

a b testing case study

A/B Testing Case Study: Unveiling the Power of Data-Driven Decisions

Author: Dr. Eleanor Vance, PhD in Statistics & Data Science, Certified Data Analyst

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Introduction:

This a/b testing case study delves into the practical applications and surprising insights derived from rigorously conducted A/B tests. As a seasoned data scientist, I've witnessed firsthand the transformative power of A/B testing, moving beyond simple hypothesis testing to unlock significant improvements in website conversion rates, user engagement, and overall business performance. This a/b testing case study will explore several real-world examples, highlighting common pitfalls and showcasing best practices. I'll also share personal anecdotes from my career to illustrate the human element behind the data, emphasizing the importance of careful planning and insightful interpretation.

H1: The Fundamentals of A/B Testing

Before diving into specific a/b testing case studies, let's briefly review the core principles. A/B testing, also known as split testing, involves comparing two versions of a webpage, email, or other digital element to determine which performs better based on a predefined metric (e.g., click-through rate, conversion rate, time on page). This involves randomly assigning users to either version A (the control) or version B (the variation). By analyzing the results using statistical methods, we can determine whether the difference in performance is statistically significant, ruling out random chance.

One early project I worked on involved optimizing the landing page for a major e-commerce client. The initial landing page had a high bounce rate. Through a carefully designed a/b testing case study, we tested different headlines, calls to action, and image placements. The results were dramatic. A subtle change in headline copy, focusing on benefits rather than features, resulted in a 15% increase in conversion rates. This seemingly minor adjustment, validated through rigorous statistical analysis within our a/b testing case study, yielded significant revenue growth for the client.

H2: A/B Testing Case Study: Optimizing Email Campaigns

A compelling a/b testing case study involved a non-profit organization seeking to improve donations through email marketing. Their initial email campaign had a low open and click-through rate. We conducted an a/b testing case study, testing variations in subject lines, email body copy, and call-to-action buttons.

Version A (control) used a generic subject line and a lengthy email body. Version B used a more concise subject line emphasizing urgency and a shorter, more visually appealing email with clear call-to-action buttons.

The results of this a/b testing case study were clear: Version B significantly outperformed Version A in terms of both open and click-through rates, leading to a substantial increase in donations. This highlighted the importance of understanding audience engagement and crafting compelling messaging, as demonstrated within this compelling a/b testing case study.

H3: A/B Testing Case Study: Website Navigation Improvements

Another successful a/b testing case study involved a website redesign for a software company. The company's previous website had a complex navigation structure leading to user frustration and high bounce rates. Our a/b testing case study focused on simplifying the navigation, making key information more accessible, and improving overall user experience.

Version A (control) retained the existing complex navigation. Version B featured a streamlined navigation menu with clear categorization and intuitive design.

The a/b testing case study showed Version B resulted in a marked decrease in bounce rate and a significant increase in time spent on site, suggesting improved user satisfaction and engagement. This exemplifies how a well-structured a/b testing case study can guide effective website redesign and usability improvements.

H4: Challenges and Pitfalls in A/B Testing

Conducting successful a/b testing case studies is not without its challenges. Common pitfalls include:

Insufficient sample size: A small sample size can lead to inaccurate conclusions.

Poorly defined metrics: Without clear, measurable goals, it's impossible to assess the success of an A/B test.

Ignoring statistical significance: Interpreting results without considering statistical significance can lead to false positives or negatives.

Testing too many variables at once: This can make it difficult to isolate the impact of individual changes.

H5: Best Practices for A/B Testing

To maximize the effectiveness of your a/b testing case studies, consider these best practices:

Clearly define your hypothesis and metrics before starting.
Ensure a statistically significant sample size.
Use a robust A/B testing platform.
Carefully track and analyze your results.
Iterate based on your findings.

Conclusion:

This a/b testing case study has illustrated the immense value of A/B testing in optimizing digital experiences and driving business outcomes. By carefully planning, executing, and interpreting the results of A/B tests, organizations can make data-driven decisions that lead to significant improvements in key metrics such as conversion rates, engagement, and overall revenue. Remember, A/B testing is an iterative process. Continuously learn, adapt, and optimize to maximize the return on your efforts. The journey of an a/b testing case study is often as insightful as the final results.

FAQs:

1. What is the ideal sample size for an A/B test? The required sample size depends on several factors, including the expected effect size, desired statistical power, and significance level. Online calculators can help determine the appropriate sample size.
1. How long should an A/B test run? The duration depends on the traffic volume and the desired level of statistical significance. Generally, a longer test duration leads to more reliable results.
1. What are some common A/B testing tools? Popular tools include Google Optimize, Optimizely, VWO (Visual Website Optimizer).
1. How do I choose the right metrics for my A/B test? Select metrics directly relevant to your business goals. Examples include conversion rate, click-through rate, bounce rate, and time on page.
1. What if my A/B test shows no significant difference between variations? This could indicate that your variations weren't impactful enough, or that your sample size was too small. Review your hypothesis and consider further testing.

1. Can I run multiple A/B tests simultaneously? Yes, but it's crucial to manage them carefully to avoid confounding results and ensure accurate interpretation.
1. How can I avoid bias in my A/B test? Randomization is key to minimizing bias. Ensure users are randomly assigned to different variations.
1. What is the role of statistical significance in A/B testing? Statistical significance helps determine whether observed differences are likely due to the tested changes or simply random chance.
1. How can I improve the user experience through A/B testing? By focusing on usability metrics such as task completion rate and error rate, you can improve user experience and satisfaction through iterative A/B testing.

Related Articles:

1. "A/B Testing for Ecommerce: A Comprehensive Guide": This article will provide a step-by-step guide to implementing A/B testing for online stores, covering everything from setting up experiments to analyzing results.
1. "The Ultimate Guide to A/B Testing Landing Pages": This article will focus specifically on optimizing landing pages through A/B testing, discussing best practices and common mistakes.
1. "A/B Testing Case Study: Boosting Email Open Rates": This case study will delve into a specific example of using A/B testing to improve email open rates, analyzing the strategies employed and the results achieved.
1. "A/B Testing Case Study: Increasing Website Conversion Rates": This case study focuses on A/B testing methodologies employed to increase website conversion rates,

exploring various tested elements and their impact.

