

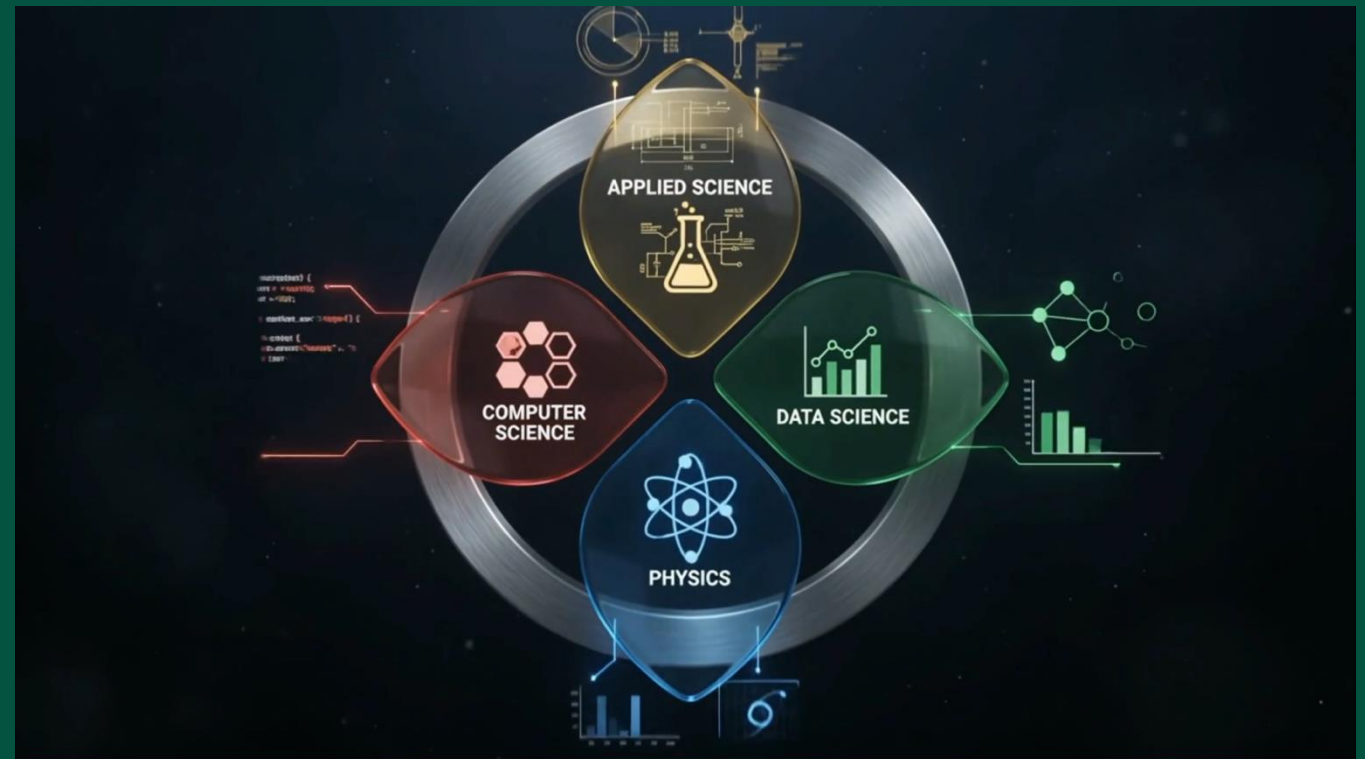
From Computational Thinking to Agentic AI: Case Studies in AI-Augmented Faculty Work

Douglas C. Schmidt

dcschmidt@wm.edu

www.cs.wm.edu/~dcschmidt

**Dean of Computing,
Data Sciences & Physics**



WILLIAM & MARY

School of Computing,
Data Sciences & Physics

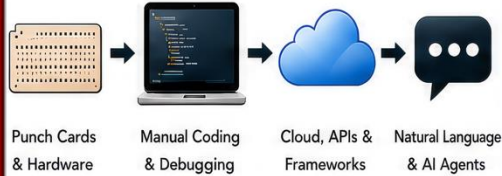
CDSP AI Tutorial, July 27, 2026



Overview of This Presentation

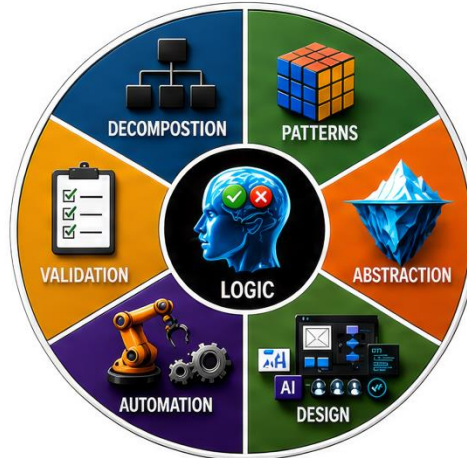
1. THE EVOLUTION OF COMPUTING FROM CODING TO INTENT

From hardware to human intent



- Computing has shifted from how we build software to what we want to achieve.
- AI enables anyone to express intent in natural language and get results.

2. COMPUTATIONAL THINKING FOR THE AI ERA



- Seven elements help us solve problems systematically and creatively.
- These skills help us work with AI effectively.

3. NO-CODE PROBLEM SOLVING WITH CHATGPT

From complex tasks to clear solutions



- Break down complex problems.
- Get structured plans, analysis, content, code, and more.
- Achieve powerful results—no coding required.

4. BUILDING REUSABLE AGENTIC WORKFLOWS

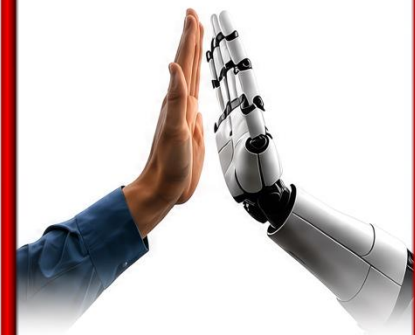
Automate, integrate, and scale



- AI agents coordinate steps and use tools.
- Turn repeatable processes into reusable workflows.
- Save time and deliver consistent results at scale.

5. LESSONS FOR EFFECTIVE HUMAN-AI COLLABORATION

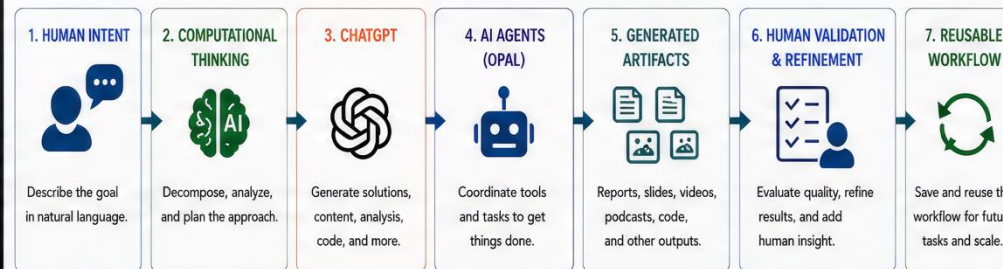
Human judgment + AI capability



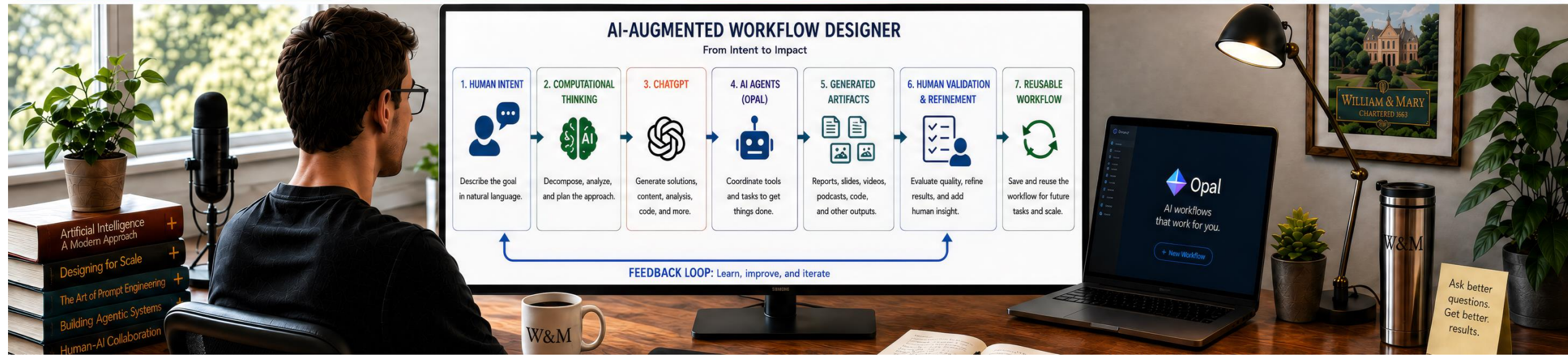
- Be clear, specific, and iterative.
- Combine AI speed with human insight.
- Validate, refine, and never stop learning.
- The best results come from collaboration.

AI-AUGMENTED WORKFLOW DESIGNER

From Intent to Impact



FEEDBACK LOOP: Learn, improve, and iterate



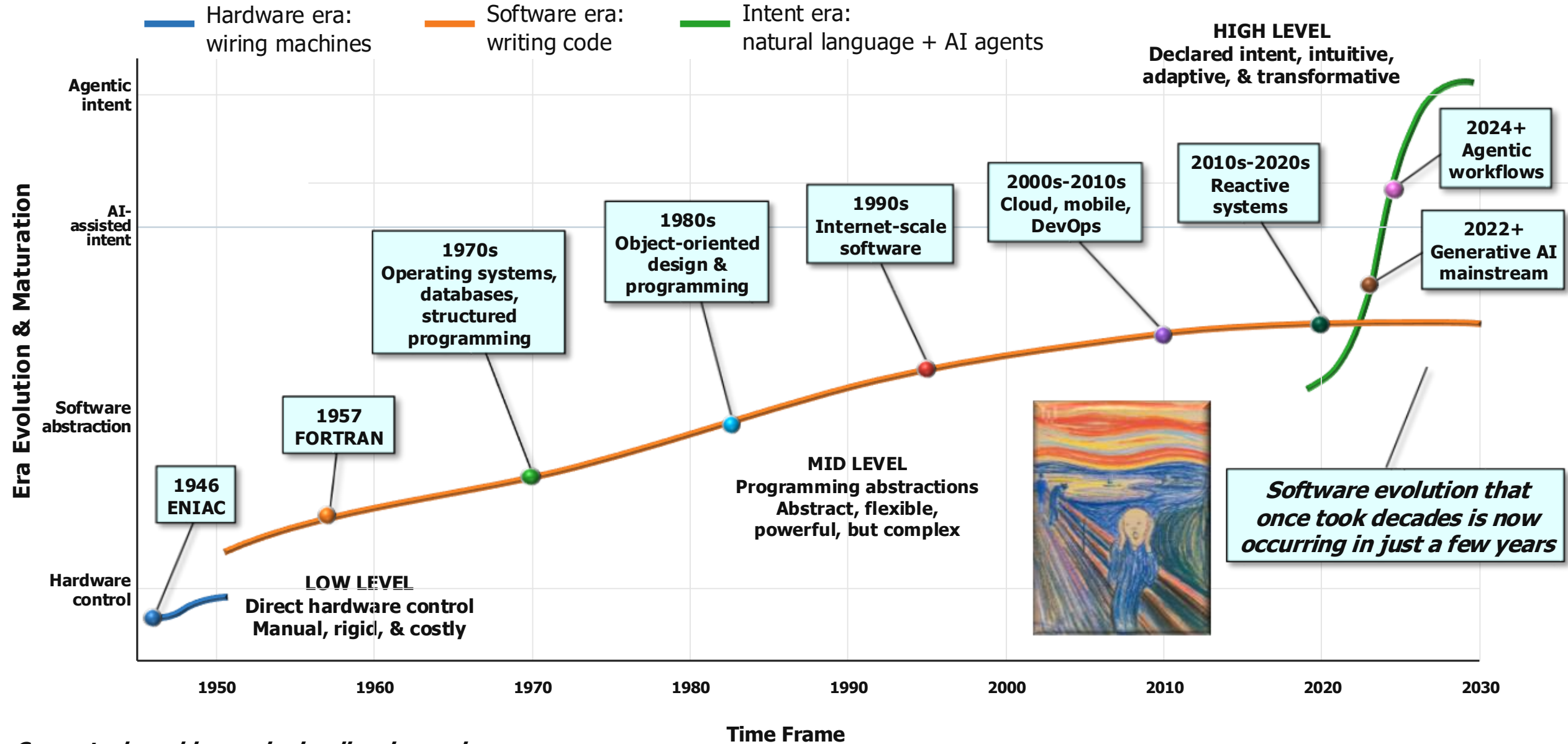
The Evolution of Computing from the “How” to the “What”

The Evolution of Computing from the “How” to the “What”

- The evolution of computing technologies enables us to focus on what matters most: solving problems, driving value, & shaping the future wisely



The Evolution of Computing from the "How" to the "What"



Conceptual graphic: y-axis visualizes increasing abstraction & maturity, not a measured index.

