



# Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics)

By Cameron Davidson-Pilon

Download now

Read Online ➔

**Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics)** By Cameron Davidson-Pilon

## Master Bayesian Inference through Practical Examples and Computation—Without Advanced Mathematical Analysis

Bayesian methods of inference are deeply natural and extremely powerful. However, most discussions of Bayesian inference rely on intensely complex mathematical analyses and artificial examples, making it inaccessible to anyone without a strong mathematical background. Now, though, Cameron Davidson-Pilon introduces Bayesian inference from a computational perspective, bridging theory to practice—freeing you to get results using computing power.

*Bayesian Methods for Hackers* illuminates Bayesian inference through probabilistic programming with the powerful PyMC language and the closely related Python tools NumPy, SciPy, and Matplotlib. Using this approach, you can reach effective solutions in small increments, without extensive mathematical intervention.

Davidson-Pilon begins by introducing the concepts underlying Bayesian inference, comparing it with other techniques and guiding you through building and training your first Bayesian model. Next, he introduces PyMC through a series of detailed examples and intuitive explanations that have been refined after extensive user feedback. You'll learn how to use the Markov Chain Monte Carlo algorithm, choose appropriate sample sizes and priors, work with loss functions, and apply Bayesian inference in domains ranging from finance to marketing. Once you've mastered these techniques, you'll constantly turn to this guide for the working PyMC code you need to jumpstart future projects.

### Coverage includes

- Learning the Bayesian “state of mind” and its practical implications
- Understanding how computers perform Bayesian inference
- Using the PyMC Python library to program Bayesian analyses

- Building and debugging models with PyMC
- Testing your model's "goodness of fit"
- Opening the "black box" of the Markov Chain Monte Carlo algorithm to see how and why it works
- Leveraging the power of the "Law of Large Numbers"
- Mastering key concepts, such as clustering, convergence, autocorrelation, and thinning
- Using loss functions to measure an estimate's weaknesses based on your goals and desired outcomes
- Selecting appropriate priors and understanding how their influence changes with dataset size
- Overcoming the "exploration versus exploitation" dilemma: deciding when "pretty good" is good enough
- Using Bayesian inference to improve A/B testing
- Solving data science problems when only small amounts of data are available

**Cameron Davidson-Pilon** has worked in many areas of applied mathematics, from the evolutionary dynamics of genes and diseases to stochastic modeling of financial prices. His contributions to the open source community include lifelines, an implementation of survival analysis in Python. Educated at the University of Waterloo and at the Independent University of Moscow, he currently works with the online commerce leader Shopify.

 [Download Bayesian Methods for Hackers: Probabilistic Progra ...pdf](#)

 [Read Online Bayesian Methods for Hackers: Probabilistic Prog ...pdf](#)

# Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics)

*By Cameron Davidson-Pilon*

**Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics)** By Cameron Davidson-Pilon

## **Master Bayesian Inference through Practical Examples and Computation—Without Advanced Mathematical Analysis**

Bayesian methods of inference are deeply natural and extremely powerful. However, most discussions of Bayesian inference rely on intensely complex mathematical analyses and artificial examples, making it inaccessible to anyone without a strong mathematical background. Now, though, Cameron Davidson-Pilon introduces Bayesian inference from a computational perspective, bridging theory to practice—freeing you to get results using computing power.

*Bayesian Methods for Hackers* illuminates Bayesian inference through probabilistic programming with the powerful PyMC language and the closely related Python tools NumPy, SciPy, and Matplotlib. Using this approach, you can reach effective solutions in small increments, without extensive mathematical intervention.

Davidson-Pilon begins by introducing the concepts underlying Bayesian inference, comparing it with other techniques and guiding you through building and training your first Bayesian model. Next, he introduces PyMC through a series of detailed examples and intuitive explanations that have been refined after extensive user feedback. You'll learn how to use the Markov Chain Monte Carlo algorithm, choose appropriate sample sizes and priors, work with loss functions, and apply Bayesian inference in domains ranging from finance to marketing. Once you've mastered these techniques, you'll constantly turn to this guide for the working PyMC code you need to jumpstart future projects.