1. "Statistical Significance in A/B Testing: A Practical Guide": This article provides a detailed explanation of statistical significance in the context of A/B testing, helping readers understand how to interpret results accurately.
1. "Advanced A/B Testing Techniques: Multivariate Testing and Beyond": This article explores advanced A/B testing methods, including multivariate testing and Bayesian A/B testing.
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1. "A/B Testing Tools Comparison: Choosing the Right Platform for Your Needs": This article compares different A/B testing platforms, helping readers choose the tool that best fits their needs and budget.
1. "A/B Testing and Personalization: A Powerful Combination": This article explores how A/B testing can be combined with personalization to create highly targeted and effective digital experiences.

a b testing case study: Designing with Data Rochelle King, Elizabeth F Churchill, Caitlin Tan, 2017-03-29 On the surface, design practices and data science may not seem like obvious partners. But these disciplines actually work toward the same goal, helping designers and product managers understand users so they can craft elegant digital experiences. While data can enhance design, design can bring deeper meaning to data. This practical guide shows you how to conduct data-driven A/B testing for making design decisions on everything from small tweaks to large-scale UX concepts. Complete with real-world examples, this book shows you how to make data-driven design part of your product design workflow. Understand the relationship between data, business, and design Get a firm grounding in data, data types, and components of A/B testing Use an experimentation framework to define opportunities, formulate hypotheses, and test different options Create hypotheses that connect to key metrics and business goals Design proposed solutions for hypotheses that are most promising Interpret the results of an A/B test and determine your next move

a b testing case study: A / B Testing Dan Siroker, Pete Koomen, 2015-07-27 How Your Business Can Use the Science That Helped Win the White House The average conversion rate—the rate at which visitors convert into customers—across the web is only 2%. That means it's likely that 98% of visitors to your website won't end up converting into customers. What's the solution? A/B testing. A/B testing is the simple idea of showing several different versions of a web page to live traffic, and then measuring the effect each version has on visitors. Using A/B testing, companies can improve the effectiveness of their marketing and user experience and, in doing so, can sometimes double or triple their conversion rates. Testing has been fundamental in driving the success of Google, Amazon, Netflix, and other top tech companies. Even Barack Obama and Mitt Romney had dedicated teams A/B testing their campaign websites during the 2012 Presidential race. In the past, marketing teams were unable to unleash the power of A/B testing because it required costly engineering and IT resources. Today, a new generation of technology that enables marketers to run A/B tests without depending on engineers is emerging and quickly becoming one of the most powerful tools for making data-driven decisions. Authors Dan Siroker and Pete Koomen are cofounders of Optimizely, the leading A/B testing platform used by more than 5,000 organizations across the world. *A/B Testing: The Most Powerful Way to Turn Clicks Into Customers* offers best practices and lessons learned from more than 300,000 experiments run by Optimizely customers. You'll learn: What to test How to choose the testing solution that's right for your organization How to assemble an A/B testing dream team How to create personalized experiences for every visitor And much more Marketers and web professionals will become obsolete if they don't embrace a data-driven approach to decision making. This book shows you how, no matter your technical expertise.

a b testing case study: Statistical Methods in Online A/B Testing Georgi Zdravkov Georgiev, 2019-09-28 *Statistical Methods in Online A/B Testing* is a comprehensive guide to statistics in online controlled experiments, a.k.a. A/B tests, that tackles the difficult matter of statistical inference in a way accessible to readers with little to no prior experience with it. Each concept is built from the ground up, explained thoroughly, and illustrated with practical examples from website testing. The presentation is straight to the point and practically oriented so you can apply the takeaways in your daily work. It is a must-read for anyone looking for a deep understanding of how to make data-driven business decisions through experimentation: conversion rate optimizers, product managers, growth experts, data analysts, marketing managers, experts in user experience and design. The new research presented and the fresh perspective on how to apply statistics and experimentation to achieve business goals make for an interesting read even for experienced statisticians. The book deals with scientific methods, but their introductions and explanations are grounded in the business goals they help achieve, such as innovating under controlled risk, and estimating the effect of proposed business actions before committing to them. While the book doesn't shy away from math and formulas, it is to the extent to which these are essential for understanding and applying the underlying concepts. The presentation is friendly to readers with little to no prior knowledge in statistics. Artificial and impractical examples like dice rolling and betting are absent, instead statistical concepts are illustrated through scenarios which might well be mistaken with the last couple of A/B tests you managed. This book also doesn't shy away from the fact that much of the current statistical theory and practice in online A/B testing is misguided, misinterpreted, or misapplied. It also addresses the issue of blind copying of scientific applications without due consideration of the unique features of online business, which is widespread. The book will help you avoid these malpractices by explicitly pointing out frequent mistakes, while also helping you align your usage of statistics and experimentation with any business goals you might want to pursue.

a b testing case study: Trustworthy Online Controlled Experiments Ron Kohavi, Diane Tang, Ya Xu, 2020-04-02 Getting numbers is easy; getting numbers you can trust is hard. This practical guide by experimentation leaders at Google, LinkedIn, and Microsoft will teach you how to accelerate innovation using trustworthy online controlled experiments, or A/B tests. Based on

practical experiences at companies that each run more than 20,000 controlled experiments a year, the authors share examples, pitfalls, and advice for students and industry professionals getting started with experiments, plus deeper dives into advanced topics for practitioners who want to improve the way they make data-driven decisions. Learn how to • Use the scientific method to evaluate hypotheses using controlled experiments • Define key metrics and ideally an Overall Evaluation Criterion • Test for trustworthiness of the results and alert experimenters to violated assumptions • Build a scalable platform that lowers the marginal cost of experiments close to zero • Avoid pitfalls like carryover effects and Twyman's law • Understand how statistical issues play out in practice.