The Evolution of Automotive Technology from the “How” to the “What”

Evolution of Automotive Technology from the "How" to the "What"

*~120 years ago, to drive
a car you had to know
how to build a car*



BUILD IT TO DRIVE IT

Evolution of Automotive Technology from the "How" to the "What"

*~70 years ago, to
drive a car you
had to know how
to maintain a car*

MAINTAIN IT TO DRIVE IT



Evolution of Automotive Technology from the "How" to the "What"

FUEL IT TO DRIVE IT

*Today to drive a car
you merely must
know how to fuel
it or plug it in*



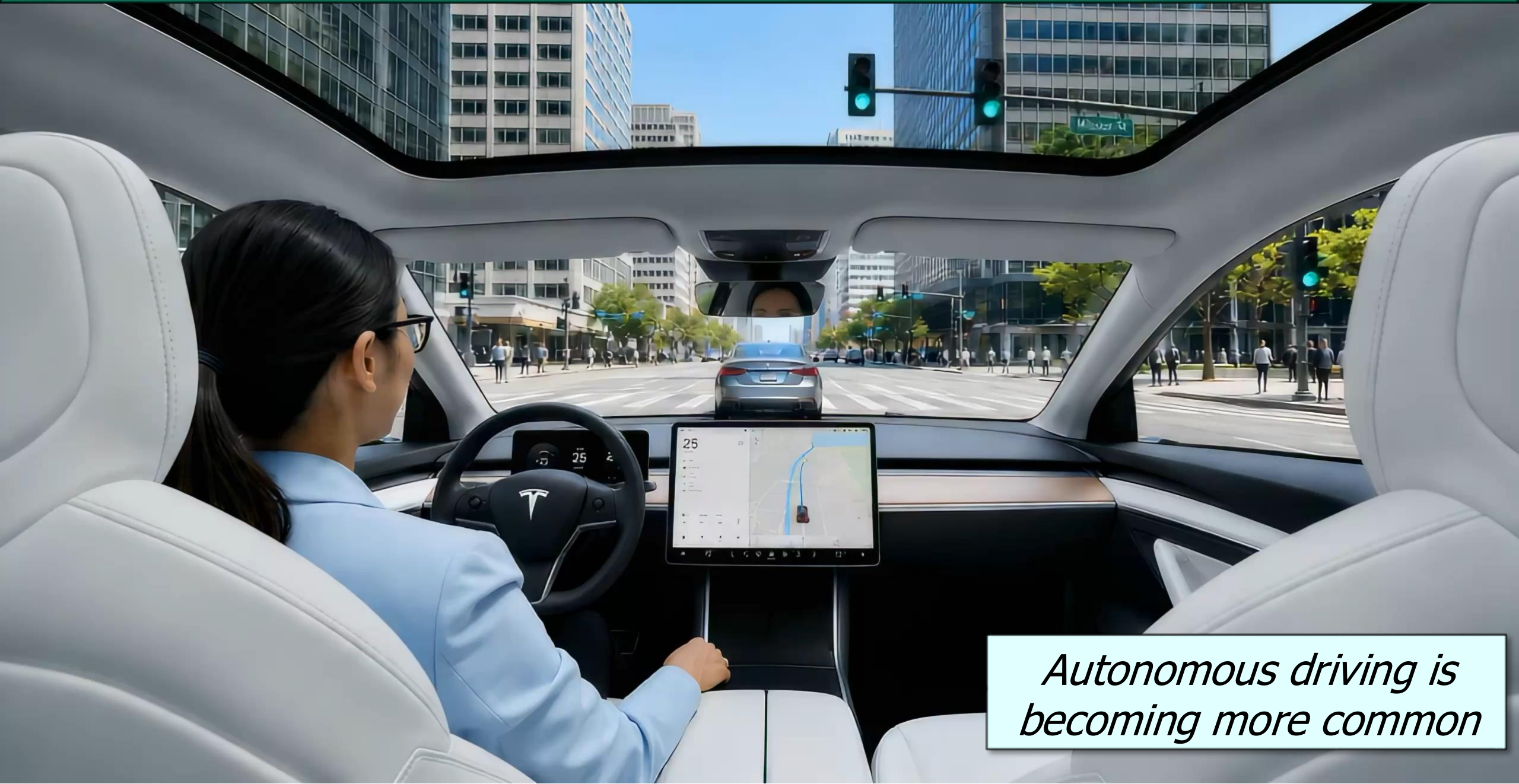
Evolution of Automotive Technology from the "How" to the "What"

Soon you won't even have to know how to drive a car!

NO NEED TO DRIVE IT



Evolution of Automotive Technology from the "How" to the "What"

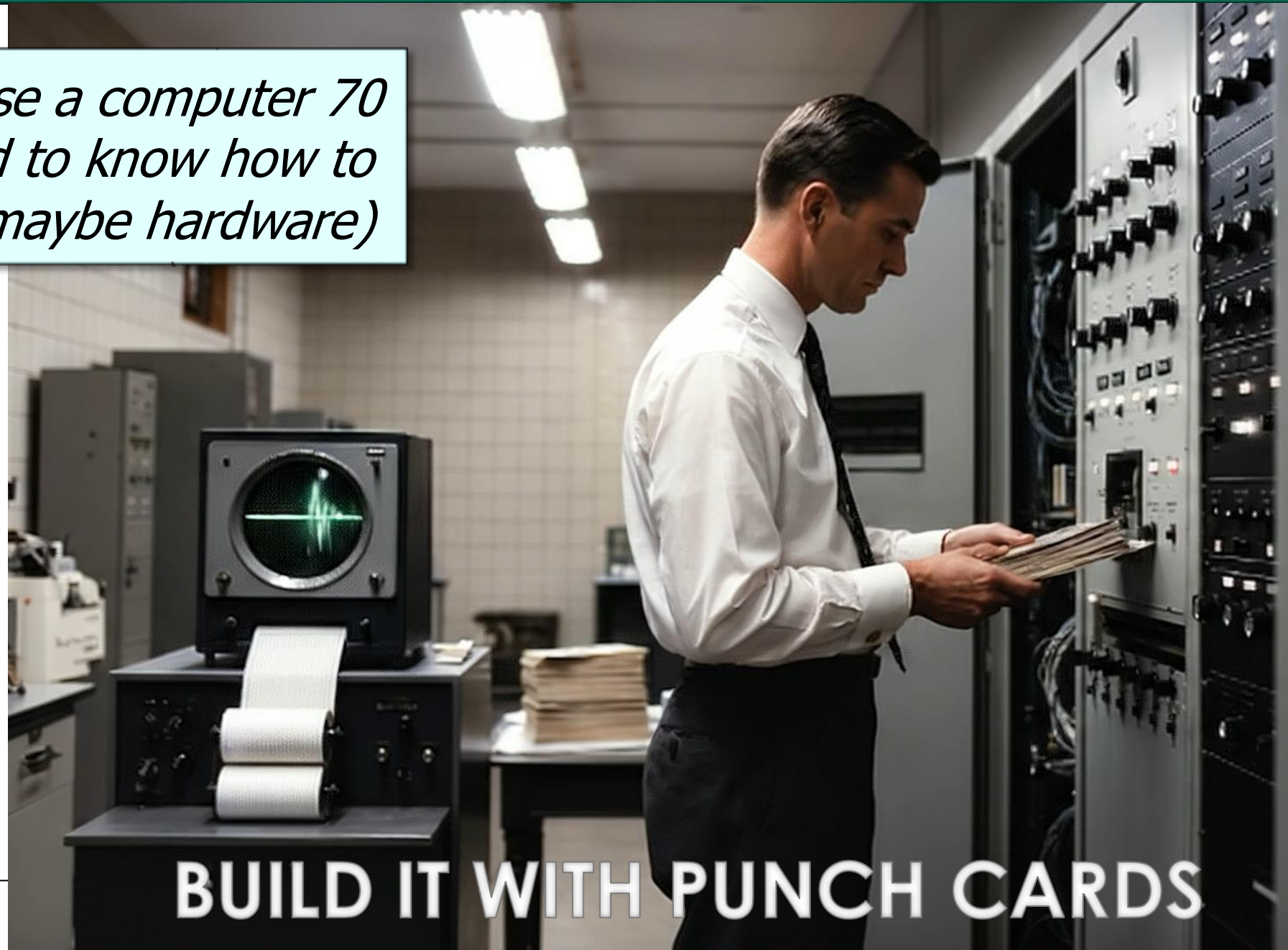


Autonomous driving is becoming more common

The Evolution of Computing Technology from the “How” to the “What”

Evolution of Computing Technology from the “How” to the “What”

If you wanted to use a computer 70 years ago, you had to know how to build software (& maybe hardware)



BUILD IT WITH PUNCH CARDS

Evolution of Computing Technology from the “How” to the “What”

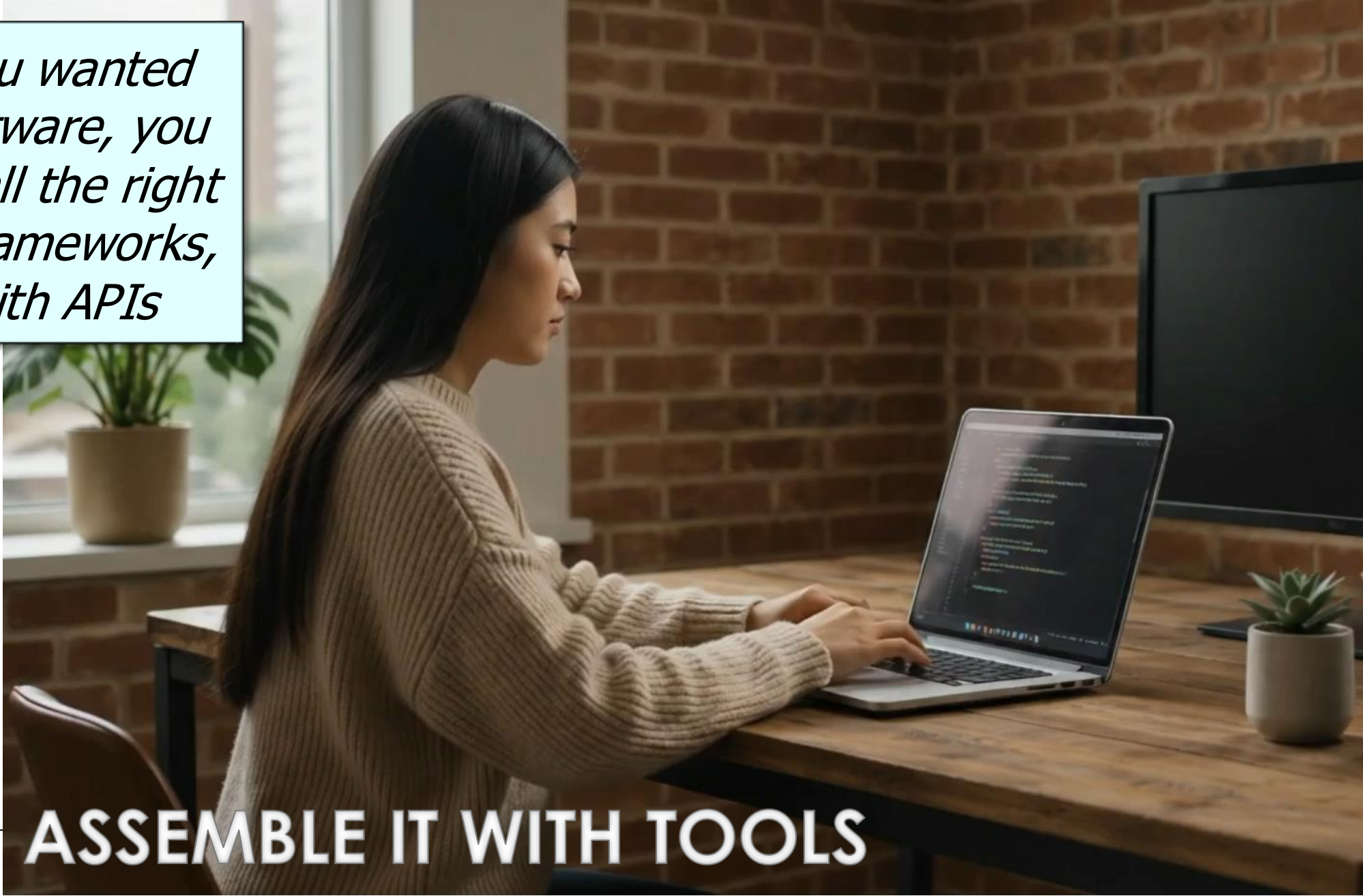
40 years ago, if you wanted to write software, you had to know how to code in a 3rd-generation language & debug low-level issues manually



CODE IT MANUALLY

Evolution of Computing Technology from the “How” to the “What”

Recently, if you wanted to develop software, you needed to install the right libraries, use frameworks, & connect with APIs



ASSEMBLE IT WITH TOOLS

Evolution of Computing Technology from the “How” to the “What”

Now you don't write much code: you just say/type what to do in natural language, & teams of AI agents generate, adapt, & test the solution

Vide code me a web app..

