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How To Get Started With AI: Moving Beyond ChatGPT

Jordan Thayer
AI Strategist

- Why would you move beyond ChatGPT / LLMs?
- What can Non-LLM AI techniques do?
- Where do I get started?

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Stir Trek
Browse Channels
rules
TEXT CHANNELS
cfs-feedback
event-help
general
joins
meet-the-speakers
speakers
tickets
tweets
VOICE CHANNELS
General
Robert Herbig
Online

I'd Like to Start Off With a Little Data

How Many Of You Are Using AI At Work?

Are You More Excited About AI Today than 5 Years Ago?

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What Made It More Exciting?

Publicly Available
2019
2020
2021
2022
2023
T5
GPT-3
GShard
mT5
PanGu-α
PLUG
Ernie 3.0
Jurassic-1
CPM-2
Codex
1-4
5-8
9-10
11-12
1-3
4-6
7-10
11-12
1-4
T0
HyperCLOVA
FLAN
Yuan 1.0
LaMDA
AlphaCode
Chinchilla
Anthropic
WebGPT
Ernie 3.0 Titan
Gopher
GLaM
InstructGPT
CodeGen
MT-NLG
OPT
GPT-NeoX-20B
Tk-Instruct
Cohere
UL2
PaLM
YaLM
Sparrow
Flan-T5
Flan-PaLM
Luminous
NLLB
Pythia
Vicuna
PanGu-Σ
Bard
ERNIE Bot
LLaMA
BLOOM
mT0
BLOOMZ
Galatica
OPT-IML
GLM
AlexaTM
WeLM
ChatGPT
GPT-4

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Why are LLMs So Exciting?

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Why are LLMs So Exciting?

They foreshorten the left half of the curve!

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Faster Time to Value

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Why are LLMs So Exciting?

They foreshorten the left half of the curve!

Faster Time to Value
Reduce Expertise Required

Why Would I Move Beyond LLMs Anyway?

- ChatBots
- Conversion of data types
  - Plain Text -> JSON or Similar
  - Text -> Video
  - Video -> Text
  - Etc
- Programming Assistance (including SQL)
- Conversational Interfaces
- Question Answering
- Document Retrieval
- Slices, Dices, Juliennes Fries

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How To Get Started With AI: Moving Beyond ChatGPT

Pope Leon X
Fernando Botero

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Why Would I Move Beyond LLMs Anyway?

The plateau

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Why Would I Move Beyond LLMs Anyway?

Investing more requires ever increasing expertise and resources

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Why Would I Move Beyond LLMs Anyway?

They foreshorten the left half of the curve!

... but they effectively elongate the plateau

Why Would I Move Beyond LLMs Anyway?

Why Would I Move Beyond LLMs Anyway?

Why Would I Move Beyond LLMs Anyway?

Why Would I Move Beyond LLMs Anyway?

Well, Where Do I Go?

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Modeling Reality

Prediction

(Deep) Machine Learning

Classification

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Data
Thing to execute
(program)
Software
Development
Expected Output
(labels)

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Data
Thing to execute
(program)
Software
Development
Expected Output
(labels)

Data
Labels
(expected output)
Machine
Learning
Model
(thing to execute)

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Flight Data
Predicts & Prioritizes Issues
Learner Model
Analyst
Decisions Reinforce Model
Reviews Data & Makes Final Decisions

So, How Does That Work?

So, How Does That Work?

So, How Does That Work?

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Zionsville
2018 Data

...

Adams County
2019 Data

...

Marion County
2022 Data

Road Surface Trajectory Calculator

Machine Learning

Road Surface Degradation Predictor

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Zionsville
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...

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Zionsville
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...