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a b testing case study: *Experiment!* Colin McFarland, 2012-08-17 Testing is a surefire way to dramatically improve your website's conversion rate and increase revenue. When you run experiments with changes to design or content, you'll quickly discover which changes better motivate your users to take action. This book shows how to learn from your customers' behavior and decisions, and how their responses reveal the strengths and weaknesses of your site. It will show you how to make websites that work harder and convert better. *Experiment!* will inspire you to challenge assumptions and start experimenting right now. You will: Learn how to approach experiments to improve conversion Understand the various methods of testing including A/B and multivariate Discover experiment ideas, and go beyond optimization to innovation Recognize the UX and design implications of experimenting Learn to analyze data and deliver results Experimenting changes the way you think about design and the way you work. It helps prevent the loudest voice from deciding direction; instead, through an experiment, you'll ask the most important voices--your customers--"What do you think?"

a b testing case study: *Experimentation in Software Engineering* Claes Wohlin, Per Runeson, Martin Höst, Magnus C. Ohlsson, Björn Regnell, Anders Wesslén, 2012-06-16 Like other sciences and engineering disciplines, software engineering requires a cycle of model building, experimentation, and learning. Experiments are valuable tools for all software engineers who are involved in evaluating and choosing between different methods, techniques, languages and tools. The purpose of *Experimentation in Software Engineering* is to introduce students, teachers, researchers, and practitioners to empirical studies in software engineering, using controlled experiments. The introduction to experimentation is provided through a process perspective, and the focus is on the steps that we have to go through to perform an experiment. The book is divided into three parts. The first part provides a background of theories and methods used in experimentation. Part II then devotes one chapter to each of the five experiment steps: scoping, planning, execution, analysis, and result presentation. Part III completes the presentation with two examples. Assignments and statistical material are provided in appendixes. Overall the book provides indispensable information regarding empirical studies in particular for experiments, but also for case studies, systematic literature reviews, and surveys. It is a revision of the authors' book, which was published in 2000. In addition, substantial new material, e.g. concerning systematic literature reviews and case study research, is introduced. The book is self-contained and it is suitable as a

course book in undergraduate or graduate studies where the need for empirical studies in software engineering is stressed. Exercises and assignments are included to combine the more theoretical material with practical aspects. Researchers will also benefit from the book, learning more about how to conduct empirical studies, and likewise practitioners may use it as a “cookbook” when evaluating new methods or techniques before implementing them in their organization.

a b testing case study: *Data-Driven Personas* Bernard J. Jansen, Joni Salminen, 2022-05-31 Data-driven personas are a significant advancement in the fields of human-centered informatics and human-computer interaction. Data-driven personas enhance user understanding by combining the empathy inherent with personas with the rationality inherent in analytics using computational methods. Via the employment of these computational methods, the data-driven persona method permits the use of large-scale user data, which is a novel advancement in persona creation. A common approach for increasing stakeholder engagement about audiences, customers, or users, persona creation remained relatively unchanged for several decades. However, the availability of digital user data, data science algorithms, and easy access to analytics platforms provide avenues and opportunities to enhance personas from often sketchy representations of user segments to precise, actionable, interactive decision-making tools—data-driven personas! Using the data-driven approach, the persona profile can serve as an interface to a fully functional analytics system that can present user representation at various levels of information granularity for more task-aligned user insights. We trace the techniques that have enabled the development of data-driven personas and then conceptually frame how one can leverage data-driven personas as tools for both empathizing with and understanding of users. Presenting a conceptual framework consisting of (a) persona benefits, (b) analytics benefits, and (c) decision-making outcomes, we illustrate applying this framework via practical use cases in areas of system design, digital marketing, and content creation to demonstrate the application of data-driven personas in practical applied situations. We then present an overview of a fully functional data-driven persona system as an example of multi-level information aggregation needed for decision making about users. We demonstrate that data-driven personas systems can provide critical, empathetic, and user understanding functionalities for anyone needing such insights.

a b testing case study: *Stop Marketing, Start Selling* Shaun Tinney, Jon MacDonald, 2015-09-04 Your guide to doubling online leads, customers, and revenue. The basic value proposition of any business is to help people get what they want. A website is no different. Nobody watches TV for the commercials, or visits your website to check out your latest marketing campaigns. If they're on your site, your marketing worked. Now it's time to help them get what they came for. The partners at The Good (<http://thegood.com>), an ecommerce and lead generation advisory, have condensed their learnings from over a decade in the ecommerce space. Their battle tested process for growing online revenues for brands large and small is shared in this comprehensive and actionable path to doubling online leads, customers and revenue. This book offers a step by step guide to making websites that convert. In the age of empowered customers the best possible business case is to put the needs of your customers first. This book is a practical, no-nonsense approach to doing just that. It may not always tell you what you want to hear, but it certainly tells you what you need to hear. -Gerry McGovern, Author, CEO of Customer Carewords When you invite guests to your house, you want them to enjoy themselves and leave happy. You should have the same mindset with your website. In this book, The Good shows you how to create a customer experience that converts. -Stephen Lease, Founder, Simplify & Go

a b testing case study: *The Power of Experiments* Michael Luca, Max H. Bazerman, 2021-03-02 How tech companies like Google, Airbnb, StubHub, and Facebook learn from experiments in our data-driven world—an excellent primer on experimental and behavioral economics Have you logged into Facebook recently? Searched for something on Google? Chosen a movie on Netflix? If so, you've probably been an unwitting participant in a variety of experiments—also known as randomized controlled trials—designed to test the impact of different online experiences. Once an esoteric tool for academic research, the randomized controlled trial has

gone mainstream. No tech company worth its salt (or its share price) would dare make major changes to its platform without first running experiments to understand how they would influence user behavior. In this book, Michael Luca and Max Bazerman explain the importance of experiments for decision making in a data-driven world. Luca and Bazerman describe the central role experiments play in the tech sector, drawing lessons and best practices from the experiences of such companies as StubHub, Alibaba, and Uber. Successful experiments can save companies money—eBay, for example, discovered how to cut \$50 million from its yearly advertising budget—or bring to light something previously ignored, as when Airbnb was forced to confront rampant discrimination by its hosts. Moving beyond tech, Luca and Bazerman consider experimenting for the social good—different ways that governments are using experiments to influence or “nudge” behavior ranging from voter apathy to school absenteeism. Experiments, they argue, are part of any leader's toolkit. With this book, readers can become part of “the experimental revolution.”

a b testing case study: Statistical Inference as Severe Testing Deborah G. Mayo, 2018-09-20 Mounting failures of replication in social and biological sciences give a new urgency to critically appraising proposed reforms. This book pulls back the cover on disagreements between experts charged with restoring integrity to science. It denies two pervasive views of the role of probability in inference: to assign degrees of belief, and to control error rates in a long run. If statistical consumers are unaware of assumptions behind rival evidence reforms, they can't scrutinize the consequences that affect them (in personalized medicine, psychology, etc.). The book sets sail with a simple tool: if little has been done to rule out flaws in inferring a claim, then it has not passed a severe test. Many methods advocated by data experts do not stand up to severe scrutiny and are in tension with successful strategies for blocking or accounting for cherry picking and selective reporting. Through a series of excursions and exhibits, the philosophy and history of inductive inference come alive. Philosophical tools are put to work to solve problems about science and pseudoscience, induction and falsification.