😊 Sure! I'll generate that.

```
def add(a, b):  
    return a + b
```

DESCRIBE IT IN NATURAL LANGUAGE

See www.youtube.com/watch?v=OJLMClRrUv4 starting around the 4:30 mark

Evolution of Computing Technology from the "How" to the "What"

Agentic AI is transforming other domains



See www.cisa.gov/resources-tools/resources/careful-adoption-agentic-ai-services

Overview of Computational Thinking

Overview of Computational Thinking

- Computational thinking was heavily influenced by Dr. Jeannette Wing



See en.wikipedia.org/wiki/Jeanette_Wing

Overview of Computational Thinking

- Computational thinking was heavily influenced by Dr. Jeannette Wing

COMMUNICATIONS
CACM.ACM.ORG
OF THE
ACM

It represents a universally applicable attitude & skill set everyone, not just computer scientists, would be eager to learn & use

Viewpoint | Jeannette M. Wing

Computational Thinking

It represents a universally applicable attitude and skill set everyone, not just computer scientists, would be eager to learn and use.



Computational thinking builds on the power and limits of computing processes, whether they are executed by a human or by a machine. Computational methods and models give us the courage to solve problems and design systems that no one of us would be capable of tackling alone. Computational thinking confronts the riddle of machine intelligence: What can humans do better than computers? and What can computers do better than humans? Most fundamentally it addresses the question: What is computable? Today, we know only parts of the answers to such questions.

Computational thinking is a fundamental skill for everyone, not just for computer scientists. To reading, writing, and arithmetic, we should add computational thinking to every child's analytical ability. Just as the printing press facilitated the spread of the three Rs, what is appropriately incestuous about this vision is that computing and computers facilitate the spread of computational thinking.

Computational thinking involves solving problems, designing systems, and understanding human behavior, by drawing on the concepts fundamental to computer science. Computational thinking includes a range of mental tools that reflect the breadth of the field of computer science.

Having to solve a particular problem, we might ask: How difficult is it to solve? and What's the best way to solve it? Computer science rests on solid theoretical underpinnings to answer such questions pre-

cisely. Stating the difficulty of a problem accounts for the underlying power of the machine—the computing device that will run the solution. We must consider the machine's instruction set, its resource constraints, and its operating environment.

In solving a problem efficiently, we might further ask whether an approximate solution is good enough, whether we can use randomization to our advantage, and whether false positives or false negatives are allowed. Computational thinking is reformulating a seemingly difficult problem into one we know how to solve, perhaps by reduction, embedding, transformation, or simulation.

Computational thinking is thinking recursively. It is parallel processing. It is interpreting code as data and data as code. It is type checking as the generalization of dimensional analysis. It is recognizing both the virtues and the dangers of aliasing, or giving someone or something more than one name. It is recognizing both the cost and power of indirect addressing and procedure call. It is judging a program not just for correctness and efficiency but for aesthetics, and a system's design for simplicity and elegance.

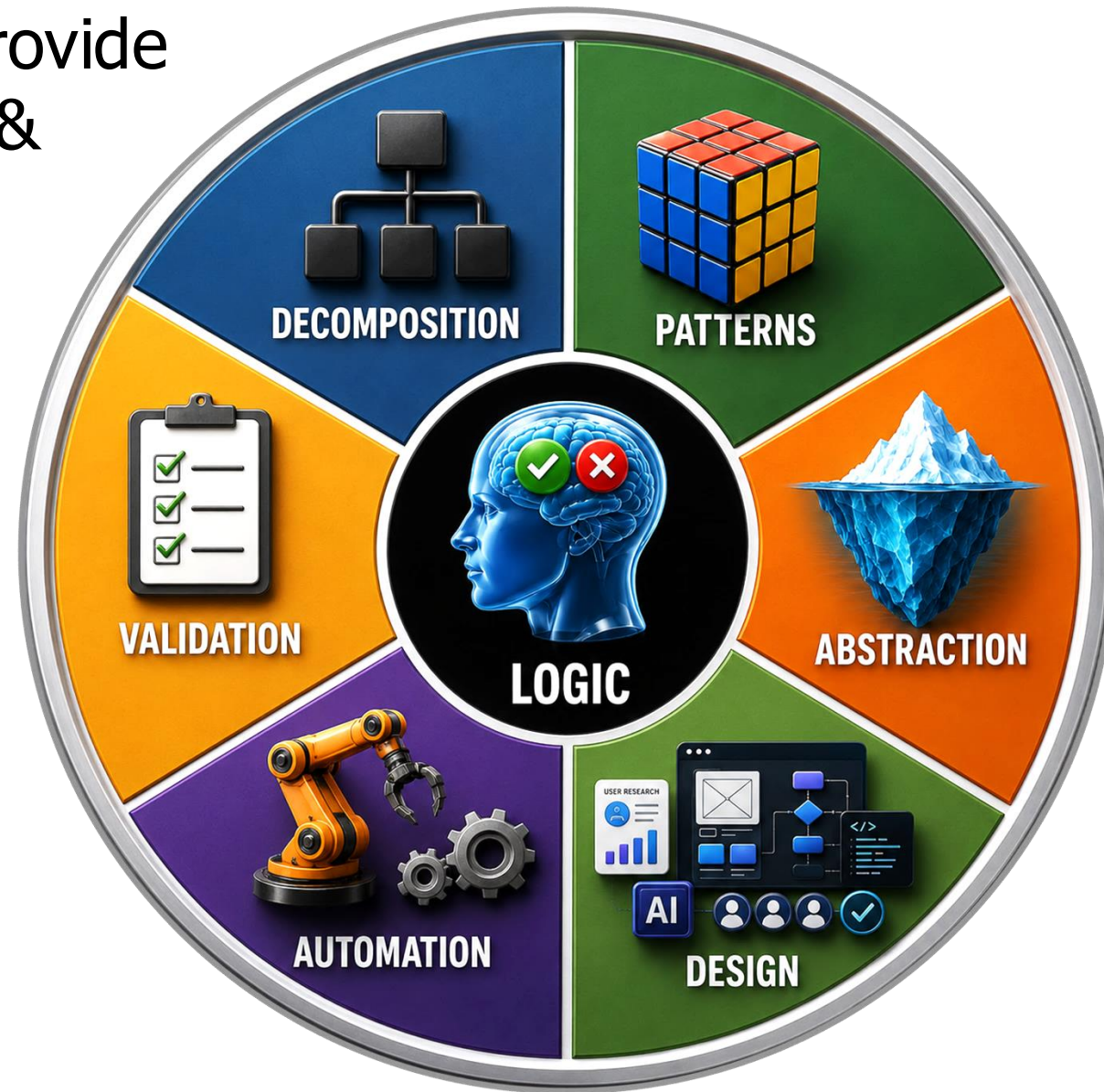
Computational thinking is using abstraction and decomposition when attacking a large complex task or designing a large complex system. It is separation of concerns. It is choosing an appropriate representation for a problem or modeling the relevant aspects of a problem to make it tractable. It is using invariants to describe a system's behavior succinctly and declaratively. It is having the confidence we can safely use, modify, and influence a large complex system without understanding its every detail. It is

LEA HANEY

See www.cs.cmu.edu/~15110-s13/Wing06-ct.pdf

Overview of Computational Thinking

- Elements of computational thinking provide the mindset that powers both coding & creativity in the age of AI

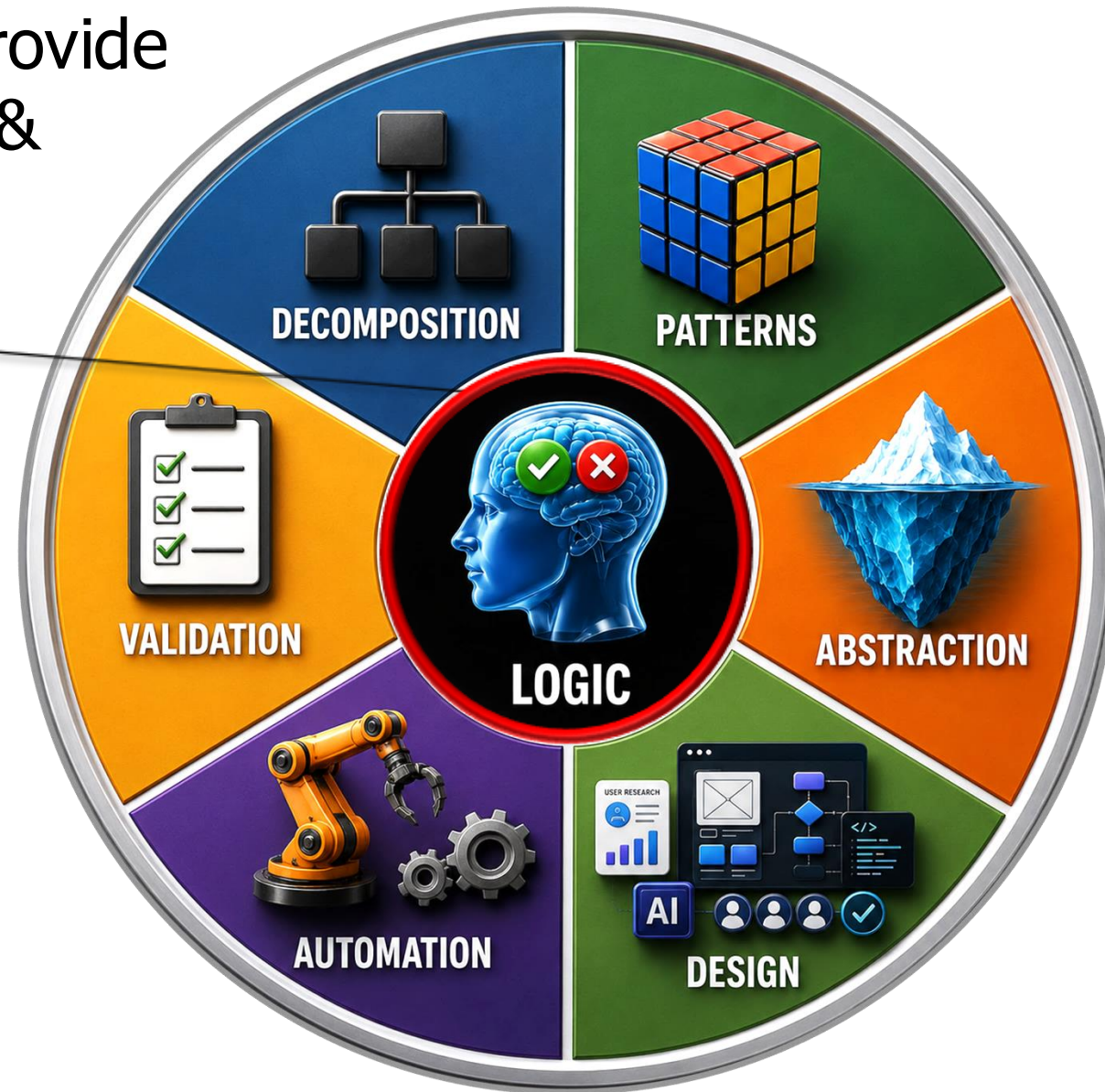


See en.wikipedia.org/wiki/The_Magical_Number_Seven,_Plus_or_Minus_Two

Overview of Computational Thinking

- Elements of computational thinking provide the mindset that powers both coding & creativity in the age of AI

Apply structured reasoning to evaluate options, make decisions, & draw reliable/grounded conclusions