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Surface Trajectory Calculator

Machine Learning

Surface Degradation Predictor

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PyTorch

Gymnasium

Modeling Reality

Prediction

Machine Le

Classification

scikit learn

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The Basics of Sentiment Analysis

We waited 20 minutes past our reservation for a table

Once our party was seated the service was prompt

the food was delectable

Neutral

Positive

Positive

Positive

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Thousands of freeform requests

Organized into topics and subtopics

Trends are discovered to prioritize fixes

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Data showed decreased engine flow. Inspected turbine blades. Found unserviceable wear on fitting. Replaced.
Pilot complaint about slight veering. Took engine apart to discover dirt blocking fuel line. Flushing line fixed the issue.
Engine flow decreased after several hours of flight. Inspected turbine blades and found serviceable scratches. Replaced.
Problem LOW_ENGINE_FLOW
Diagnosis BLADE_WEAR
Fix REPLACE
30 years of unstructured maintenance logs
Organized into a structured database of cause and effect

Segments → Shapes

- Geospatial Data Sources
  - OpenStreetMap
  - TIGER
- Use Segment Name, From, and To to Determine Road Segment Shape

Roadway	From	To
Amy Ln	Arvin Rd	Hurricane Rd
Hillview Dr	North Dr	Hillview Dr
Bay Ct	Dead End (North)	Shore View Dr
Benjamin St	Private Dr	Fire Station Driveway
Old US 31	200’ W of Wilson Way	775’ E of Wilson Way
Graham Rd	Curve	CR 250 E

NLTK

vaderSentiment Public

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Planning
Automation
Scheduling
Optimization
Recommendation

Optimization

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Optimization

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Your Road Inventory

View As List

Search For Roads

Map View: 68 roads

Filter

	PASER
Paisley Point Lime Light Ln - Dead End St More	4
Paisley Point Lime Light Ln - Dead End St More	4
Paisley Point Lime Light Ln - Dead End St More	4
Paisley Point Lime Light Ln - Dead End St More	4
Paisley Point Lime Light Ln - Dead End St More	4
Paisley Point Lime Light Ln - Dead End St More	4
Paisley Point Lime Light Ln - Dead End St More	4

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Road Surface Data

Designation	Roadway	From	To	Rating	Date Rated	Classification	2020 Treatment
16	CR 450 E	Pavement Change	CR 750 S	3	08/04/21	Local	
214	CR 700 E	1760' N of CR 300 S	1760' S of CR 200 S	3	08/04/21	Local	
206	Nesse St	S Main ST	Hardesty St	3	08/04/21	Local	
18	Wolfe RD	Town Limits	CR 750 S	3	08/04/21	Local	
113	CR 450 S	CR 500 E	CR 575 E	4	08/04/21	Local	
183	Indigo Blue BLVD	Albert S White DR	Lime Light LN	4	08/04/21	Local	
224	Whitestown PKWY	Maple Grove BLVD	Town Limits	4	08/04/21	Minor Arterial	

Treatment Model

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I use AI to find the best strategy for our budget.

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Raw Lumber

Optimizing Edger

We optimized against two major constraints

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coin-or/**Clp**

COIN-OR Linear Programming Solver

OptaPlanner

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Identifying Serial Numbers With Machine Vision

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From https://www.linkedin.com/company/virtual-health-pt

OpenCV

When Would I Move Away From LLMs?

NAVIGATING AI

NLP
Ingestion
Extraction

Generative
GPT
LLM
Video
Image
Voice

Prediction
Modeling Reality
Machine Learning
Classification

Optimization
Planning
Automation
Scheduling
Recommendation

Vision
Recognition
Ingestion
Extraction

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NAVIGATING AI

vaderSentiment

NLP

Extractio

NLTK

OpenAI

Generative

Video

Image

Voice

Gymnasium

Prediction

scikit learn

coin-or/Clp

COIN-OR Linear Programming Solver

COIN|OR

Optimization

OptaPlanner

Recog

Vision

Ingestion

Extraction

OpenCV

Summary

- LLMs are great, but they aren’t always the answer
  - Highly constrained problems
  - Domains with high cost of failure
- Other AI Technologies Exist
  - Knowing the Right One Is Key
- Open Source Implementations Are Available to Get Started With!
- You’ll probably be using several in concert to build a product

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