a b testing case study: Information for the Press United States. Department of Agriculture, **a b testing case study: HBR Guide to Dealing with Conflict (HBR Guide Series)** Amy Gallo, 2017-03-14 Learn to assess the situation, manage your emotions, and move on. While some of us enjoy a lively debate with colleagues and others prefer to suppress our feelings over disagreements, we all struggle with conflict at work. Every day we navigate an office full of competing interests, clashing personalities, limited time and resources, and fragile egos. Sure, we share the same overarching goals as our colleagues, but we don't always agree on how to achieve them. We work differently. We rub each other the wrong way. We jockey for position. How can you deal with conflict at work in a way that is both professional and productive--where it improves both your work and your relationships? You start by understanding whether you generally seek or avoid conflict, identifying the most frequent reasons for disagreement, and knowing what approaches work for what scenarios. Then, if you decide to address a particular conflict, you use that information to plan and conduct a productive conversation. The HBR Guide to Dealing with Conflict will give you the advice you need to: Understand the most common sources of conflict Explore your options for addressing a disagreement Recognize whether you--and your counterpart--typically seek or avoid conflict Prepare for and engage in a difficult conversation Manage your and your counterpart's emotions Develop a resolution together Know when to walk away Arm yourself with the advice you need to succeed on the job, with the most trusted brand in business. Packed with how-to essentials from leading experts, the HBR Guides provide smart answers to your most pressing work challenges.

a b testing case study: *Experimentation Works* Stefan H. Thomke, 2020-02-18 Don't fly blind. See how the power of experiments works for you. When it comes to improving customer experiences, trying out new business models, or developing new products, even the most experienced managers often get it wrong. They discover that intuition, experience, and big data alone don't work. What does? Running disciplined business experiments. And what if companies roll out new products or introduce new customer experiences without running these experiments? They fly blind. That's what Harvard Business School professor Stefan Thomke shows in this rigorously

researched and eye-opening book. It guides you through best practices in business experimentation, illustrates how these practices work at leading companies, and answers some fundamental questions: What makes a good experiment? How do you test in online and brick-and-mortar businesses? In B2B and B2C? How do you build an experimentation culture? Also, best practice means running many experiments. Indeed, some hugely successful companies, such as Amazon, Booking.com, and Microsoft, run tens of thousands of controlled experiments annually, engaging millions of users. Thomke shows us how these and many other organizations prove that experimentation provides significant competitive advantage. How can managers create this capability at their own companies? Essential is developing an experimentation organization that prizes the science of testing and puts the discipline of experimentation at the center of its innovation process. While it once took companies years to develop the tools for such large-scale experiments, advances in technology have put these tools at the fingertips of almost any business professional. By combining the power of software and the rigor of controlled experiments, today's managers can make better decisions, create magical customer experiences, and generate big financial returns. Experimentation Works is your guidebook to a truly new way of thinking and innovating.

a b testing case study: Why Startups Fail Tom Eisenmann, 2021-03-30 If you want your startup to succeed, you need to understand why startups fail. "Whether you're a first-time founder or looking to bring innovation into a corporate environment, Why Startups Fail is essential reading."—Eric Ries, founder and CEO, LTSE, and New York Times bestselling author of *The Lean Startup* and *The Startup Way* Why do startups fail? That question caught Harvard Business School professor Tom Eisenmann by surprise when he realized he couldn't answer it. So he launched a multiyear research project to find out. In *Why Startups Fail*, Eisenmann reveals his findings: six distinct patterns that account for the vast majority of startup failures. • **Bad Bedfellows.** Startup success is thought to rest largely on the founder's talents and instincts. But the wrong team, investors, or partners can sink a venture just as quickly. • **False Starts.** In following the oft-cited advice to "fail fast" and to "launch before you're ready," founders risk wasting time and capital on the wrong solutions. • **False Promises.** Success with early adopters can be misleading and give founders unwarranted confidence to expand. • **Speed Traps.** Despite the pressure to "get big fast," hypergrowth can spell disaster for even the most promising ventures. • **Help Wanted.** Rapidly scaling startups need lots of capital and talent, but they can make mistakes that leave them suddenly in short supply of both. • **Cascading Miracles.** Silicon Valley exhorts entrepreneurs to dream big. But the bigger the vision, the more things that can go wrong. Drawing on fascinating stories of ventures that failed to fulfill their early promise—from a home-furnishings retailer to a concierge dog-walking service, from a dating app to the inventor of a sophisticated social robot, from a fashion brand to a startup deploying a vast network of charging stations for electric vehicles—Eisenmann offers frameworks for detecting when a venture is vulnerable to these patterns, along with a wealth of strategies and tactics for avoiding them. A must-read for founders at any stage of their entrepreneurial journey, *Why Startups Fail* is not merely a guide to preventing failure but also a roadmap charting the path to startup success.

a b testing case study: Software Business Arto Ojala, Helena Holmström Olsson, Karl Werder, 2017-10-20 This book constitutes the refereed proceedings of the 8th International Conference on Software Business, ICSOB 2017, held in Essen, Germany, in June 2017. The 11 full papers and 5 short papers presented in this volume were carefully reviewed and selected from 30 submissions. They were organized in topical sections named: software startups and platform governance; software business development; software ecosystems and App stores.

a b testing case study: Bandit Algorithms for Website Optimization John Myles White, 2012-12-10 When looking for ways to improve your website, how do you decide which changes to make? And which changes to keep? This concise book shows you how to use Multiarmed Bandit algorithms to measure the real-world value of any modifications you make to your site. Author John Myles White shows you how this powerful class of algorithms can help you boost website traffic, convert visitors to customers, and increase many other measures of success. This is the first

developer-focused book on bandit algorithms, which were previously described only in research papers. You'll quickly learn the benefits of several simple algorithms—including the epsilon-Greedy, Softmax, and Upper Confidence Bound (UCB) algorithms—by working through code examples written in Python, which you can easily adapt for deployment on your own website. Learn the basics of A/B testing—and recognize when it's better to use bandit algorithms Develop a unit testing framework for debugging bandit algorithms Get additional code examples written in Julia, Ruby, and JavaScript with supplemental online materials

a b testing case study: Model Rules of Professional Conduct American Bar Association. House of Delegates, Center for Professional Responsibility (American Bar Association), 2007 The Model Rules of Professional Conduct provides an up-to-date resource for information on legal ethics. Federal, state and local courts in all jurisdictions look to the Rules for guidance in solving lawyer malpractice cases, disciplinary actions, disqualification issues, sanctions questions and much more. In this volume, black-letter Rules of Professional Conduct are followed by numbered Comments that explain each Rule's purpose and provide suggestions for its practical application. The Rules will help you identify proper conduct in a variety of given situations, review those instances where discretionary action is possible, and define the nature of the relationship between you and your clients, colleagues and the courts.