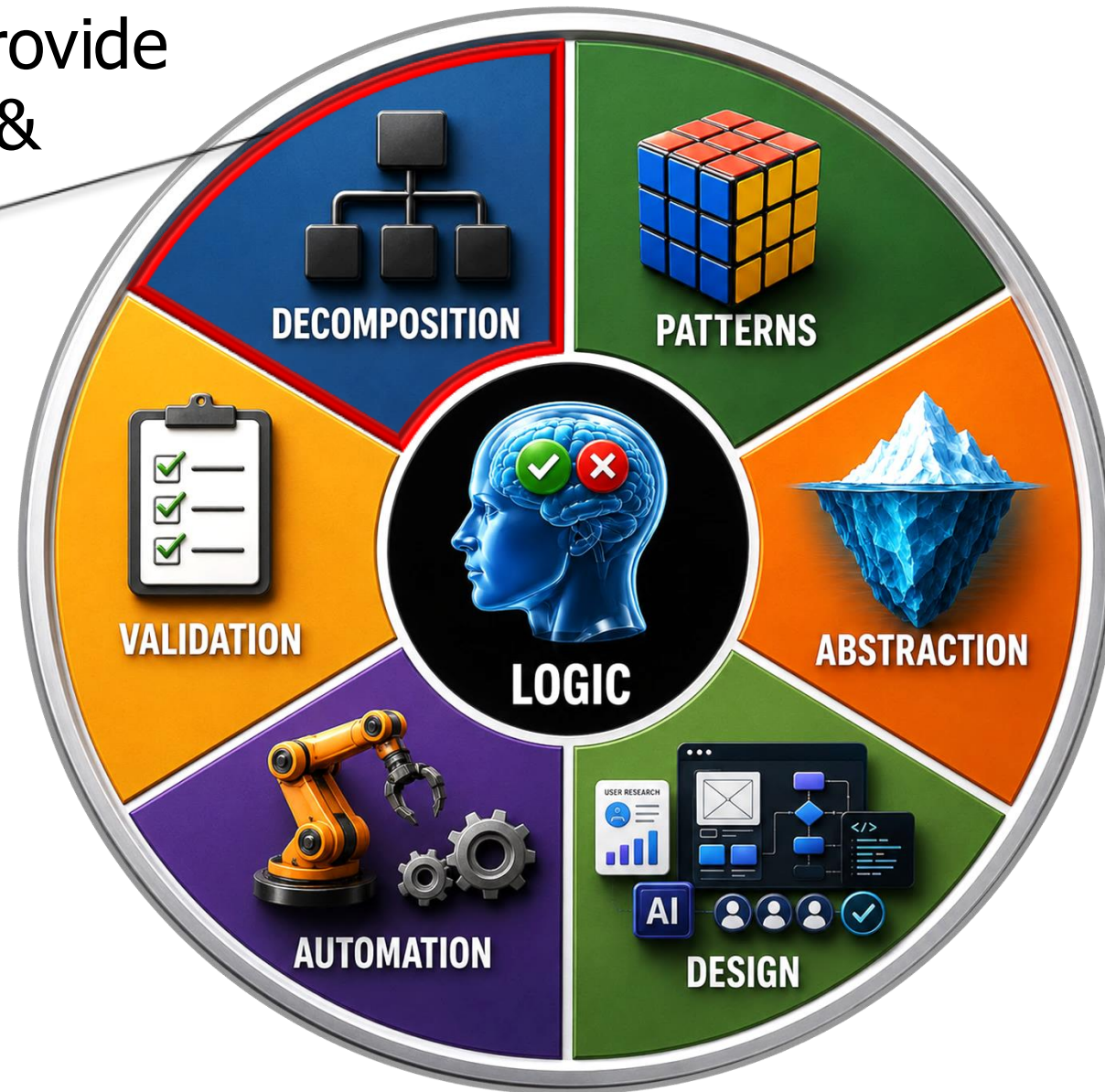


See en.wikipedia.org/wiki/Logic

Overview of Computational Thinking

- Elements of computational thinking provide the mindset that powers both coding & creativity in the age of AI

Break complex problems into smaller, manageable components to analyze, solve, & integrate systematically

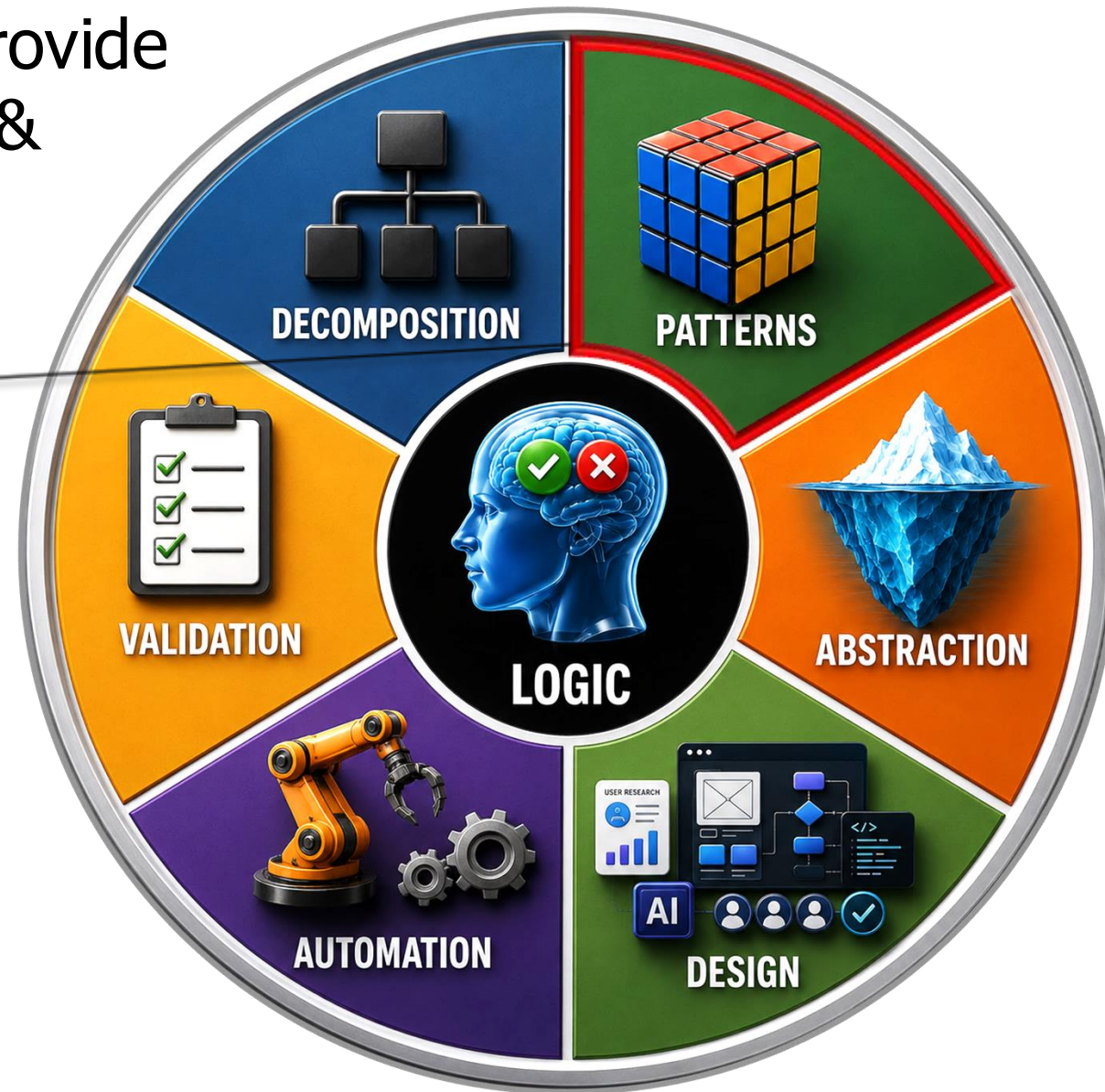


See [en.wikipedia.org/wiki/Decomposition_\(computer_science\)](https://en.wikipedia.org/wiki/Decomposition_(computer_science))

Overview of Computational Thinking

- Elements of computational thinking provide the mindset that powers both coding & creativity in the age of AI

Identify similarities, trends, & recurring structures to reuse helpful knowledge & accelerate solving complex problems

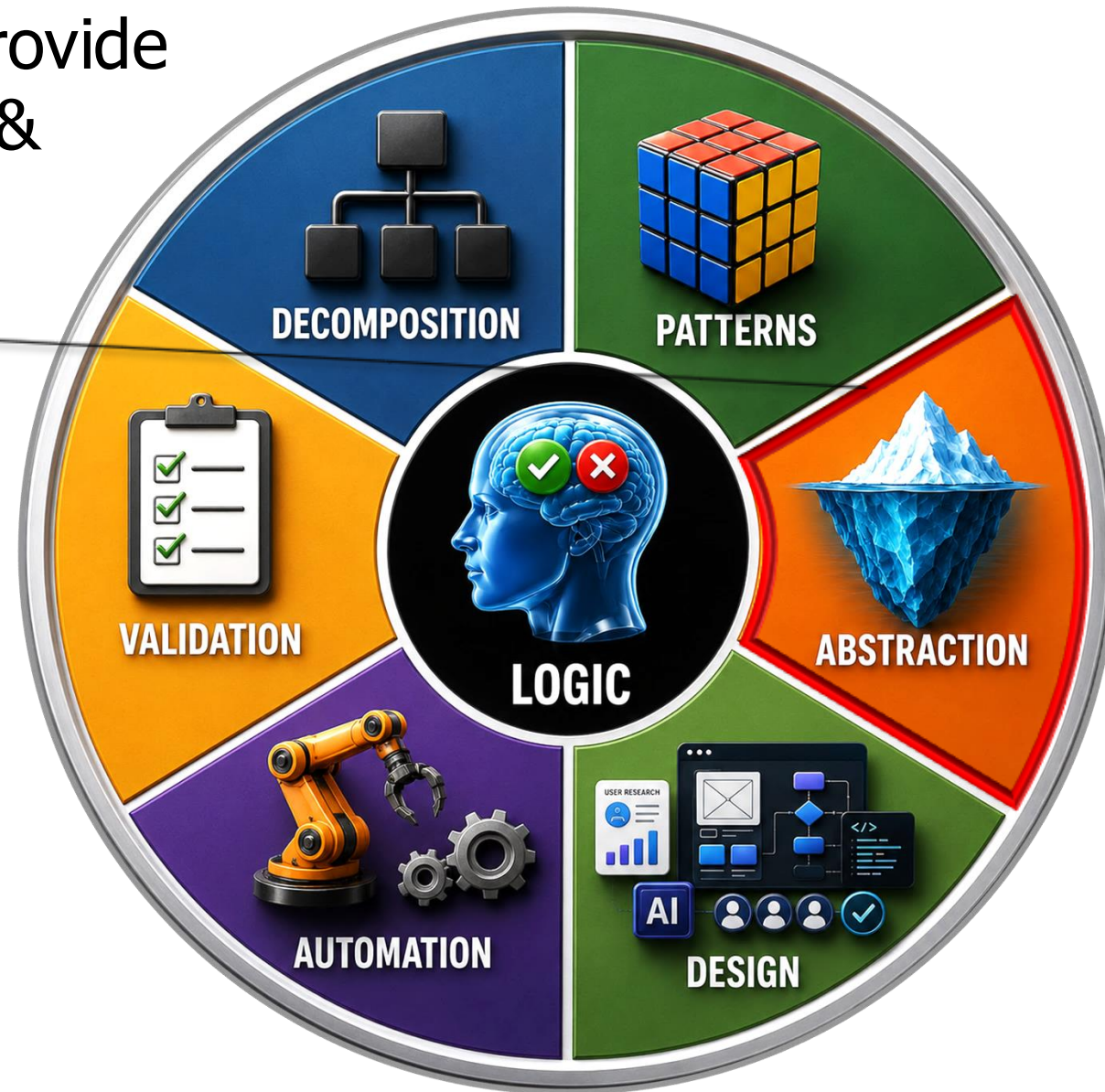


See en.wikipedia.org/wiki/Design_pattern

Overview of Computational Thinking

- Elements of computational thinking provide the mindset that powers both coding & creativity in the age of AI

Focus on essential details while filtering out distractions to create simpler, more useful models

