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National eDiscovery Leadership Institute



How Artificial Intelligence is Revolutionizing Managed Review

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How artificial intelligence is revolutionizing managed review

As you may have heard by now, artificial intelligence (AI) is in the process of revolutionizing the legal profession as it has done in finance, entertainment, healthcare, and manufacturing. Applying AI technology is perfect for repetitive tasks that require human intelligence where an increase in productivity and decrease in errors and cost are the goals. Document review is not exempt from the application of AI technology and its benefits.



The rise of AI in the modern world

Artificial Intelligence

Coined more than 60 years ago

John McCarthy

Defined as 'the science and engineering of making machines intelligent'

John's vision for AI

Dreamed of a technology-enabled future where

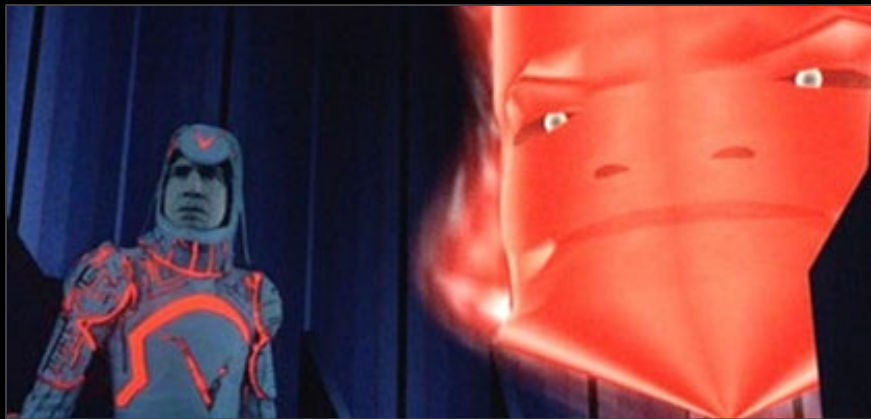
- Autonomous transportation

- Flying vehicles

- Clean and safe environment

- Healthy and extended life

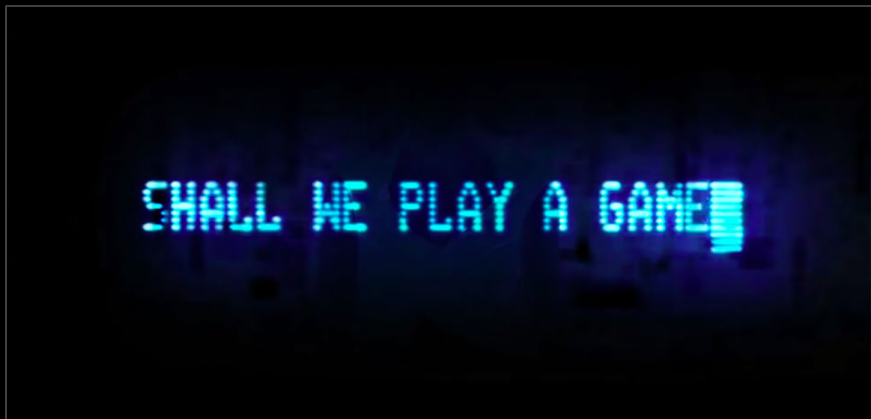




Tron, 1982



Battlestar Galactica, 1978



War Games, 1983



Blade Runner, 1982



Skynet is here. We just don't know it yet

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How Drive.ai Is Mastering Autonomous Driving With Deep Learning

This nonprofit uses AI, deep learning to fight crime against children

ARTIFICIAL INTELLIGENCE'S ROLE IN ENDING WORLD HUNGER

Google's Deep Learning AI Diagnoses Cancer Better Than Human Pathologists

By Zayan Guedim · March 10, 2017 · 1071 views · 3 comments

OPINION

With deep learning, the road towards algorithmic doctors

Why AlaaS will dominate business applications

"Cobot" with Deep Learning

Recognition Hits And Production Floor

Here's How Pharma Is Using AI Deep Learning To Cure Aging

Mac OS
Watch
Then

Google Uses
Signs of Breast Cancer

Creates Dances of Its Own

Les Paccar self-driving



Will deep learning artificial intelligence be able to keep up with the rapidly increasing population of the Earth?

Mar 20, 2017



How is AI impacting the practice of law?

Artificial intelligence tools have become sophisticated enough and cost effective to replace many repetitive tasks essential in the practice of law.



AI's impact on discovery

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The benefits

Speed to Evidence

Cost Reduction

Empowering legal professionals
with technology

Keeping pace
with data explosion

The blockers

Difficult tech to manage

Fear of the “black box”



Birth of AI -- Technology assisted review (TAR)

Predictive Coding, Computer Assisted Review (CAR)

TAR is pseudo-AI in its basic form

Process of having computer software electronically classify documents based on input from expert reviewers

Its goal is to expedite the organization and prioritization of a document collection

The computer classification may include broad topics pertaining to discovery responsiveness, privilege, and other designated issue



AI/ Gen 1.0

Experts training systems

Not cost effective —very expensive

Not scalable —required very large matters

Passive learning

- Required senior lawyer or SMEs for training

- Required thousands of documents to build a control set, train and test the results

One bite at the apple

- No opportunity to improve the algorithm's judgment

Rolling uploads not supported

- New documents render the control set invalid because they were not part of the random selection process

Low richness can make finding training examples hard to find

- Richness below 1% can cause SME to have to review several thousand documents to train the system

Courts reaction to TAR

ex: Moore v. Publicis Group (judge Peck, 2012)