a b testing case study: Smart Persuasion Philippe AIMÉ, Jochen GRÜNBECK, 2019-03-01 Conversions begin in the brain. Every purchase starts with a decision, and every decision is shaped by consumer psychology. This book explains how mental shortcuts (cognitive biases) affect your customers' decision making and shows you how to be more persuasive online. Philippe Aimé and Jochen Grünbeck are optimisation addicts and have been at the forefront of digital marketing since the beginning. Inspired by behavioural economists like Daniel Kahneman, Dan Ariely and Richard Thaler, the techniques described in Smart Persuasion leverage powerful decision-making biases to make marketing more effective. Alongside these behavioural insights, Smart Persuasion incorporates research from marketing experts such as Jonah Berger, Robert Cialdini and Roger Dooley. Principles relating to attention and perception, as well as the cognitive effects that make consumers predictably irrational, are distilled into concrete website optimisation strategies. Drawing from hundreds of unique studies, Smart Persuasion lists proven effects such as Anchoring and Framing. Each one is illustrated with case-studies, examples and ideas that you can apply immediately. Using the persuasive strategies outlined in this book will allow you to influence consumers more effectively, unlocking your website's potential. All profits from the sale of this book help provide educational resources for children in Africa.

a b testing case study: Forecasting: principles and practice Rob J Hyndman, George Athanasopoulos, 2018-05-08 Forecasting is required in many situations. Stocking an inventory may require forecasts of demand months in advance. Telecommunication routing requires traffic forecasts a few minutes ahead. Whatever the circumstances or time horizons involved, forecasting is an important aid in effective and efficient planning. This textbook provides a comprehensive introduction to forecasting methods and presents enough information about each method for readers to use them sensibly.

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full-color insert reinforcing key tactics Author has used these techniques to assist Fortune 500 clients You Should Test That explains both the why and the how of conversion optimization, helping you maximize the value of your website.

a b testing case study: Your Customer Creation Equation Brian Massey, 2012-07-01 Finally-a book that shows marketers how to truly achieve real results from their websites. Brian Massey, The Conversion Scientist, takes the mystery out of how to create high-performing sites. By walking the reader through five online formulas-aka customer creation equations-he shows you how to determine the best formula your own particular business structure and how to optimize it for stellar results. Key to this process is setting up a digital conversion lab, and Brian shows you how. Jam-packed with easy-to-understand equations for things like increasing your conversion rate and decreasing your abandonment rate-as well as practical strategies for attracting prospects, turning buyers into triers, and morphing buyers into loyal brand advocates-this book will enable anyone to stop hoping for success and start enjoying higher profits. The Advanced Curriculum in Visitor Studies gives readers additional guidance on how to really understand their targets and customers-an understanding that is at the heart of all successful websites, and businesses, everywhere.

a b testing case study: E-Commerce Website Optimization Dan Croxson-John, Johann van Tonder, 2020-12-03 Conversion rate optimization (CRO) is about understanding people and behaviour, not simply website visits. This book is an all-encompassing guide to the how, the why and the tools and techniques. Grounded in best-practice theory and research, E-commerce Website Optimization brings together usability, analytics and persuasion to offer a detailed, step-by-step guide to increasing the percentage of visitors who buy from your site and subsequently the amount that these visitors spend when they do. In a complex and evolving field, it will help you improve conversion rates, increase ROI from online marketing campaigns, generate higher levels of repeat business and increase the e-commerce value of websites. In the fast-moving world of e-commerce, this fully revised second edition includes updates on test metrics, prioritization and personalization, alongside updated case studies and newly recommended tools. E-commerce Website Optimization is an invaluable book for those seeking to implement a data-driven ethos for their organization's e-commerce programme, for everyone from chief digital officers and heads of online sales, to entrepreneurs and small business owners.

a b testing case study: The Trouble with Computers Thomas K. Landauer, 1995 Beginning with an explanation of why considerable outlays for computing since 1973 have not resulted in comparable payoffs, the author proposes that emerging techniques for user-centred development can turn the situation around - through task analysis, ite

a b testing case study: Numbersense: How to Use Big Data to Your Advantage Kaiser Fung, 2013-07-12 How to make simple sense of complex statistics--from the author of Numbers Rule Your World We live in a world of Big Data--and it's getting bigger every day. Virtually every choice we make hinges on how someone generates data . . . and how someone else interprets it--whether we realize it or not. Where do you send your child for the best education? Big Data. Which airline should you choose to ensure a timely arrival? Big Data. Who will you vote for in the next election? Big Data. The problem is, the more data we have, the more difficult it is to interpret it. From world leaders to average citizens, everyone is prone to making critical decisions based on poor data interpretations. In Numbersense, expert statistician Kaiser Fung explains when you should accept the conclusions of the Big Data experts--and when you should say, Wait . . . what? He delves deeply into a wide range of topics, offering the answers to important questions, such as: How does the college ranking system really work? Can an obesity measure solve America's biggest healthcare crisis? Should you trust current unemployment data issued by the government? How do you improve your fantasy sports team? Should you worry about businesses that track your data? Don't take for granted statements made in the media, by our leaders, or even by your best friend. We're on information overload today, and there's a lot of bad information out there. Numbersense gives you the insight into how Big Data interpretation works--and how it too often doesn't work. You won't come away with the skills of a