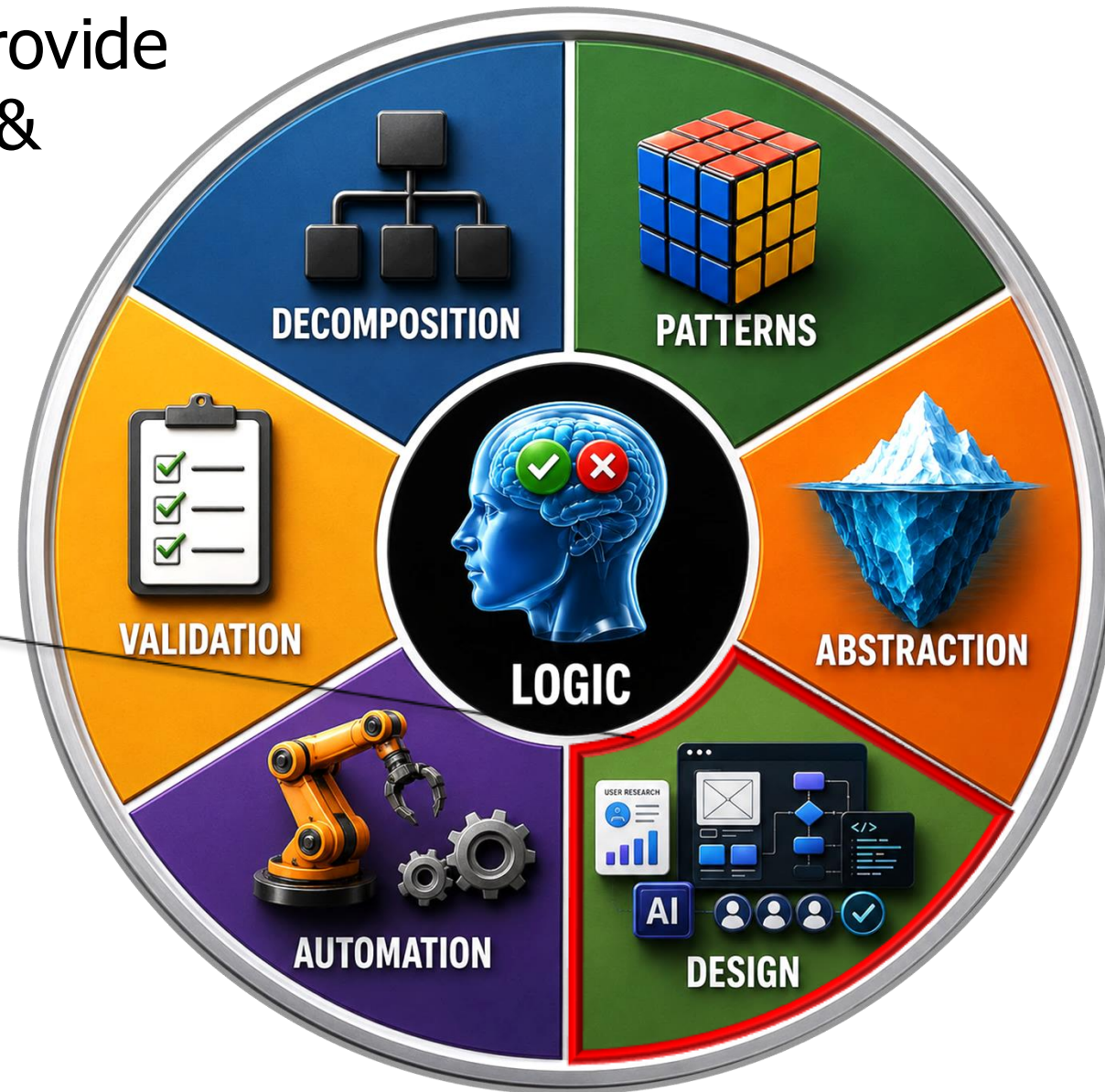


See en.wikipedia.org/wiki/Abstraction

Overview of Computational Thinking

- Elements of computational thinking provide the mindset that powers both coding & creativity in the age of AI

Create structured & scalable solutions by defining components, interactions, constraints, & workflows that achieve desired goals precisely & effectively

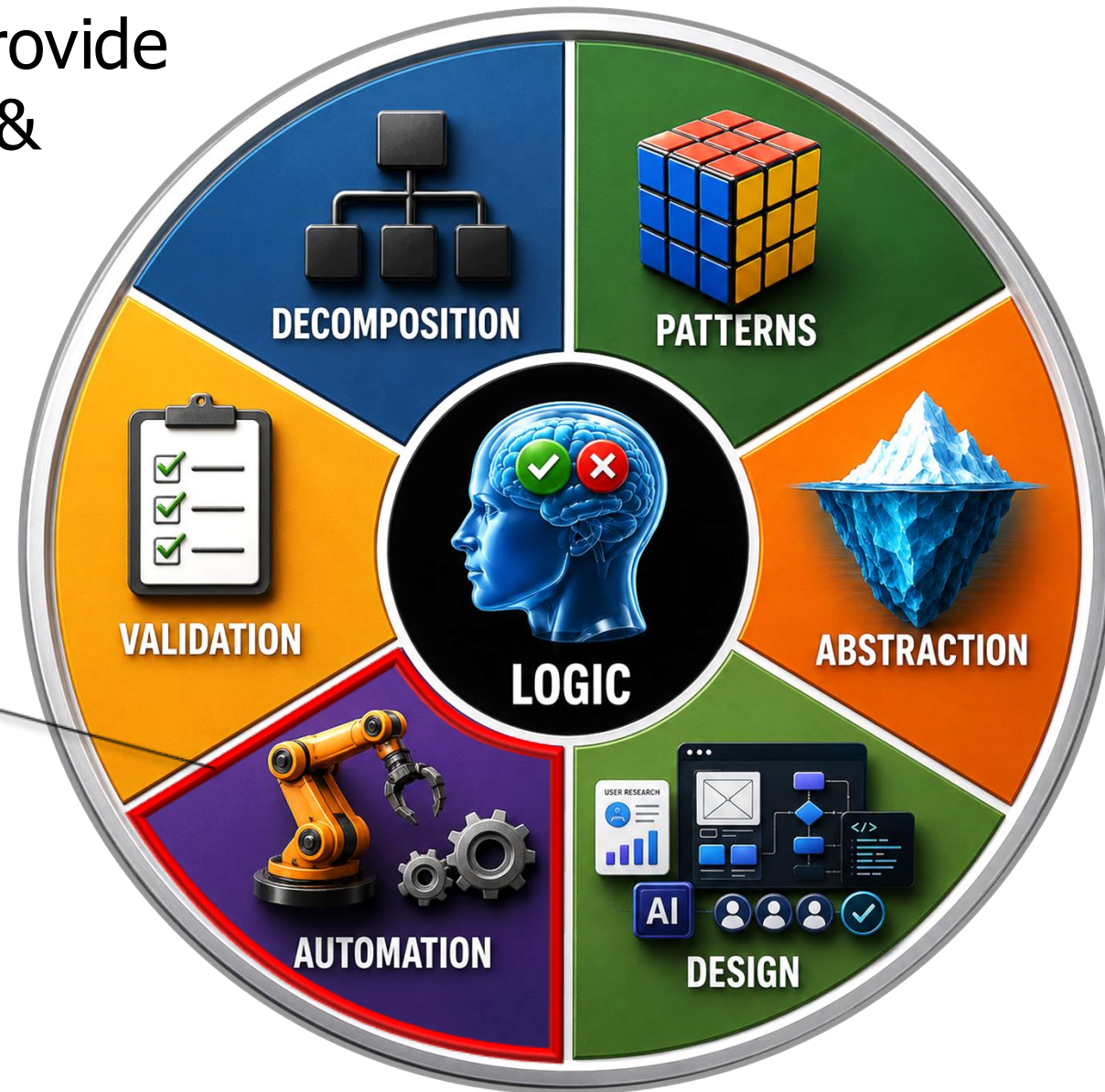


See en.wikipedia.org/wiki/Design

Overview of Computational Thinking

- Elements of computational thinking provide the mindset that powers both coding & creativity in the age of AI

Design repeatable processes that computers and/or AI can execute efficiently with minimal human effort

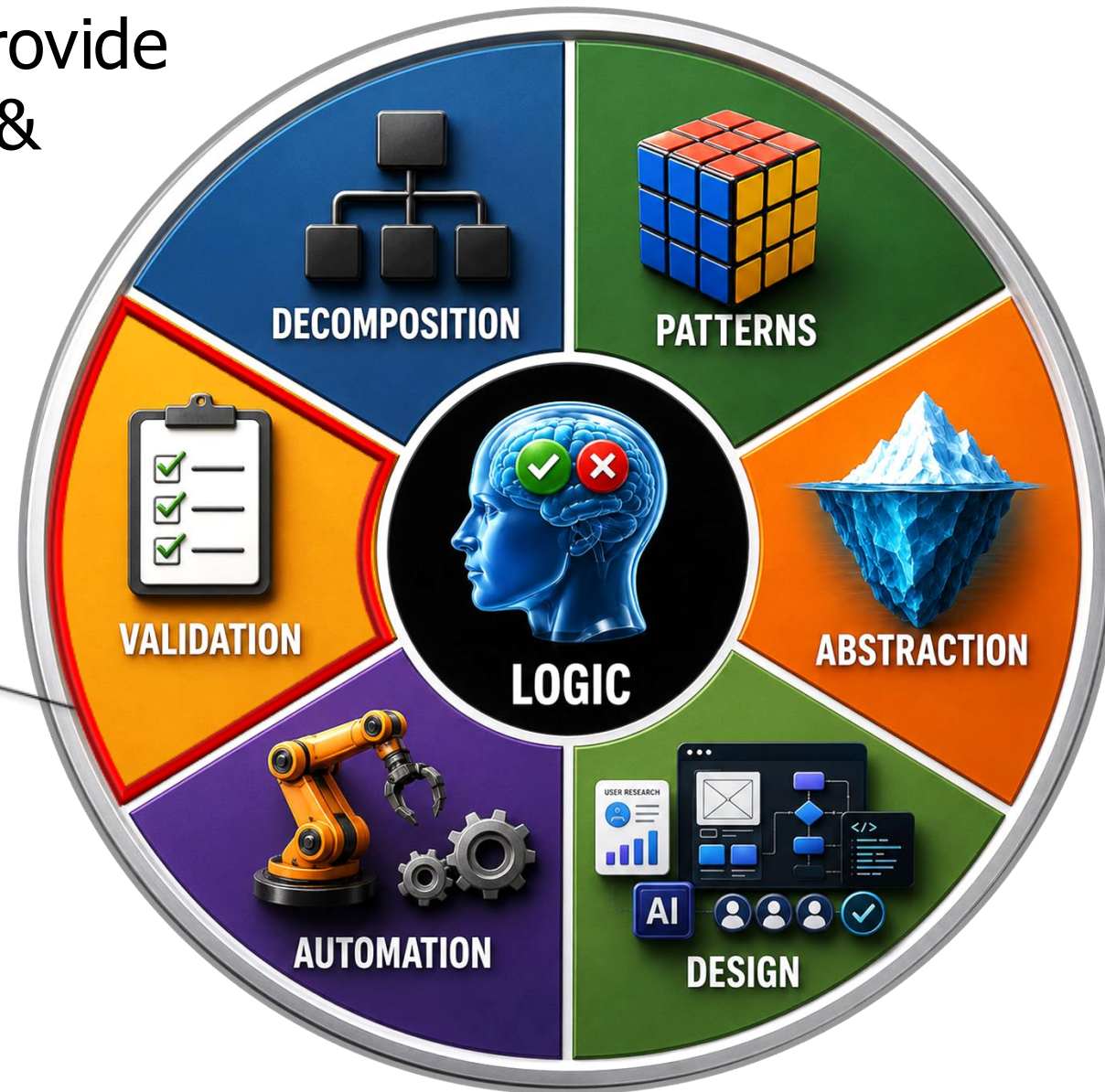


See en.wikipedia.org/wiki/Automation

Overview of Computational Thinking

- Elements of computational thinking provide the mindset that powers both coding & creativity in the age of AI

Test, verify, & refine solutions to ensure accuracy, reliability, & alignment with intended goals

