THE ROLE OF TECHNOLOGY IN BUSINESS:
Why haven’t accountants been replaced by machine learning and algorithmic decision making?

Kevin E. Dow
Professor of Accounting Information Systems

Presented at the:
1st CODE Research Symposium on Technology-Enabled Services

1 November 2019
My Background

- My research involves the application of Analytics and Machine Learning in the Accounting Space.
- My interests relate to the **management** of the Data Science Process.
AGENDA

1. What is Accounting
2. What is Machine Learning?
3. Rise of ML in Accounting
4. Importance of Accounting Judgments
5. Conclusion
What is Accounting?

Accounting is a logical system with fixed rules based on a *binomial number system*.

Accounting is a no-trust system -- if you *illegally subtract* on one entry another *goes off balance*.

Accounting is not a science because it would be hard to improve on it *without destroying the logic*.

Accounting is not an art, it is a *congruent self sufficient logical system*.
Accounting in Four Dimensions

Obligations
- Commitments
- Constraints
- Timing
- Resources

Linear Deliverables
- Timeline
- What was promised
- Bottlenecks?
- Impact

Transaction
- Value of each element
- What was promised?
- Repeat customer?
- Impact

Reporting
- Impact on F/S
- Multi-period impacts?
- Disclosures?
- Impacts to Processes?
What are ML Algorithms?

• Recognize Patterns

• Make Connections

• Classify Data

Courtesy Arthur Samuel, 1959
Rise of ML and Algorithmic Decision-Making

- Reducing Documentation Burden
- Compliance and Risk Management
- Automated Categorization
- Audit 100% of transactions
- Clear Invoice Payments
- Use of CHATBOTS

Courtesy McKinsey Global Institute, 2018
Importance of Judgment in Accounting

- Financial Market Complexity
- Developing Relevant Information
- Principles-Based Accounting
- Regulatory Scrutiny
Summary

- **Accounting is an interpretive science** and is constantly changing.
- It is **impossible** to program a computer or create software with the judgment of a fully trained senior accounting professional.

**Point 1**
Different rules apply to different industries where the law and regulations constantly change.

**Point 2**
Accountants can be replaced by Machine Learning and algorithms – in areas such as bookkeeping.

**Point 3**
Accountants *do not like to change*.

**Point 4**
Accountants are rapidly moving into advisory and strategic roles as trusted advisor.
THANK YOU FOR YOUR ATTENTION!

Kevin E. Dow
Professor of Accounting Information Systems

Presented at the:
1st CODE Research Symposium on Technology-enabled Services

1 November 2019