professional statistician. But you will have a keen understanding of the data traps even the best statisticians can fall into, and you'll trust the mental alarm that goes off in your head when something just doesn't seem to add up. Praise for Numbersense Numbersense correctly puts the emphasis not on the size of big data, but on the analysis of it. Lots of fun stories, plenty of lessons learned—in short, a great way to acquire your own sense of numbers! Thomas H. Davenport, coauthor of *Competing on Analytics* and President's Distinguished Professor of IT and Management, Babson College Kaiser's accessible business book will blow your mind like no other. You'll be smarter, and you won't even realize it. Buy. It. Now. Avinash Kaushik, Digital Marketing Evangelist, Google, and author, *Web Analytics 2.0* Each story in Numbersense goes deep into what you have to think about before you trust the numbers. Kaiser Fung ably demonstrates that it takes skill and resourcefulness to make the numbers confess their meaning. John Sall, Executive Vice President, SAS Institute Kaiser Fung breaks the bad news—a ton more data is no panacea—but then has got your back, revealing the pitfalls of analysis with stimulating stories from the front lines of business, politics, health care, government, and education. The remedy isn't an advanced degree, nor is it common sense. You need Numbersense. Eric Siegel, founder, Predictive Analytics World, and author, *Predictive Analytics* I laughed my way through this superb-useful-fun book and learned and relearned a lot. Highly recommended! Tom Peters, author of *In Search of Excellence*

a b testing case study: Improving Diagnosis in Health Care National Academies of Sciences, Engineering, and Medicine, Institute of Medicine, Board on Health Care Services, Committee on Diagnostic Error in Health Care, 2015-12-29 Getting the right diagnosis is a key aspect of health care - it provides an explanation of a patient's health problem and informs subsequent health care decisions. The diagnostic process is a complex, collaborative activity that involves clinical reasoning and information gathering to determine a patient's health problem. According to *Improving Diagnosis in Health Care*, diagnostic errors-inaccurate or delayed diagnoses-persist throughout all settings of care and continue to harm an unacceptable number of patients. It is likely that most people will experience at least one diagnostic error in their lifetime, sometimes with devastating consequences. Diagnostic errors may cause harm to patients by preventing or delaying appropriate treatment, providing unnecessary or harmful treatment, or resulting in psychological or financial repercussions. The committee concluded that improving the diagnostic process is not only possible, but also represents a moral, professional, and public health imperative. *Improving Diagnosis in Health Care*, a continuation of the landmark Institute of Medicine reports *To Err Is Human* (2000) and *Crossing the Quality Chasm* (2001), finds that diagnosis-and, in particular, the occurrence of diagnostic errors—has been largely unappreciated in efforts to improve the quality and safety of health care. Without a dedicated focus on improving diagnosis, diagnostic errors will likely worsen as the delivery of health care and the diagnostic process continue to increase in complexity. Just as the diagnostic process is a collaborative activity, improving diagnosis will require collaboration and a widespread commitment to change among health care professionals, health care organizations, patients and their families, researchers, and policy makers. The recommendations of *Improving Diagnosis in Health Care* contribute to the growing momentum for change in this crucial area of health care quality and safety.

a b testing case study: *Statistical Analysis of Designed Experiments* Ajit C. Tamhane, 2012-09-12 A indispensable guide to understanding and designing modern experiments The tools and techniques of Design of Experiments (DOE) allow researchers to successfully collect, analyze, and interpret data across a wide array of disciplines. *Statistical Analysis of Designed Experiments* provides a modern and balanced treatment of DOE methodology with thorough coverage of the underlying theory and standard designs of experiments, guiding the reader through applications to research in various fields such as engineering, medicine, business, and the social sciences. The book supplies a foundation for the subject, beginning with basic concepts of DOE and a review of elementary normal theory statistical methods. Subsequent chapters present a uniform, model-based approach to DOE. Each design is presented in a comprehensive format and is accompanied by a motivating example, discussion of the applicability of the design, and a model for its analysis using

statistical methods such as graphical plots, analysis of variance (ANOVA), confidence intervals, and hypothesis tests. Numerous theoretical and applied exercises are provided in each chapter, and answers to selected exercises are included at the end of the book. An appendix features three case studies that illustrate the challenges often encountered in real-world experiments, such as randomization, unbalanced data, and outliers. Minitab® software is used to perform analyses throughout the book, and an accompanying FTP site houses additional exercises and data sets. With its breadth of real-world examples and accessible treatment of both theory and applications, *Statistical Analysis of Designed Experiments* is a valuable book for experimental design courses at the upper-undergraduate and graduate levels. It is also an indispensable reference for practicing statisticians, engineers, and scientists who would like to further their knowledge of DOE.

a b testing case study: The SAGE Encyclopedia of Communication Research Methods

Mike Allen, 2017-04-11 Communication research is evolving and changing in a world of online journals, open-access, and new ways of obtaining data and conducting experiments via the Internet. Although there are generic encyclopedias describing basic social science research methodologies in general, until now there has been no comprehensive A-to-Z reference work exploring methods specific to communication and media studies. Our entries, authored by key figures in the field, focus on special considerations when applied specifically to communication research, accompanied by engaging examples from the literature of communication, journalism, and media studies. Entries cover every step of the research process, from the creative development of research topics and questions to literature reviews, selection of best methods (whether quantitative, qualitative, or mixed) for analyzing research results and publishing research findings, whether in traditional media or via new media outlets. In addition to expected entries covering the basics of theories and methods traditionally used in communication research, other entries discuss important trends influencing the future of that research, including contemporary practical issues students will face in communication professions, the influences of globalization on research, use of new recording technologies in fieldwork, and the challenges and opportunities related to studying online multi-media environments. Email, texting, cellphone video, and blogging are shown not only as topics of research but also as means of collecting and analyzing data. Still other entries delve into considerations of accountability, copyright, confidentiality, data ownership and security, privacy, and other aspects of conducting an ethical research program. Features: 652 signed entries are contained in an authoritative work spanning four volumes available in choice of electronic or print formats. Although organized A-to-Z, front matter includes a Reader's Guide grouping entries thematically to help students interested in a specific aspect of communication research to more easily locate directly related entries. Back matter includes a Chronology of the development of the field of communication research; a Resource Guide to classic books, journals, and associations; a Glossary introducing the terminology of the field; and a detailed Index. Entries conclude with References/Further Readings and Cross-References to related entries to guide students further in their research journeys. The Index, Reader's Guide themes, and Cross-References combine to provide robust search-and-browse in the e-version.

