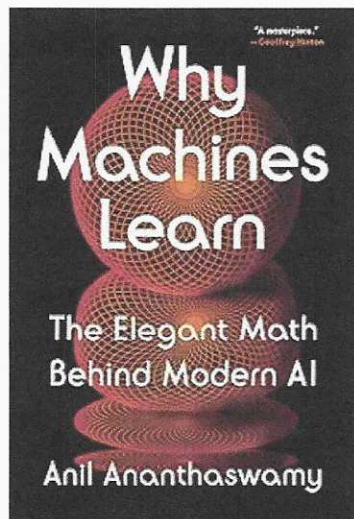


# The Cyber Library

## Reviewing the Works of Anil Ananthaswamy and O. Sami Saydjari

By: William J. (Jay) Carson, ISSA Senior Member, Colorado Springs Chapter



### Why Machines Learn: The Elegant Math Behind Modern AI.

By Ananthaswamy, Anil. Dutton (2024).

**Sound Bite:** Know the math to 'grok' AI! The book you wished you had read before studying linear algebra/statistics/calculus in school.

**Opinion on Primary Audience:** OK, meant for world, but really important for IT leaders wanting to fundamentally understand AI.

Many of us shy away from the 'numbers' part of AI, but AI professionals need a thorough grounding. Don't worry if you don't get it all on the first read, keep plowing through. As the author says, even AI has to make many passes through the data. I did! And even if math brings back painful memories for you, you can enjoy the darn good storytelling.

#### The Authors

Anil Ananthaswamy lists himself on LinkedIn primarily as a writer. In addition to various certificates, he has a Master's degree in Electrical Engineering from the University of Washington. The book cover lists other books and awards, such as being an MIT Knight Science Journalism Fellow.

#### The Metadata

Great online reviews! You can get a copy for about \$20 online, less if you use an electronic device. Your public library will probably have a copy. Using a Wikipedia article about the Flesch-Kincaid Readability Test, the readability is high school level (one page sample), about 17% passive voice. This is about as enjoyable reading as a math book gets for most of us, unless that is your favorite subject. This article is 0% passive voice.

#### Table of Contents: [Including Reviewer notes]

1. Desperately Seeking Patterns [McCulloch-Pitts neuron, Rosenblatt's Perceptron]
2. We Are All Just Numbers Here [Some algebra, vectors, dot products, matrix transposes]
3. The Bottom of the Bowl [Elliptic paraboloids, a bit of partial differential equations]
4. In All Probability [Bayes's theorem]
5. Birds of a Feather [Nearest neighbor rule]
6. There's Magic In Them Matrices [Eigenvectors]
7. The Great Kernel Rope Trick [Hyperplanes, saddle points, Hilbert space, Radial Basis Function (RBF) kernel]
8. With a Little Help from Physics [Hopfield networks]
9. The Man Who Set Back Deep Learning (Not Really) [Cybenko]
10. The Algorithm that Put Paid to a Persistent Myth [Neural networks and XOR gates]
11. The Eyes of a Machine [GPUs, ImageNet, etc.]
12. Terra Incognita [Convolutional Neural Networks]



*Disclaimer: These are the author's subjective opinions, and do not necessarily reflect the opinions of any organization or other individual. A human prepared this article with assistance from Microsoft Editor and Grammarly.*

# Engineering Trustworthy Systems: Get Cybersecurity Design Right the First Time.

By Saydjari, O. Sami. McGraw Hill, (2018).

**Sound Bite:** If Humphrey Bogart's movie detective character worked in cybersecurity, he might say, "Sure, you know the pieces of the story, kid, but can you put them together?"

**Opinion on Primary Audience:** Professional cybersecurity leaders. However, every CEO of any business bigger than a lemonade stand would benefit from reading it. Even if they don't understand all of it, they would get a flavor of the cybersecurity landscape and be wiser in dialogue with their CISO.

I got a tip that one of our cybersecurity (NIST-type) heroes spoke positively about this book at a conference last year. Understandable. This is a comprehensive textbook with plenty of questions after each chapter. That said, if you do not have a military background, you may not enjoy the military terminology and analogies as much as I did. Normally I would find an eight-year old IT book dated, but from what I see from this year's webinars, attending conferences, and technical newsfeeds, I consider it 'timeless.'