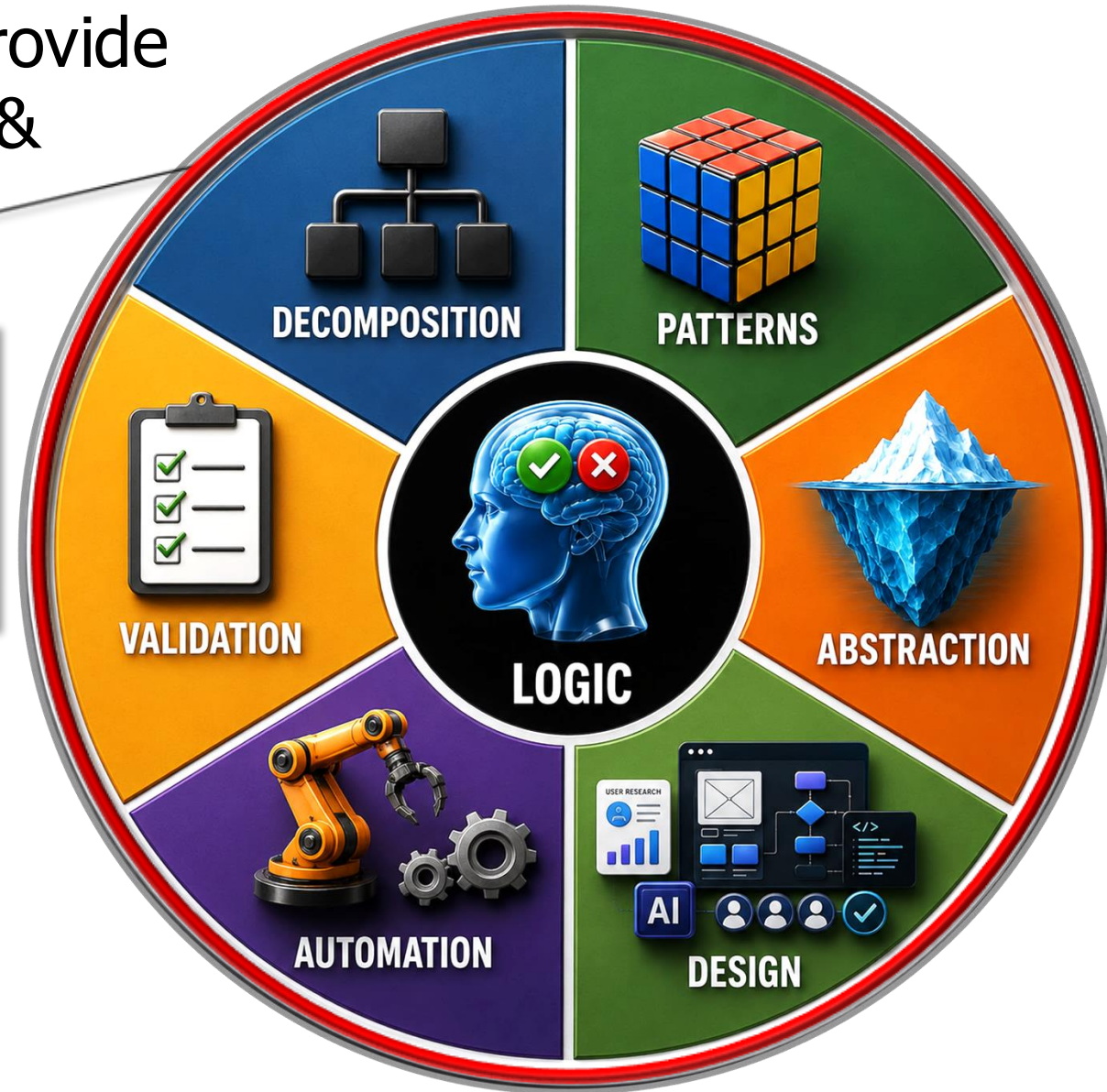


See en.wikipedia.org/wiki/Verification_and_validation

Overview of Computational Thinking

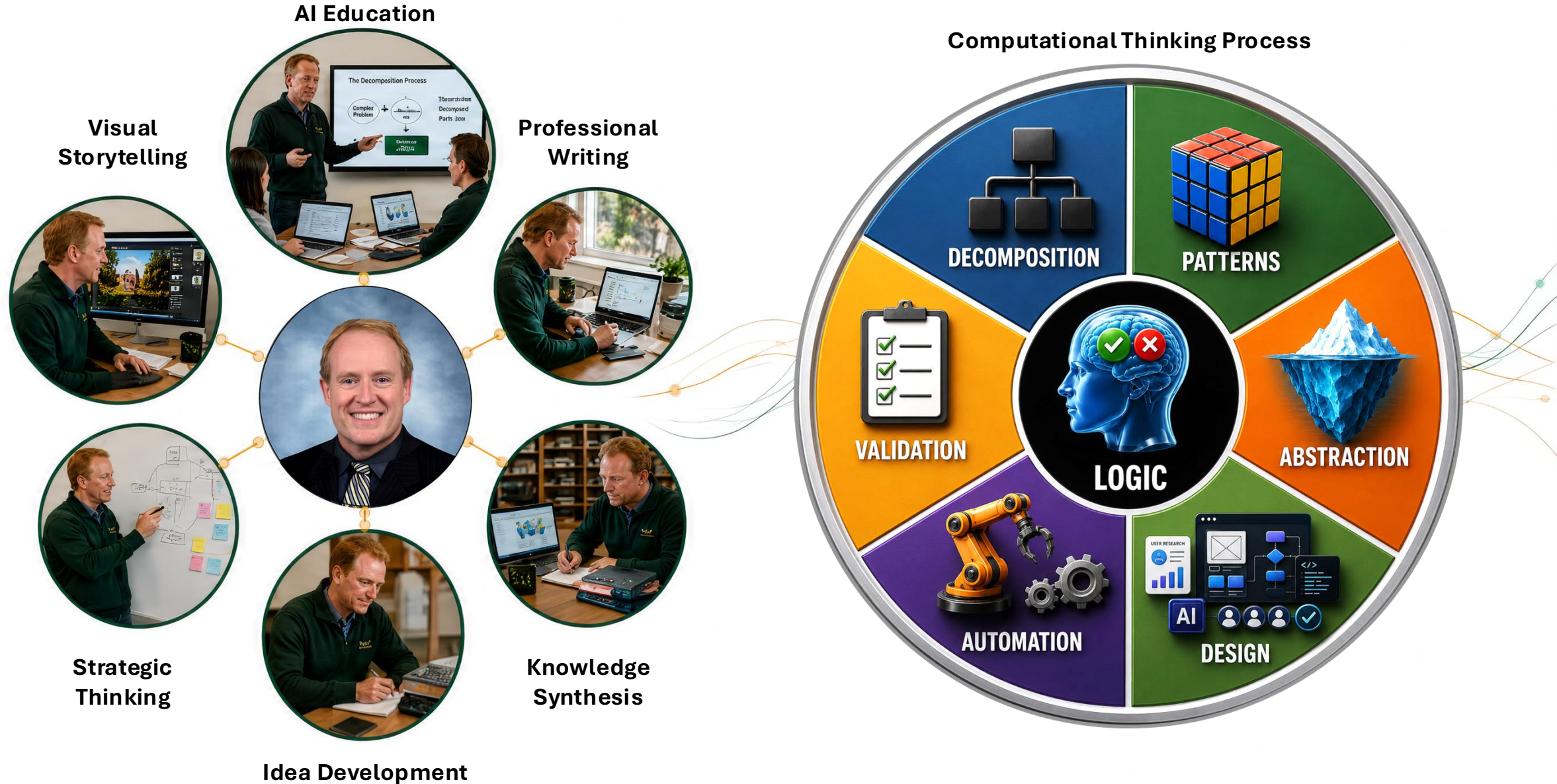
- Elements of computational thinking provide the mindset that powers both coding & creativity in the age of AI

Computational thinking isn't limited to coding —it turns complex problems into structured, repeatable processes that humans and/or machines can perform



Using Computational Thinking in Our Daily Workflows

From Daily Knowledge Work to Scalable AI-Augmented Solutions



From Daily Knowledge Work to Scalable AI-Augmented Solutions

AI Education



Professional Writing

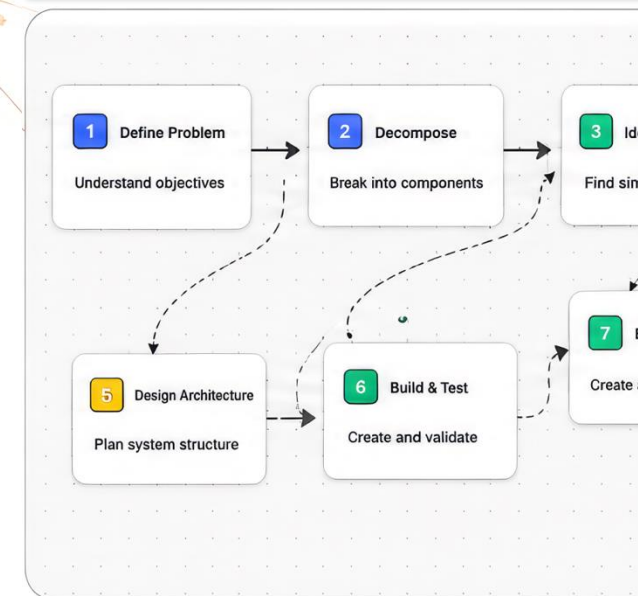
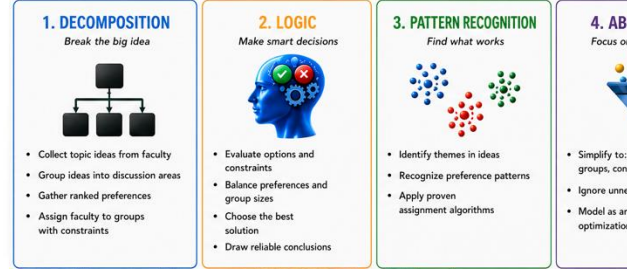


Knowledge Synthesis



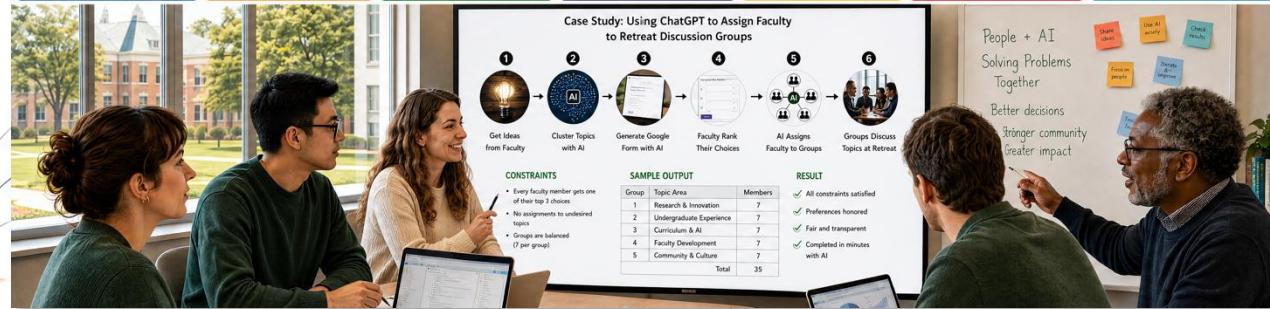
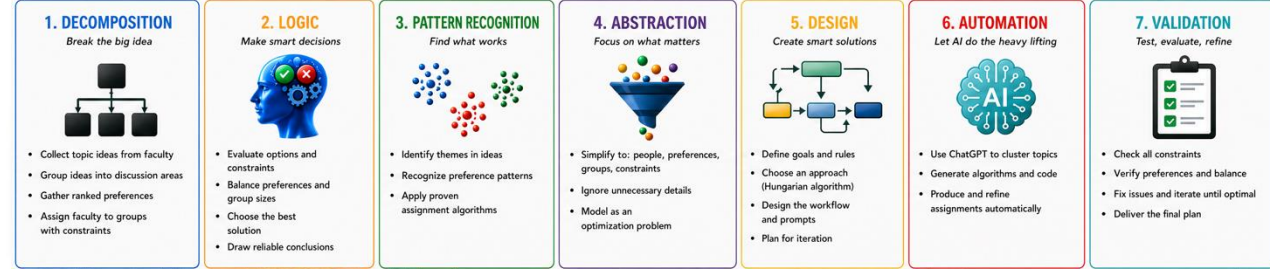
Idea Development