### **Coverage includes**

- Learning the Bayesian “state of mind” and its practical implications
- Understanding how computers perform Bayesian inference
- Using the PyMC Python library to program Bayesian analyses
- Building and debugging models with PyMC
- Testing your model’s “goodness of fit”
- Opening the “black box” of the Markov Chain Monte Carlo algorithm to see how and why it works
- Leveraging the power of the “Law of Large Numbers”
- Mastering key concepts, such as clustering, convergence, autocorrelation, and thinning
- Using loss functions to measure an estimate’s weaknesses based on your goals and desired outcomes
- Selecting appropriate priors and understanding how their influence changes with dataset size
- Overcoming the “exploration versus exploitation” dilemma: deciding when “pretty good” is good enough
- Using Bayesian inference to improve A/B testing
- Solving data science problems when only small amounts of data are available

**Cameron Davidson-Pilon** has worked in many areas of applied mathematics, from the evolutionary

dynamics of genes and diseases to stochastic modeling of financial prices. His contributions to the open source community include lifelines, an implementation of survival analysis in Python. Educated at the University of Waterloo and at the Independent University of Moscow, he currently works with the online commerce leader Shopify.

**Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) By Cameron Davidson-Pilon Bibliography**

- Sales Rank: #278524 in Books
- Brand: imusti
- Published on: 2015-10-12
- Original language: English
- Number of items: 1
- Dimensions: 9.00" h x .50" w x 7.00" l, .0 pounds
- Binding: Paperback
- 256 pages

 [Download Bayesian Methods for Hackers: Probabilistic Progra ...pdf](#)

 [Read Online Bayesian Methods for Hackers: Probabilistic Prog ...pdf](#)

## **Download and Read Free Online Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) By Cameron Davidson-Pilon**

---

### **Editorial Review**

#### About the Author

**Cameron Davidson-Pilon** has seen many fields of applied mathematics, from evolutionary dynamics of genes and diseases to stochastic modeling of financial prices. His main contributions to the open-source community include *Bayesian Methods for Hackers* and *lifelines*. Cameron was raised in Guelph, Ontario, but was educated at the University of Waterloo and Independent University of Moscow. He currently lives in Ottawa, Ontario, working with the online commerce leader Shopify.

### **Users Review**

#### **From reader reviews:**

##### **Michelle Beltran:**

The book Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) can give more knowledge and also the precise product information about everything you want. Why must we leave the good thing like a book Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics)? Several of you have a different opinion about e-book. But one aim that book can give many info for us. It is absolutely proper. Right now, try to closer with your book. Knowledge or info that you take for that, it is possible to give for each other; you may share all of these. Book Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) has simple shape but the truth is know: it has great and large function for you. You can appearance the enormous world by wide open and read a publication. So it is very wonderful.

##### **Hilda Szymanski:**

The reason why? Because this Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) is an unordinary book that the inside of the guide waiting for you to snap it but latter it will surprise you with the secret this inside. Reading this book next to it was fantastic author who have write the book in such awesome way makes the content inside of easier to understand, entertaining technique but still convey the meaning totally. So , it is good for you for not hesitating having this ever again or you going to regret it. This excellent book will give you a lot of gains than the other book get such as help improving your skill and your critical thinking method. So , still want to hold up having that book? If I were being you I will go to the reserve store hurriedly.

##### **Leigh Brown:**

Reading can called brain hangout, why? Because when you are reading a book specially book entitled Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) your thoughts will drift away trough every dimension, wandering in most aspect that maybe

unfamiliar for but surely might be your mind friends. Imaging just about every word written in a e-book then become one application form conclusion and explanation in which maybe you never get just before. The Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) giving you an additional experience more than blown away your mind but also giving you useful information for your better life in this era. So now let us teach you the relaxing pattern here is your body and mind are going to be pleased when you are finished studying it, like winning a game. Do you want to try this extraordinary spending spare time activity?

**Denita Lumley:**

The book untitled Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) contain a lot of information on this. The writer explains your ex idea with easy approach. The language is very clear and understandable all the people, so do not necessarily worry, you can easy to read that. The book was compiled by famous author. The author will take you in the new age of literary works. You can easily read this book because you can continue reading your smart phone, or program, so you can read the book within anywhere and anytime. In a situation you wish to purchase the e-book, you can wide open their official web-site and order it. Have a nice examine.

**Download and Read Online Bayesian Methods for Hackers:  
Probabilistic Programming and Bayesian Inference (Addison-  
Wesley Data & Analytics) By Cameron Davidson-Pilon  
#CO36JEPRNUQ**

# **Read Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) By Cameron Davidson-Pilon for online ebook**

Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) By Cameron Davidson-Pilon Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) By Cameron Davidson-Pilon books to read online.

## **Online Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) By Cameron Davidson-Pilon ebook PDF download**

**Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) By Cameron Davidson-Pilon Doc**

**Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) By Cameron Davidson-Pilon Mobipocket**

**Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) By Cameron Davidson-Pilon EPub**

**CO36JEPRNUQ: Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference (Addison-Wesley Data & Analytics) By Cameron Davidson-Pilon**