General

* Statistics Hacks by Bruce Frey
* Just Plain Data Analysis by Gary M. Klass
* The Master Algorithm by Pedro Domingos
* AIQ by Nick Polson and James Scott
* Deep Learning Yearning by Andrew Ng [Read it if you’re in charge of a data science team. Even if you’re not, these are things you need to know when working on serious – i.e., time consuming – projects.]
* The Book of Why by Judea Pearl and Dana Mackenzie. [How to develop causal models – something that neither classical statistics nor machine learning can do.]
* Godel’s Proof by Ernest Nagle and James Newman. [This is not a book about machine learning or statistics. It is a book about a particular result in mathematics – Godel’s incompleteness theorem. But it shows us the power of using numbers to represent \*any\* pattern.]

Books Containing a Variety of Models – Flipping through these books is a source of ideas for potential models to try out

* The Model Thinker by Scott Page
* Networks, Crowds, and Markets by David Easley
* [I also collect up a number of articles and visit a short list of websites for

Data Science and Machine Learning Textbooks

* Data Science for Business by Foster Provost and Tom Fawcett
* Data Smart by John Foreman. [Demystifies the standard machine learning algorithms and shows how to implement them in Excel.]
* Learning from Data by Abu-Mostafa, Magdon-Ismail, and Lin [A mathematical treatment; great discussion of why machine learning is possible at all. Short answer: It’s a mystery!]
* Artificial Intelligence: A Modern Approach by Stuart Russell and Peter Norvig [A classic.]
* Machine Learning by Tom Mitchell [A classic from a giant in the field.]

Books Requiring Kowledge of Python

* Python for Data Analysis by Wes McKinney [Everything you want to know about Pandas]
* Data Science from Scratch by Joel Grus [This is the best place to learn Python too]
* Jake Vanderplas’ book on data science.
* Python Machine Learning by Sebastian Raschka
* Hands on Machine Learning with Scikit Learn and TensorFlow by Aurelien Geron [Beautifully written – one of my favorites.]
* Deep Learning with Python by Francois Chollet [From the creator of the Keras deep learning package. Francois is a clear-eyed practitioner with a nuanced view of the thrills and ills of AI.]

Visualization

* Knowledge is Beautiful by David McCandless
* Super Graphic by Tim Leong

Statistics

* Principles of Statistics by M.G. Bulmer. [First published in 1967 but still the clearest exposition of classical statistics I’ve come across. Each chapter is a gem. The more detailed books by Cramer and Larsen & Marx are deservedly praised (I’m a fan of both), but if you want a quick, simple, straightforward treatment without all the mathematical niceties, this is the book to read.]
* Doing Bayesian Data Analysis by John Kruschke. [It’s technical and detailed, but even skimming it is useful.]
* Scientific Reasoning by Colin Howson and Peter Urbach. [Clearly shows why classical statistical inference is rotten at the core. Once you read this book you’ll feel sick to your stomach every time you see a linear regression or a P value.]
* Choice & Chance by Brian Skyrms. [A thing of beauty. Statistical inference is about induction and this book clearly explains what induction is, why it’s hard, and what on earth the theory of probability has to do with induction. A book that I’ve read several times from cover to cover and still learn something new each time.]
* Fact, Fiction, and Forecast by Nelson Goodman. [It’s so foundational that it doesn’t talk about statistics at all! Goodman shows why it’s impossible to solve the problem of induction. So you’re left to wonder: How does statistical inference manage to work? Answer: If you ask me, it’s pure luck.]

Miscellaneous

* What is P Value Anyway? by Andrew Vickers
* Statistics in Plain English by Timothy Urdan
* How to Measure Anything by Douglas Hubbard
* The Flaw of Averages by Sam Savage
* Picturing the Uncertain World by Howard Wainer
* Fooled by Randomness by Nassim Taleb [If you can get past the pseudo intellectual posturing, you’ll find some timeless nuggets.]
* The Misbehavior of Markets by Bernard Mandelbrot