Computational Thinking Process

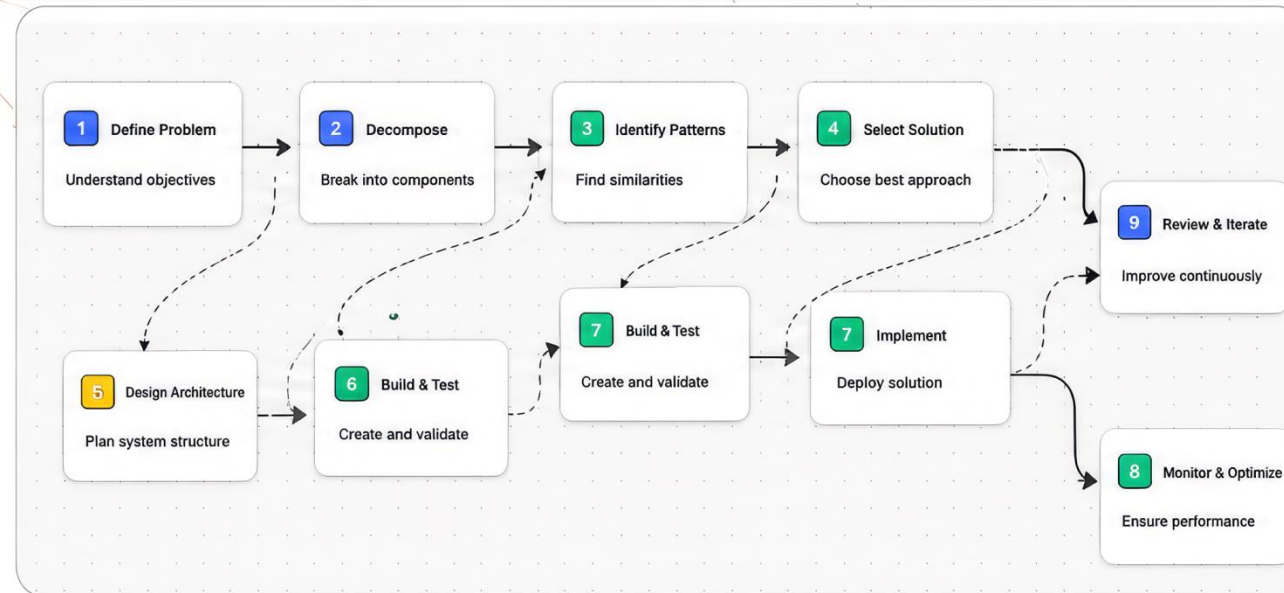


From Daily Knowledge Work to Scalable AI-Augmented Solutions

Thinking Process



AI-Augmented Problem Solving



Scalable Agentic Tools

A Case Study of AI- Augmented Problem Solving with ChatGPT

A Case Study of AI-Augmented Problem Solving with ChatGPT

- This example applies computational thinking to map 35 professors at a faculty retreat to 5 discussion groups with exactly 7 professors per group



A Case Study of AI-Augmented Problem Solving with ChatGPT

1



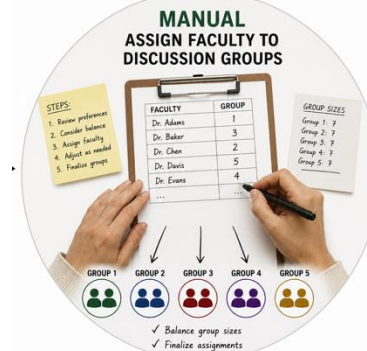
Get Ideas
from Faculty

3



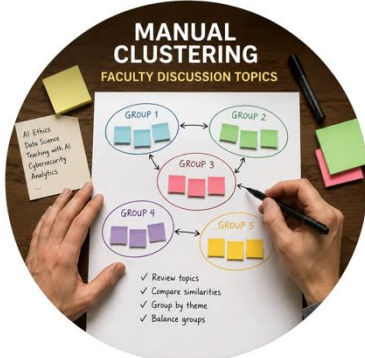
Generate Google
Form Manually

5



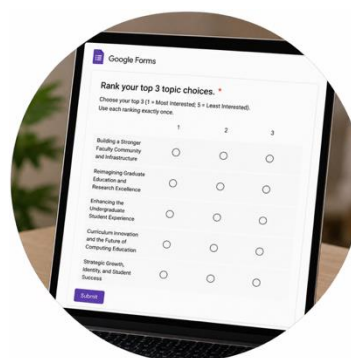
Manually Assign
Faculty to Groups

2



Cluster Topics
Manually

4

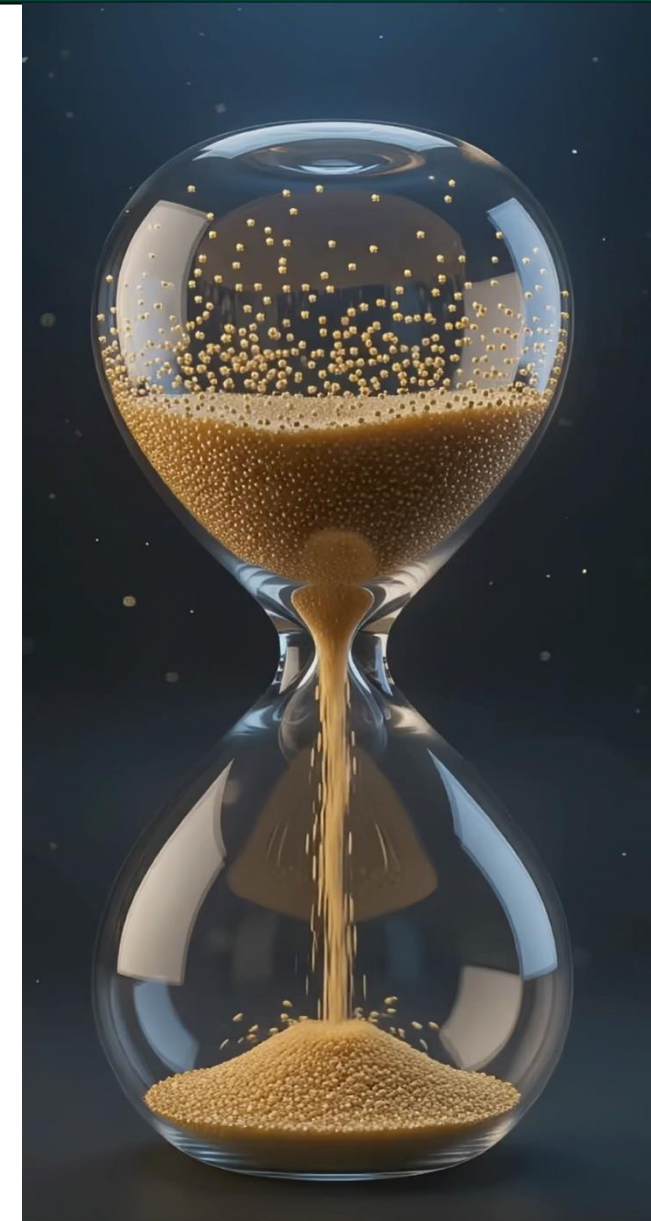


Faculty Rank
Their Choices

6



Groups Discuss
Topics at Retreat



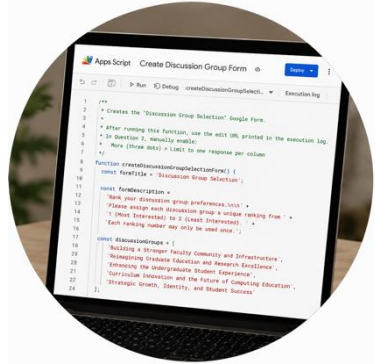
A Case Study of AI-Augmented Problem Solving with ChatGPT

1



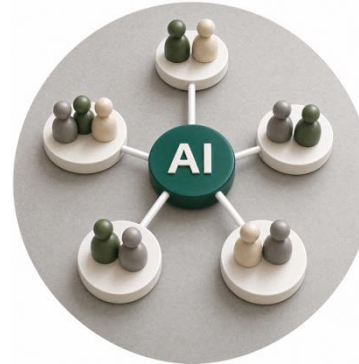
Get Ideas
from Faculty

3



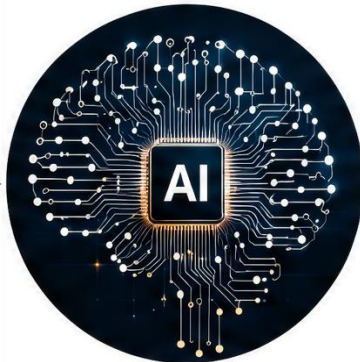
Generate Google
Form with AI

5



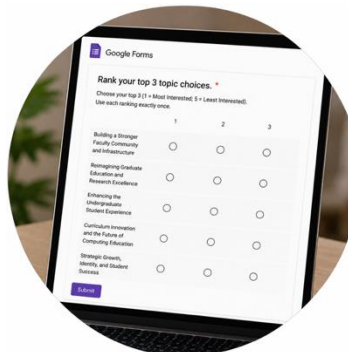
AI Assigns
Faculty to Groups

2



Cluster Topics
with AI

4

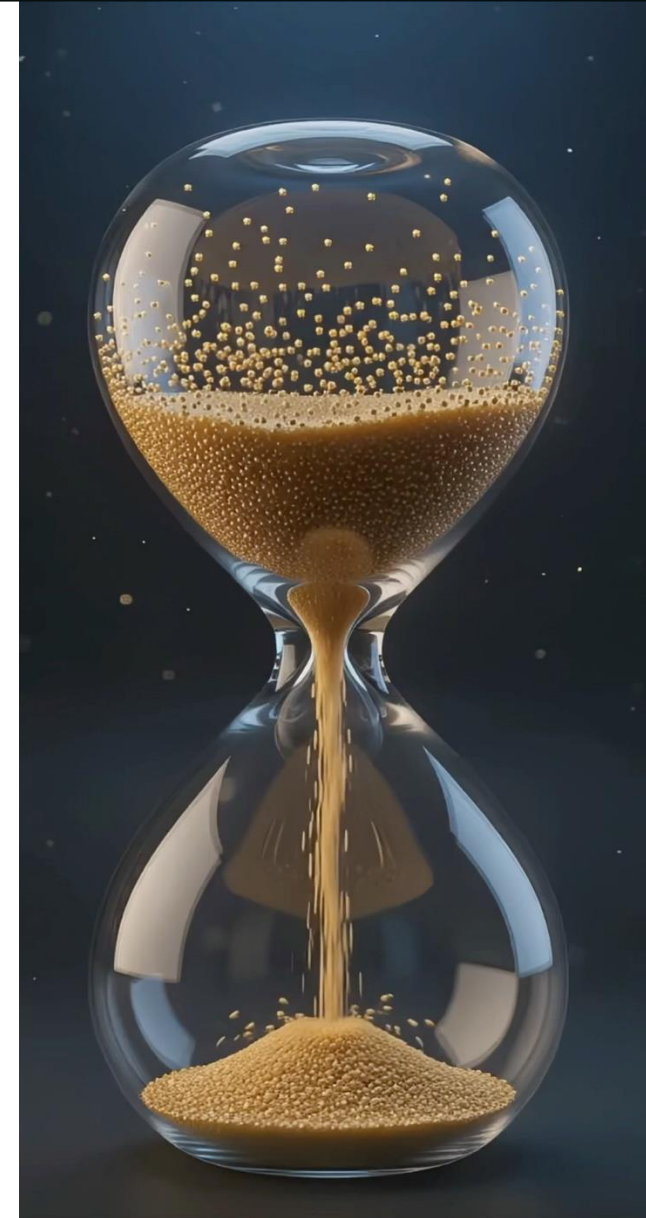


Faculty Rank
Their Choices

6

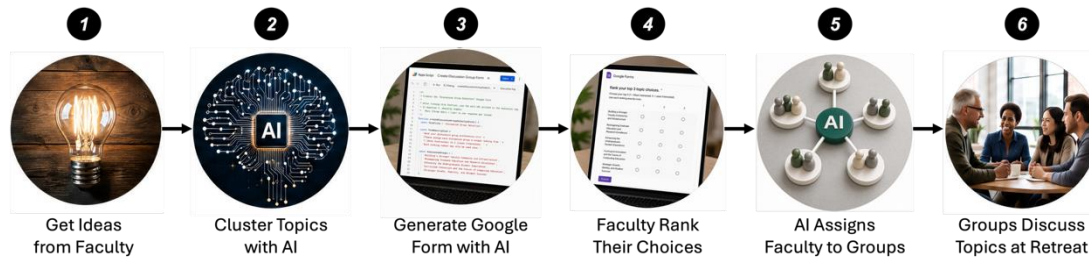


Groups Discuss
Topics at Retreat



A Case Study of AI-Augmented Problem Solving with ChatGPT

- This example that shows no-code computational thinking to map professors to discussion groups



ChatGPT

New chat

Search

Projects

Scheduled

Images

Library

Plugins

Agents

Codex

GPTs

Recents

Faculty Retreat Discussion Groups

Regeneración de imagen

Ideas and topics to discuss at the fa... Document

Please analyze the attached MS Word file, which contains Ideas and topics to discuss at an upcoming faculty retreat, and cluster them into five discussion groups, giving each group a descriptive and concise heading, and a sentence that summarizes the focus of the discussion group.

