices adoption. You'll examine several patterns discovered through much trial and error in recent years, complete with Java code examples. Chapters are organized according to specific patterns, including: Application metrics: Monitoring for availability with Micrometer Debugging with observability: Logging and distributed tracing; failure injection testing Charting and alerting: Building effective charts; KPIs for Java microservices Safe multicloud delivery: Spinnaker, deployment strategies, and automated canary analysis Source code observability: Dependency management, API utilization, and end-to-end asset inventory Traffic management: Concurrency of systems; platform, gateway, and client-side load balancing

The Unicorn Project HarperCollins What company doesn't want energized workers, delighted customers, genuine efficiency, and breakthrough innovation? The Lean Mindset shows how lean companies really work–and how a lean mindset is the key to creating stunning products and delivering amazing services. Through cutting-edge research and case studies from leading organizations, including Spotify, Ericsson, Intuit, GE Healthcare, Pixar, CareerBuilder, and Intel, you'll discover

proven patterns for developing that mindset. You'll see how to cultivate product teams that act like successful startups, create the kind of efficiency that attracts customers, and leverage the talents of bright, creative people. The Poppendiecks weave lean principles throughout this book, just as those principles must be woven throughout the fabric of your truly lean organization. Learn How To Start with an inspiring purpose, and overcome the curse of short-term thinking Energize teams by providing well-framed challenges, larger purposes, and a direct line of sight between their work and the achievement of those purposes Delight customers by gaining unprecedented insight into their real needs, and building products and services that fully anticipate those needs Achieve authentic, sustainable efficiency without layoffs, rock-bottom cost focus, or totalitarian work systems Develop breakthrough innovations by moving beyond predictability to experimentation, beyond globalization to decentralization, beyond productivity to impact Lean approaches to software development have moved from novelty to widespread use, in large part due to the principles taught by Mary and Tom Poppendieck in their pioneering books. Now, in The Lean Mindset, the Poppendiecks take the next step, looking at a company where multidiscipline teams are expected to ask the right questions, solve the right problems, and deliver solutions that customers love. *How to Be the Leader Your Development Team Needs* IT Revolution

Introducing The Effective Engineer--the only book designed specifically for today's software engineers, based on extensive interviews with engineering leaders at top tech companies, and packed with hundreds of techniques to accelerate your career.

Building a Culture of Collaboration, Affinity, and Tooling at Scale Addison-Wesley

Writing for students at all levels of experience, Farley illuminates durable principles at the heart of effective software development. He distills the discipline into two core exercises: first, learning and exploration, and second, managing complexity. For each, he defines principles that can help students improve everything from their mindset to the quality of their code, and describes approaches proven to promote success. Farley's ideas and techniques cohere into a unified, scientific, and foundational approach to solving practical software development problems within realistic economic constraints. This general, durable, and pervasive approach to software engineering can help students solve problems they haven't encountered yet, using today's technologies and tomorrow's. It offers students deeper insight into what they do every day, helping them create better software, faster, with more pleasure and personal fulfillment.

Modern Software Engineering Pearson Education

Over the last fifteen years, every major aspect of our lives has changed because

of Facebook. You may not like Facebook, but you can't deny its success. And to a large degree, that success stems from the "move fast" ethos. The entire culture of Facebook is built for speed. Move Fast is an exploration of modern software strategies and tactics through the lens of Facebook. Relying on in-depth interviews with more than two dozen Facebook engineers, this book explores the product strategy, cultural principles, and technologies that made Facebook the dominant social networking company. Most importantly, Move Fast investigates how you can apply those strategies to your creative projects. It's not easy to build a software company, but once you know how to move fast, your company will be prepared to build a strategy that benefits from the world's rapid changes, rather than suffering from them.

How Facebook Builds Software Pearson Education

"Engineering Culture" is an award-winning ethnography of the engineering division of a large American high-tech corporation. Now, this influential book - which has been translated into Japanese, Italian and Hebrew - has been revised to bring it up to date. In "Engineering Culture", Gideon Kunda offers a critical analysis of an American company's well-known and widely emulated "corporate culture." Kunda uses detailed descriptions of everyday interactions and rituals in which the culture is brought to life, excerpts from in-depth interviews and a wide variety of corporate texts to vividly portray managerial attempts to design and

impose the culture and the ways in which it is experienced by members of the organization. The company's management, Kunda reveals, uses a variety of methods to promulgate what it claims is a non-authoritarian, informal, and flexible work environment that enhances and rewards individual commitment, initiative, and creativity while promoting personal growth. The author demonstrates, however, that these pervasive efforts mask an elaborate and subtle form of normative control in which the members' minds and hearts become the target of corporate influence. Kunda carefully dissects the impact this form of control has on employees' work behavior and on their sense of self. In the conclusion written especially for this edition, Kunda reviews the company's fortunes in the years that followed publication of the first edition, reevaluates the arguments in the book, and explores the relevance of corporate culture and its management today