The present **Gen 2.0**

Evolving AI

Moderately cost effective —priced more reasonable

Moderately scalable for small or large matters

Continuous active learning

Algorithm is not limited to one round of training

- Takes advantage of the additional judgments made by the reviewers

Actively sends documents to the review team based in part on the continuously updated rankings

No need for SME training

Removes reliance of TAR sets

QC algorithm

Works with low-rich collections

Becoming more acceptable in practice

Michael Cohen Investigation

In Re Domestic Airline Travel Antitrust Litigation



The future **Gen 3.0**

Scalable AI

Extremely cost effective —included in modern review tools

Extremely scalable for small or large matters

Deep Learning

Netflix

combines multiple learning models to create predictive suggestions

Requires

+/- Predictive Scoring

AI tag predictions are scored on a scale of -100 to 100. This means AI is not just bring similar documents to your attention, but it is also surfacing dissimilar documents, e.g. potential tagging errors.

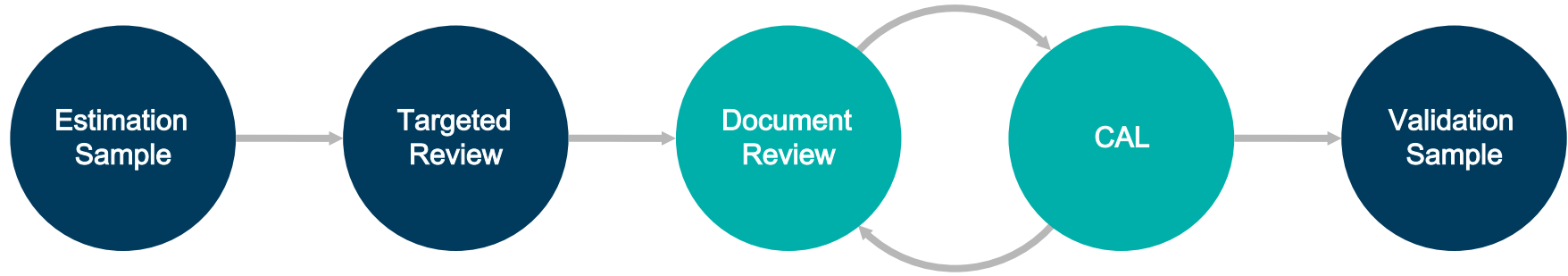
Just-in-time Batching

Accelerate your review by using 'Tag Predictions' Ordering batches by tag prediction enables each subsequent batch to be "smarter", meaning more of the documents in that batch are likely to be relevant to the tag/issue you chose as your primary sort order for the stage.



Workflow — Getting it right

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Estimation Sample	Create a random sample of docs to determine content prevalence and start model training
Targeted Review	A review of targeted documents is used to further train the model
Document Review	Official document review commences
CAL	CAL picks up on the training and iterates until it is done finding relevant content
Validation Sample	Run a validation sample to confirm a negligent amount of relevant content remains

Managed Review powered by AI

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Fast and accurate review

- Using industry-leading AI tools directly integrated with review platform
Powered by AI for review prioritization

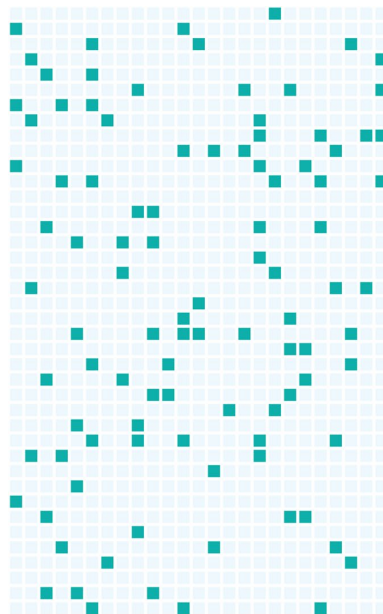
Control project costs

Reduce cost with estimation sampling throughout and prevalence validation at target
No need to review non-responsive documents

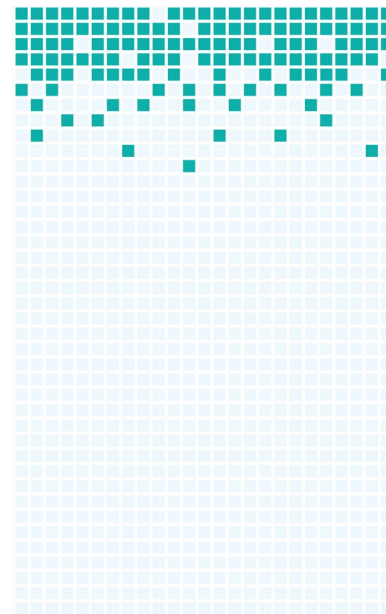
Manage risks

Integrate your existing workflows into AI workflow
Tighten nexus between technology and reviewers

Natural document distribution



Prioritized review with AI





AI Managed Review Outcomes

AmLaw 200 Firm

Key metrics

127,086 documents

Review finished in 1,002 hours instead of 2,000 hours expected (**49.9% faster**)

Average review pace: **131 docs/hr**, ranging from 65 docs/hr to 175 docs/hr

Total cost of review was **51.22% lower** than budgeted

Single-digit overturn rates



Keys to leveraging AI

An estimation sample need only be a few hundred documents

Search terms and AI can be used together

Understand your collection before you begin a review

Contemplate your production requirements before you batch for review

Leverage email threading, near duplication and individual document review

AI can be used for QC, Prioritization and / or Reduction in the data population



Thank you

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