

# Artificial Intelligence 201

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## BEYOND WRITING EMAILS

J. Langley,  
Founder, Huntsville AI  
CTO, CohesionForce, Inc  
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# INTRODUCTION TO J. LANGLEY

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What I do:

- Chief Technical Officer - CohesionForce, Inc
- Founder - Huntsville AI
- AI Huntsville - Workforce Development Committee
- Captain - Keel Mountain Volunteer Fire Department

I've been working with AI since around 2005, with my master's project at Florida Institute of Technology being an NLP based system for recommending web forum channels that best match a user's question.

I believe that the best way to ensure that AI is used for the greater good is to involve the greatest number of perspectives possible in its development, testing, and use.

## LEVELS OF AI ADOPTION

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1. Using AI without knowing it - Email spam filter, map navigation, voice recognition, social media feeds
2. **Actively using AI - ChatGPT, Copilot, other tools we'll cover in a moment**
3. Building AI Tools - Incorporating AI tools into products, training custom AI models, applying AI in new domains
4. Designing new AI models or approaches - Understanding how current AI models work, creating new AI models

# AI TECHNIQUES

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1. Natural Language Processing - Classification, Summarization, Generation
2. Computer Vision - Classification, Segmentation, Enhancement, Generation
3. Audio Processing - Recognition, Classification, Generation
4. Reinforcement Learning - Autonomous Vehicles, Robotics, Optimization
5. Recommendation Systems - Collaborative Filtering, Content Based, Implicit
- 6. Generative AI - Text, Images, Audio, Video**
7. Agentic AI - Tool Calling, Decision Making
8. Robotics - Humanoid Robots, Autonomous Drones, Self Driving Cars

## GENERAL GUIDELINES

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- You are responsible for checking the correctness of any output.
- Be as specific as possible.
- It's called “Prompting” for a reason.
- Feel free to use AI to build better prompts.
- You can do a lot for free, but the paid options are almost always faster with higher quality.
- If the results are not good enough, check back in a month.

# DISCUSSION OUTLINE

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To give us a framework for this discussion, we will center around a boutique jewelry store in Huntsville. The store is planning an upcoming sale and needs a strategy, images, and video for a marketing campaign.

We'll use:

- Deep Research to develop a strategy
- Image Generation to create images for social media
- Video Generation to create videos for social media
- Text to Audio to create voice over for the video

Along the way, we'll pause and discuss how each of these might be useful in your daily life.

## DEEP RESEARCH

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Deep research is useful for complex, multi-step inquiries requiring information synthesis from numerous sources, such as creating market analyses, scientific literature reviews, or detailed project plans, and can also be used for personal tasks like product comparisons or travel planning.

**Example Prompt:** Conduct a deep research analysis on the use of AI for market research for a boutique jewelry store located in Huntsville, Alabama. Focus on identifying general retail and jewelry-specific trends in the area, analyzing the online and social media marketing strategies of competitors, and providing a data-driven plan for a major upcoming sale. Include examples of specific AI tools that could be used for demand forecasting, customer personalization, and competitive analysis.

# DEEP RESEARCH - RESULTS

## Full Report

Competitor	Key Business Model	Primary Online Channels	Noted Marketing Themes	AI-Relevant Weaknesses
<p><b>Phase 1: Pre-Sale (4-6 weeks out)</b></p> <p>The primary objective during this phase is to build excitement, optimize inventory, and segment the audience for targeted outreach.</p> <ol style="list-style-type: none"> <li><b>Inventory &amp; Demand Forecasting:</b> The boutique begins by feeding its historical sales data into a demand forecasting tool like Prediko. This initial step provides a data-backed plan for what products to stock and in what quantities for the sale, mitigating the risk of overstocking high-value items.<sup>17</sup></li> <li><b>Competitive Intelligence:</b> In parallel, the boutique activates its competitive analysis tools, such as Prisync and Kompyte. These platforms monitor competitors' websites and social media for any planned promotions or marketing themes.<sup>31</sup> The information gathered is used to ensure the boutique's sale message is differentiated and highlights its unique selling points.</li> <li><b>Personalized Marketing &amp; Teasers:</b> Using an AI content tool like Inkie, the boutique generates a series of teaser social media posts, blog articles, and email newsletters to build anticipation for the sale.<sup>28</sup> The email list is segmented, and AI-powered product recommendations are integrated into email campaigns, offering personalized suggestions to customers based on their past purchase history and browsing behavior.<sup>20</sup></li> </ol>	Legacy, Full-Service, Family-Owned	Website, Facebook <sup>3</sup>	Trust, Legacy, On-Site Service, Personalized In-Store Experience <sup>3</sup>	Limited e-commerce integration, social media is an informational "digital business card" <sup>3</sup>
	Personality-Dri ven, Custom Design	Website, Facebook <sup>8</sup>	Customization, Owner's Expertise, Community Trust <sup>9</sup>	Simple website, limited product showcase, minimal digital-first content <sup>8</sup>