## The Author

According to LinkedIn, O. Sami Saydjari is currently an instructor at Dartmouth College, teaching Cybersecurity systems engineering. MS in Computer Science from Purdue. BS in Electrical Engineering from Rice. He was a DoD Researcher for many years, including years at the Defense Advanced Research Agency (DARPA).

## The Metadata

For under \$25 you can get a copy online, but I doubt you will see a copy in your public library. Using a Wikipedia article about the Flesch-Kincaid Readability Test, my one-page text sample was about 41% passive voice (it is a techno/management textbook) and was at upper college level. This article is 0% passive voice.

## Table of Contents (Excerpts): [Including Reviewer notes]

3 What Are the Building Blocks of Mitigating Risks [Good stuff if you are testing for a certification exam]

- Countermeasures: Security Controls
- Cryptography: A Sharp and Fragile Tool
- Authentication
- Authorization
- Detection Strategy
- Deterrence and Adversarial Risk

4 How Do You Orchestrate Cybersecurity? [High-level stuff for CISOs or would-be CISOs]

- Cybersecurity Risk Assessment
- Risk Mitigation and Optimization
- Architecting Cybersecurity
- Assuring Cybersecurity: Getting it Right
- Cyber Situation Understanding: What's Going On
- Command and Control: What to Do About Attacks

5 Moving Cybersecurity Forward [Human pros remain essential]

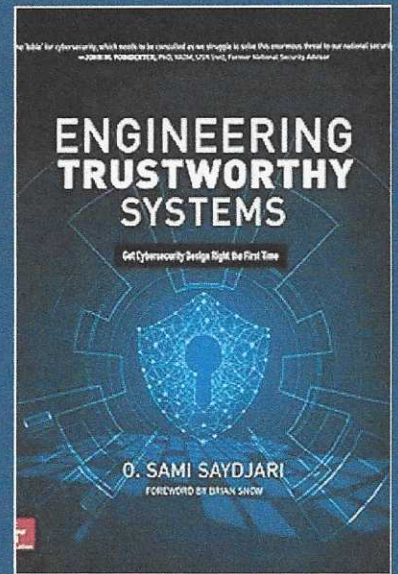
- Strategic Policy and Investment
- Thoughts on the Future of Cybersecurity

## Happy Reading!

**Next Issue:** Note: I am a member of the 'Luisa Jarovsky AI Book Club' and the 'CyberCanon.' I get ideas on books to review from them, bibliographies, prowling bookstores, and especially from readers like you! If you have books for me to review, or changes to the style of 'The Cyber Library,' please use the email address in my bio to let me know!

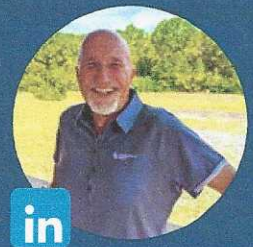
## Additional sources used in the article:

- [https://en.wikipedia.org/wiki/Flesch%E2%80%93Kincaid\\_readability\\_tests](https://en.wikipedia.org/wiki/Flesch%E2%80%93Kincaid_readability_tests).
- LinkedIn profiles for authors listed, where available.



## Next Month:

- Acemoglu, Daron and Simon Johnson. *Power and Progress: Our 1000-year Struggle Over Technology & Prosperity*. Public Affairs (2023).
- Jones, Jack, and Jack Freund. *Measuring and Managing Information Risk: A FAIR Approach*. Second Edition. Elsevier (2026). Note: I know the author and he is the editor of the *ISSA Journal* but has no influence over my review.



William J. (Jay) Carson, ISSA Senior Member, ISSA 2020 Volunteer of the Year, current ISSA-Colorado Springs Director of Certifications, and past ISSA-Colorado Springs Executive Vice President. He is the part-time 'Cyber Librarian' of Semper Sec, LLC. Holding Security+, CIPM, CIPT, CIPP/E, CIPP/US, and AIGP certifications, he is a former high school math/science teacher, federal civil servant, contractor, and retired USAF Lieutenant Colonel. Reach him at [Runningjay51@gmail.com](mailto:Runningjay51@gmail.com).

*Disclaimer: These are the author's subjective opinions, and do not necessarily reflect the opinions of any organization or other individual. A human prepared this article with assistance from Microsoft Editor and Grammarly.*