Algorithms to Live By: The Computer science of human decisions
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This book aims to give a framework to the reader so they can employ algorithmic thinking within their lives. The authors begin by going over some computer science notation wherein they teach the readers about some foundational axioms pertaining to big-O and the way in which computer scientists use those principles to evaluate the usefulness of an algorithmic approach. The authors start off by introducing to the optimal stopping problem. This optimal problem, using stochastic markov chains, converges to $\frac{1}{e} \approx 37\%$. So the conclusion of this is that ~~37%~~ at the 37% point you choose the next candidate which is better than all of the candidates seen thus far. This can be used in the context of time also. The author then goes on to talk about a fundamental principal within computer science and really life in general; The explore/exploit tradeoff. This then has a direct tie in to the multi armed bandit problem. This is because there will always be a battle going between each of the two options as one gives you more information in the running reste of the machine; whereas exploiting will give you more wins. This is analogous to A/B testing used by a multitude of companies. The author also goes on to talk about the best scheduling algorithms, and how that can tie into cognitive psychology. Algorithmically speaking, deciding the importance of a task by how long it will take will give a good algorithm for scheduling. But if you add more

variables to the problem scheduling become an intractable problem. The author then gives an overview of bayesian statistics and laplace smoothing. The author then goes in to talk about the misuse of statistical distributions in day to day life especially mistaking normal distributions to power/law distributions. The author also touches on the erlang distribution which is used to approximate the distribution of correspondences. The author then makes an analogy of overfitting within machine learning to overfit within daily life. After that point the author touches on the importance of randomness and heuristics within a multitude of areas. One example of this is within physics as creating an actual computational model would have enormous complexity. The author also touches on the phenomena of recursion and of the information cascade that it can cause in daily life. There is also the lindy effect which the authors touch upon; This is a corollary to power law distribution where things have a higher expected lifespan the longer that they are present too. Lastly the author talks about the importance of forgetting especially when pertaining to less useful information. This highlights the importance of heuristics in day to day life as these are the things that must be remembered.