a b testing case study: The Love Hypothesis

Ali Hazelwood, 2021-09-14 The Instant New York Times Bestseller and TikTok Sensation! As seen on THE VIEW! A BuzzFeed Best Summer Read of 2021 When a fake relationship between scientists meets the irresistible force of attraction, it throws one woman's carefully calculated theories on love into chaos. As a third-year Ph.D. candidate, Olive Smith doesn't believe in lasting romantic relationships--but her best friend does, and that's what got her into this situation. Convincing Anh that Olive is dating and well on her way to a happily ever after was always going to take more than hand-wavy Jedi mind tricks: Scientists require proof. So, like any self-respecting biologist, Olive panics and kisses the first man she sees. That man is none other than Adam Carlsen, a young hotshot professor--and well-known ass. Which is why Olive is positively floored when Stanford's reigning lab tyrant agrees to keep her charade a secret and be her fake boyfriend. But when a big science conference goes haywire, putting Olive's career on the Bunsen burner, Adam surprises her again with his unyielding support and even more

unyielding...six-pack abs. Suddenly their little experiment feels dangerously close to combustion. And Olive discovers that the only thing more complicated than a hypothesis on love is putting her own heart under the microscope.

a b testing case study: *Buyer Legends* Bryan Eisenberg, Jeffrey Eisenberg, Anthony Garcia, 2015-02-17 By New York Times Bestselling Authors Bryan and Jeffrey Eisenberg with Anthony Garcia, *Buyer Legends: An Executive Storytellers Guide* describes a business process that combines the emotional power of storytelling with hard data to open new opportunities, spot gaps and optimize your sales and marketing. By using Buyer Legends in your organization you will: * Improve communications - Your whole team will see and understand both the bigger picture and the important details * Improve execution - You will turn big directives into purposeful and more effective actions * Improve testing. You will understand how to plan and implement more effective and impactful tests * Make more money. You will see improved conversion rates that make the up-front planning worth the time and effort. After reading this, you will have more insight as to why your marketing execution may not be meeting expectations and why your team might be struggling to get it. You will learn how to communicate your brand's story intent and the responsibility of each critical touch point within every level of your organization, from the boardroom to the stockroom. The Buyer Legends process IS one of the final pieces of a complex puzzle that has been missing from most modern marketing efforts. Wouldn't you like to have an edge in turning your brand into a legend? Having worked first hand with the Eisenbergs on mapping our customers' critical paths and creating scenario narratives, I can confidently say the Buyer Legends process works. My team's focus at Google is on acquiring SMB advertising clients. And if you've ever worked with these types of businesses, you know there is huge diversity through the spectrum of small and medium businesses. We'd miss opportunities and gaps by over-aggregating (i.e. taking too high level a view) though often the challenge was in effectively communicating our insights. The Buyer Legends framework allowed us to more effectively focus our efforts, improving the bottom line. And equally important, to make a more compelling case for change with our marketing, engineering and product colleagues. Paul Jeszenszky Head of Global B2B Digital Marketing Center of Excellence, Google The most clear-headed and useful guide ever for developing relevant and resonant stories about your business. Jay Baer President, Convince & Convert Buyer Legends introduced me to a structured process which uses storytelling techniques to align our brand story to our customers experiences. With so many of our customers having a unique experience every day on Airbnb, it is our task to collect and communicate a collective narrative in the Airbnb brand story. While the Airbnb storyboarding technique, as described in the introduction, gives a clear overview of the customers journey, the motives of our customers and their experiences are many. With global differences on how people travel, making their decision where to stay, and experience the more local hospitality Airbnb provides, Buyer Legends is the marketing tool which binds Persona's, storyboards and our brand story. This is a powerful combination. Dennis Goedegebuure Head of Global SEO, Airbnb

a b testing case study: *The Ethics of Online Research* Kandy Woodfield, 2017-12-15 This volume focuses on the ethics of internet and social networking research, exploring the ethical challenges faced by researchers making use of social media and big data in their research.

a b testing case study: *Experimental and Quasi-Experimental Designs for Research* Donald T. Campbell, Julian C. Stanley, 2015-09-03 We shall examine the validity of 16 experimental designs against 12 common threats to valid inference. By experiment we refer to that portion of research in which variables are manipulated and their effects upon other variables observed. It is well to distinguish the particular role of this chapter. It is not a chapter on experimental design in the Fisher (1925, 1935) tradition, in which an experimenter having complete mastery can schedule treatments and measurements for optimal statistical efficiency, with complexity of design emerging only from that goal of efficiency. Insofar as the designs discussed in the present chapter become complex, it is because of the intransigency of the environment: because, that is, of the experimenter's lack of complete control.

a b testing case study: *Conversion Optimization* Khalid Saleh, Ayat Shukairy, 2010-11-01

How do you turn website visitors into customers? Conversion Optimization offers practical advice on how to persuade visitors to make a buying decision -- without driving them away through data overload or tedious navigation. You'll learn how to use marketing principles, design, usability, and analytics on your site to increase your buyer-to-visitor ratio, whether you're involved with marketing or designing a large ecommerce site, or managing a modest online operation. Based on the authors' broad experience in helping businesses attract online customers, this book addresses every aspect of the process, from landing visitors to finalizing the sale. You'll learn several techniques for blending successful sales approaches with the particular needs of the people you want to attract. Are you ready to do what it takes to get a double-digit conversion rate? Explore case studies involving significant conversion rate improvements Walk through different stages of a sale and understand the value of each Understand your website visitors through persona creation Connect with potential customers and guide them toward a conversion Learn how to deal with FUDs -- customer fears, uncertainties, and doubts Examine the path that visitors take from landing page to checkout Test any change you make against your original design The Web is unique in its ability to deliver this almost improbable win-win: You can increase revenue AND make your customers happy. Yet most websites stink. Worry not, Khalid and Ayat to the rescue! Buy this book to follow their practical advice on how to create high converting websites that your visitors love.--Avinash Kaushik, author of Web Analytics 2.0 and Web Analytics: An Hour A Day (both Sybex)

a b testing case study: Data Analysis for Business, Economics, and Policy Gábor Békés, Gábor Kézdi, 2021-05-06 A comprehensive textbook on data analysis for business, applied economics and public policy that uses case studies with real-world data.

a b testing case study: Case Study Method Roger Gomm, Martyn Hammersley, Peter Foster, 2000-10-17 This is the most comprehensive guide to the current uses and importance of case study methods in social research. The editors bring together key contributions from the field which reflect different interpretations of the purpose and capacity of case study research. The address issues such as: the problem of generalizing from study of a small number of cases; and the role of case study in developing and testing theories. The editors offer in-depth assessments of the main arguments. An annotated bibliography of the literature dealing with case study research makes this an exhaustive and indispensable guide.