## DEEP RESEARCH - TRIP PLANNING PROMPT

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My wife and I are planning a trip to Napa in the third week of February, 2026. I would like to spend 2 days in Napa Valley and one day in Sonoma Valley visiting wineries. I like red wine, and my wife likes white, so include wineries for both. Currently planning to the trip from February 12 through February 16.

I would like to stay at a bed and breakfast in Napa. The price should be less than \$250/night for a 4 night stay. We need a list of available places to stay, along with a few reviews.

We will be flying from Huntsville, AL to Sacramento CA and need a list of flights along with prices. I don't want to fly through a connection that may be impacted by ice/snow. We will need 2 checked bags, so include that in the cost.

We need a rental car (pickup and drop off in Sacramento) and prefer Avis, but would like a list along with prices for a midsize sedan (Honda Accord equivalent).

And a few more paragraphs...

# DEEP RESEARCH - TRIP PLANNING RESEARCH PLAN

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Gemini provided the following plan, with an option to edit or continue

- (1) Find and compare flight options from Huntsville, AL to Sacramento, CA for the period of February 12-16, 2026, including the total cost with two checked bags and avoiding northern or high-altitude connection hubs.
- (2) Find and compare rental car options for a midsize sedan, such as a Honda Accord, picking up and dropping off at Sacramento International Airport between February 12-16, 2026, including options from Avis.
- (3) Find bed and breakfast accommodations in or near Napa, CA for four nights from February 12-16, 2026, that are priced under \$250 per night and find recent guest reviews for each.
- (4) For the requested wineries (Rombauer, V Sattui, Prager Port Works, Hope and Grace, and Sebastiani), determine their location (Napa or Sonoma) and the current cost of tasting for two people at each.

And 3 more points with sub-points

## NAPA TRIP REPORT

## IMAGE GENERATION

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For this example, we're going to continue using Gemini, but most Chat providers can do similar actions.

### Video if Live Doesn't Work

Starting with the stock image of Sorelli bracelets and asking for additional changes to it.



## IMAGE GENERATION - OTHER USES

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Coworker created a book for Father's Day by generating images following a story about her husband and son. All while on her phone, and her husband thought she was scrolling Instagram.

Weird note - The models we use here have some tight guardrails that can sometimes surprise you.

# VIDEO GENERATION

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Kling AI

Higgsfield AI

Kling AI Video if Live Doesn't Work

Higgsfield Video if Live Doesn't Work

Pan away from the starting image. You are inside of a boutique jewelry store that also has a sales associate and another shopper inside. It's a small store with a glass storefront. There are glass cases containing rings, and necklaces. There are bracelets and earrings on stands on top of the cases.

# AUDIO GENERATION

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## ElevenLabs

Prompt created with the help of ChatGPT:

Starting next Friday, J's Jewelry Boutique is offering 10 percent off selected earrings and bracelets. Shop early – this sale runs only while supplies last. Find something special at J's Jewelry Boutique.

## Audio if Live Doesn't Work

## PUTTING IT ALL TOGETHER

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Let's combine what we have done so far:

1. Images generated from stock photos
2. Videos generated from images
3. Audio generated from a script

There's no AI involved here, just standard video editing. I used Vimeo since I already use it for Huntsville AI.

### Final Result

## JUST FOR FUN

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There are models now that you have move to an audio clip that you generate or upload. I may have spent more time playing with this than any other part of this presentation.

Show This First

Hedra AI

## OTHER TOOLS

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There are additional tools for this type of thing being released every month. Here is a list of other useful tools. Each has a different price, most have a free tier available.

[Midjourney](#) - text to image

[Stability.ai](#) - text to image

[RunwayML](#) - text to video

[Synthesia](#) - text to video

[Creatify](#) - everything we just did

# QUESTIONS

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