Call for Book Chapters

COLLEGE OF ENGINEERING
BRADLEY DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
VIRGINIA TECH

Book Title: AI Assurance
Subtitle: Towards Valid, Explainable, Fair, and Ethical AI

Recommended topics (not limited to)**:**

- Methods for AI assurance
- AI systems testing, validation, and verification
- Explainable AI (XAI)
- AI for government and policy making (in technology, energy, healthcare, defense, agriculture, transportation, economics, education, law, and other areas)
- Topics relevant to the data science lifecycle
- Data engineering practices such as: bias, skew, incompleteness, variance, and other data-relevant issues
- Data collection, wrangling, and preprocessing
- The assurance of machine learning and deep learning models
- Trustworthy AI, ethical AI, and fair AI
- Applications of secure and safe AI
- Issues relevant to the design and engineering of AI systems
- Software reliability, reusability, availability, and all other "ilities"
- Open data and open government
- AI methods for critical systems
- AI challenges at your institute, the future of AI, and the importance of assurance

Introduction:

The field of Artificial Intelligence (AI) is witnessing a major upsurge in research, tools' development, and deployment of applications. Multiple software companies are shifting their focus to developing intelligent systems. Software in all domains (such as in cyber security, healthcare, government, energy, and many more) is now expected to have some form of intelligence. Those systems leverage intelligent methods such as: deep learning, machine learning, reinforcement learning, computer vision, agent-based systems, natural language processing, text mining, predictive and prescriptive analytics, knowledge-based systems, evolutionary algorithms, and others. Trust in those systems however, is in question; accordingly, there is a critical need for methods that validate AI systems. Given the black-box nature of AI deployments in different situations, one thing that all systems require is to be built in a valid, explainable, fair, and ethical manner; therefore, in this book we aim to explore AI assurance as it encompasses all those parameters.

Targeted Audience:

1. AI researchers, data scientists, and software engineers in academia, government, or industry.

2. Policy makers at all levels of government.
3. Industry's data science teams and consultants, and all other specialists who build AI systems.
4. Students in majors such as: CS, Statistics, AI, Big Data Analytics, Sciences, and Public Policy.
5. Engineers and contractors building critical and non-critical AI systems (at all levels of government).
6. The general public - readers interested in AI (technical and non-technical).

Book Information:

This book is under contract with Elsevier's Academic Press (https://www.elsevier.com/). The book is anticipated to be released in late -2021 or early 2022. It will be available on Amazon, Elsevier, Google Books, Barnes & Noble, and all other commonplace online venues.

All inquiries and submissions can be forwarded electronically:
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Submission Procedure and Important Dates:

You are invited to submit a proposal (an abstract of no more than 500 words) that includes the main idea of your chapter. Please also include: (1) the forecasted number of pages, (2) your chapter title, and (3) a list of authors.

Please submit on or before March 12th, 2021 (in one PDF file) to the following email: batarseh@vt.edu
Authors of accepted proposals will be notified, and will receive feedback on or before April 9th, 2021. Full chapters are expected to be submitted by August 6th, 2021. All submitted chapters will be reviewed. Final versions of the chapters are to be submitted by: October 1st, 2021.

Abstracts due: March 12th, 2021
Feedback sent to authors: April 9th, 2021
Chapters due: August 6th, 2021
Final chapters due: October 1st, 2021