a b testing case study: Dora Sigmund Freud, 1997-11 An appealing and intelligent eighteen-year-old girl to whom Freud gives the pseudonym Dora is the subject of a case history that has all the intrigue and unexpected twists of a first-rate detective novel. Freud pursues the secrets of Dora's psyche by using as clues her nervous mannerisms, her own reports on the peculiarities of her family, and the content of her dreams. The personalities involved in Dora's disturbed emotional life were, in their own ways, as complex as she: an obsessive mother, an adulterous father, her father's mistress, Frau K., and Frau K.'s husband, who had made amorous advances toward Dora. Faced with the odd behavior of her family and friends, and unable to confront her own forbidden sexual desires, Dora falls into the destructive pattern of a powerful hysteria. In this influential and provocative case history, Freud uses all his analytic genius and literary skill to reveal Dora's inner life and explain the motives behind her fixation on her father's mistress. -- from back cover.

a b testing case study: Mindset Carol S. Dweck, 2007-12-26 From the renowned psychologist who introduced the world to "growth mindset" comes this updated edition of the million-copy bestseller—featuring transformative insights into redefining success, building lifelong resilience, and supercharging self-improvement. "Through clever research studies and engaging writing, Dweck illuminates how our beliefs about our capabilities exert tremendous influence on how we learn and which paths we take in life."—Bill Gates, GatesNotes "It's not always the people who start out the smartest who end up the smartest." After decades of research, world-renowned Stanford University psychologist Carol S. Dweck, Ph.D., discovered a simple but groundbreaking idea: the power of mindset. In this brilliant book, she shows how success in school, work, sports, the arts, and almost every area of human endeavor can be dramatically influenced by how we think about our talents and abilities. People with a fixed mindset—those who believe that abilities are fixed—are less likely to

flourish than those with a growth mindset—those who believe that abilities can be developed. Mindset reveals how great parents, teachers, managers, and athletes can put this idea to use to foster outstanding accomplishment. In this edition, Dweck offers new insights into her now famous and broadly embraced concept. She introduces a phenomenon she calls false growth mindset and guides people toward adopting a deeper, truer growth mindset. She also expands the mindset concept beyond the individual, applying it to the cultures of groups and organizations. With the right mindset, you can motivate those you lead, teach, and love—to transform their lives and your own.

a b testing case study: Cracking the Data Science Interview Maverick Lin, 2019-12-17

Cracking the Data Science Interview is the first book that attempts to capture the essence of data science in a concise, compact, and clean manner. In a Cracking the Coding Interview style, Cracking the Data Science Interview first introduces the relevant concepts, then presents a series of interview questions to help you solidify your understanding and prepare you for your next interview. Topics include: - Necessary Prerequisites (statistics, probability, linear algebra, and computer science) - 18 Big Ideas in Data Science (such as Occam's Razor, Overfitting, Bias/Variance Tradeoff, Cloud Computing, and Curse of Dimensionality) - Data Wrangling (exploratory data analysis, feature engineering, data cleaning and visualization) - Machine Learning Models (such as k-NN, random forests, boosting, neural networks, k-means clustering, PCA, and more) - Reinforcement Learning (Q-Learning and Deep Q-Learning) - Non-Machine Learning Tools (graph theory, ARIMA, linear programming) - Case Studies (a look at what data science means at companies like Amazon and Uber) Maverick holds a bachelor's degree from the College of Engineering at Cornell University in operations research and information engineering (ORIE) and a minor in computer science. He is the author of the popular Data Science Cheatsheet and Data Engineering Cheatsheet on GCP and has previous experience in data science consulting for a Fortune 500 company focusing on fraud analytics.

a b testing case study: How Stella Learned to Talk Christina Hunger, 2021-05-04 INSTANT NEW YORK TIMES BESTSELLER An incredible, revolutionary true story and surprisingly simple guide to teaching your dog to talk from speech-language pathologist Christina Hunger, who has taught her dog, Stella, to communicate using simple paw-sized buttons associated with different words. When speech-language pathologist Christina Hunger first came home with her puppy, Stella, it didn't take long for her to start drawing connections between her job and her new pet. During the day, she worked with toddlers with significant delays in language development and used Augmentative and Alternative Communication (AAC) devices to help them communicate. At night, she wondered: If dogs can understand words we say to them, shouldn't they be able to say words to us? Can dogs use AAC to communicate with humans? Christina decided to put her theory to the test with Stella and started using a paw-sized button programmed with her voice to say the word "outside" when clicked, whenever she took Stella out of the house. A few years later, Stella now has a bank of more than thirty word buttons, and uses them daily either individually or together to create near-complete sentences. How Stella Learned to Talk is part memoir and part how-to guide. It chronicles the journey Christina and Stella have taken together, from the day they met, to the day Stella "spoke" her first word, and the other breakthroughs they've had since. It also reveals the techniques Christina used to teach Stella, broken down into simple stages and actionable steps any dog owner can use to start communicating with their pets. Filled with conversations that Stella and Christina have had, as well as the attention to developmental detail that only a speech-language pathologist could know, How Stella Learned to Talk will be the indispensable dog book for the new decade.

a b testing case study: *Artificial Intelligence Methods for Optimization of the Software Testing Process* Sahar Tahvili, Leo Hatvani, 2022-07-21 Artificial Intelligence Methods for Optimization of the Software Testing Process: With Practical Examples and Exercises presents different AI-based solutions for overcoming the uncertainty found in many initial testing problems. The concept of intelligent decision making is presented as a multi-criteria, multi-objective undertaking. The book provides guidelines on how to manage diverse types of uncertainty with intelligent decision-making

that can help subject matter experts in many industries improve various processes in a more efficient way. As the number of required test cases for testing a product can be large (in industry more than 10,000 test cases are usually created). Executing all these test cases without any particular order can impact the results of the test execution, hence this book fills the need for a comprehensive resource on the topics on the how's, what's and whys. To learn more about Elsevier's Series, Uncertainty, Computational Techniques and Decision Intelligence, please visit this link: <https://www.elsevier.com/books-and-journals/book-series/uncertainty-computational-techniques-and-decision-intelligence> - Presents one of the first empirical studies in the field, contrasting theoretical assumptions on innovations in a real industrial environment with a large set of use cases from developed and developing testing processes at various large industries - Explores specific comparative methodologies, focusing on developed and developing AI-based solutions - Serves as a guideline for conducting industrial research in the artificial intelligence and software testing domain - Explains all proposed solutions through real industrial case studies

Additional Resources

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