After reviewing the brainstorming list, I see five natural themes that capture nearly all of the ideas while creating discussion groups that are broad enough for productive faculty conversations.

Discussion Group	Summary	Representative Topics
1. Building a Stronger Faculty Community and Infrastructure	How can we organize the department so that faculty are better supported, recognized, and able to collaborate effectively?	Awards and recognition committee (#1); ABET subcommittees (#2); professional development grants (#5-6); research support for Professors of the Practice (#9); emergency teaching continuity plans (#10); faculty Pathways groups for scheduling (#17); Brown Bag lunches (#22).

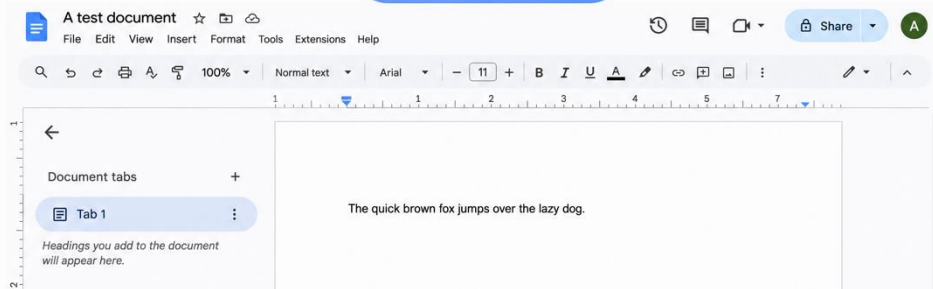


A Case Study of AI-Augmented Problem Solving with ChatGPT

- This example that shows no-code computational thinking to map professors to discussion groups

1. Solicit discussion topics

- Use a Google doc



Ideas and Topics to Discuss at the Faculty Retreat

Please brainstorm any topic ideas here. Keep them to one phrase or sentence. We will sort them into general topics for further discussion on Monday 8/21.

1. Creating an "awards and recognition committee" to respond to request for student speakers, faculty and staff awards, student end-of-year awards and Immersion Showcase judging. Membership rotates.
2. ABET subcommittees - everyone who teaches is on a subcommittee; reviews ABET findings for a subgroup of courses after assessment
3. Increased communication to our undergraduates (and graduates?)
 - To help facilitate recruiting new research assistants and developers for our labs.
4. Create PhD admissions committee as well as mentoring committee/mechanisms for national fellowships (NSF GRFP, NDSEG, etc) with expectation that all 1st/2nd year students who are eligible submit these applications as a step to solidifying research proposals/plans needed anyway, mentored by prior fellows (modeled after how BME does this successfully)
5. Professional development grants
 - Travel grants for domestic and international travels
 - 6. Maybe particularly with broader VUSE graduate recruiting/BPC plans at grad fairs, GHC, etc, where we may be sponsoring, sending student groups, etc
 - Professional expenses such as course materials and teaching equipment e.g., books, software, and hardware
 - Course development - Updating a current course or developing a new course
6. Professional development grants for professors of the practice too!
7. We should interview potential graders for courses with a lot of student interaction like CS1101, 2201 and maybe a few others. I think we may be missing some good graders because we primarily hire based on GPA and grade in the course.
8. Preparing for the impact of AI on our courses and our scholarship and offering resources to help prepare faculty to make the highest best use of the new capabilities.
9. Provide financial support for PoPs who want to do research with undergraduates in summer
10. Everyone teaching should have a brief, emergency backup plan if you can't teach for a few days, like where is your course material stored and who could help us figure out what to do next (a few

See en.wikipedia.org/wiki/Google_Docs

A Case Study of AI-Augmented Problem Solving with ChatGPT

- This example that shows no-code computational thinking to map professors to discussion groups

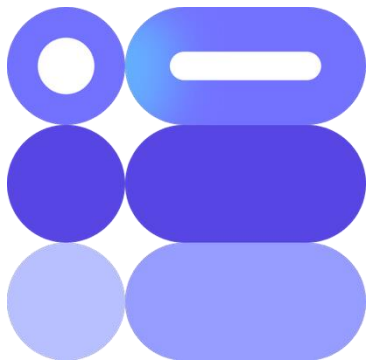
1. Solicit discussion topics

2. ChatGPT groups topics & creates summaries from Google doc

Discussion Group	Summary	Representative Topics
1. Building a Stronger Faculty Community and Infrastructure	How can we organize the department so that faculty are better supported, recognized, and able to collaborate effectively while reducing administrative burden?	○ Awards and recognition committee (#1) ○ ABET subcommittees (#2) ○ professional development grants (#5–6) ○ research support for Professors of the Practice (#9) ○ emergency teaching continuity plans (#10) ○ faculty Pathways groups for scheduling (#17) ○ Brown Bag lunches (#22)
2. Reimagining Graduate Education and Research Excellence	How can we strengthen graduate recruitment, admissions, mentoring, research culture, and the overall PhD student experience?	○ PhD admissions and fellowship mentoring committee (#4) ○ graduate recruiting initiatives (#6, #12) ○ first-year PhD funding/rotations (#11) ○ PhD visit days (#15) ○ departmental seminar series (#16) ○ graduate student culture and events (#18) ○ overhaul of the PhD admissions process (#21)
3. Enhancing the Undergraduate Student Experience	How can we improve communication, advising, research opportunities, hiring practices, and academic policies to better support undergraduate success?	○ Improved communication with undergraduates (#3) ○ interviewing graders (#7) ○ late-add policy (#13) ○ uniform Honor Code policy (#14) ○ undergraduate research opportunity coordination (#24) ○ student project web hosting (#25).
4. Curriculum Innovation and the Future of Computing Education	How should the curriculum evolve to respond to AI, changing student interests, interdisciplinary	○ Preparing for AI in teaching and scholarship (#8) ○ Generative AI as a CS0 or alternative pathway (#20)

A Case Study of AI-Augmented Problem Solving with ChatGPT

- This example that shows no-code computational thinking to map professors to discussion groups
 1. Solicit discussion topics
 2. ChatGPT groups topics & creates summaries from Google doc
 3. Use a Google form to gather faculty interest in topics



Discussion Group Selection

Rank your discussion group preferences.

Please assign each discussion group a unique ranking from 1 (Most Interested) to 3 (Least Interested). Each ranking number may only be used once.

douglas.craig.schmidt@gmail.com [Switch account](#)



Not shared

* Indicates required question

Your first and last name *

Your answer

Rank your Discussion Group Choices (1 = Most Interested; 5 = Least Interested).
Use each ranking exactly once.

1

2

3

See en.wikipedia.org/wiki/Google_Forms

A Case Study of AI-Augmented Problem Solving with ChatGPT

- This example that shows no-code computational thinking to map professors to discussion groups

1. Solicit discussion topics

2. ChatGPT groups topics & creates summaries from Google doc

3. Use a Google form to gather faculty interest in topics

- ChatGPT generated this form based on its summaries

```
/**
 * Creates the "Discussion Group Selection" Google Form.
 *
 * After running this function, use the edit URL printed in the execution log.
 * In Question 2, manually enable:
 *   More (three dots) > Limit to one response per column
 */
function createDiscussionGroupSelectionForm() {
  const formTitle = 'Discussion Group Selection';

  const formDescription =
    'Rank your discussion group preferences.\n\n' +
    'Please assign each discussion group a unique ranking from ' +
    '1 (Most Interested) to 3 (Least Interested). ' +
    'Each ranking number may only be used once.';

  const discussionGroups = [
    'Building a Stronger Faculty Community and Infrastructure',
    'Reimagining Graduate Education and Research Excellence',
    'Enhancing the Undergraduate Student Experience',
    'Curriculum Innovation and the Future of Computing Education',
    'Strategic Growth, Identity, and Student Success'
  ];

  const rankings = ['1', '2', '3'];

  // Create the form in the root of the current user's Google Drive.
  const form = FormApp.create(formTitle);
```

A Case Study of AI-Augmented Problem Solving with ChatGPT

- This example that shows no-code computational thinking to map professors to discussion groups
 1. Solicit discussion topics
 2. ChatGPT groups topics & creates summaries from Google doc
 3. Use a Google form to gather faculty interest in topics
 - ChatGPT generated this form based on its summaries
 - Google collects responses

35 responses [Link to Sheets](#)

[Summary](#) Question Individual

Your first and last name

35 responses

Abhishek Dubey
Dan Lin
Meiyi Ma
Jules White
Jonathan Sprinkle
Dan Arena
Robert Tairas
JieYing Wu
Diego Mesa

Rank your Discussion Group Choices (1 = Most Interested; 5 = Least Interested). [Copy chart](#)

Use each ranking exactly once.

A Case Study of AI-Augmented Problem Solving with ChatGPT

- This example that shows no-code computational thinking to map professors to discussion groups
 1. Solicit discussion topics
 2. ChatGPT groups topics & creates summaries from Google doc
 3. Use a Google form to gather faculty interest in topics
 - ChatGPT generated this form based on its summaries
 - Google collects responses
 - Stored in a CSV “spreadsheet”

	A	B	C	D	E	F
	Your first and last name	Building a Stronger Faculty Community and Infrastructure	Reimagining Graduate Education and Research Excellence	Enhancing the Undergraduate Student Experience	Curriculum Innovation and the Future of Computing Education	Strategic Growth, Identity, and Student Success
1						
2	Doug Schmidt	3		1		2
3	Julie Johnson		1	2	3	
4	Pamela Wisniewski	1			3	2
5	Vikash Singh	1		3		2
6	Gabor Karsai	2		3	1	
7	Douglas Fisher		2		1	3
8	Shervin Hajjiamini	2	3			1
9	Dan Arena		3	1		2
10	Graham Hemingway	3	1	2		
11	Bobby Bodenheimer		1	2	3	
12	Diego Mesa	3	1	2		
13	Ipek Oguz	3	2	1		
14	Jesse Spencer-Smith		3	2		1
15	Daniel Moyer		1		3	2
16	Xenofon Koutsoukos	1		2		3
17	Maithilee Kunda		3		1	2
18	Kamrul Hasan		3	2	1	
19	Charreau Bell			1	3	2
20	Robert Tairas	3		1	2	
21	Meiyi Ma		1	3		2
22	Yu Huang		1	2		3
23	Jerry Roth		2	3	1	
24	Yuankai Huo		3	1		2
	Daniel	3	1	2		

A Case Study of AI-Augmented Problem Solving with ChatGPT

- This example that shows no-code computational thinking to map professors to discussion groups

1. Solicit discussion topics

2. ChatGPT groups topics & creates summaries from Google doc

3. Use a Google form to gather faculty interest in topics

4. ChatGPT maps faculty onto desired discussion groups

- By group

1. Building a Stronger Faculty Community and Infrastructure

CSV order	Faculty member	Assigned-choice rank
3	Pamela Wisniewski	1st
4	Vikash Singh	1st
15	Xenofon Koutsoukos	1st
25	Gautam Biswas	1st
26	Akos Ledecz	3rd
34	Jules White	2nd
35	Jonathan Sprinkle	2nd

2. Reimagining Graduate Education and Research Excellence

CSV order	Faculty member	Assigned-choice rank
2	Julie Johnson	1st
9	Graham Hemingway	1st
10	Bobby Bodenheimer	1st
11	Diego Mesa	1st
14	Daniel Moyer	1st
21	Yu Huang	1st
24	Daniel Balasubramanian	1st

3. Enhancing the Undergraduate Student Experience

CSV order	Faculty member	Assigned-choice rank
-----------	----------------	----------------------

A Case Study of AI-Augmented Problem Solving with ChatGPT

- This example that shows no-code computational thinking to map professors to discussion groups

1. Solicit discussion topics

2. ChatGPT groups topics & creates summaries from Google doc

3. Use a Google form to gather faculty interest in topics

4. ChatGPT maps faculty onto desired discussion groups

- By group

- By person

Faculty Member	Topic #	Discussion Group Name	Assigned Group	1st Choice	2nd Choice	3rd Choice
Doug Schmidt	3	Enhancing the Undergraduate Student Experience	1st	3	5	1
Julie Johnson	2	Reimagining Graduate Education and Research	1st	2	3	4
Pamela Wisniewski	1	Building a Stronger Faculty Community and Infrastructure	1st	1	5	4
Vikash Singh	1	Building a Stronger Faculty Community and Infrastructure	1st	1	5	3
Gabor Karsai	4	Curriculum Innovation and the Future of Computing Education	1st	4	1	3
Douglas Fisher	4	Curriculum Innovation and the Future of Computing Education	1st	4	2	5
Shervin Hajiamini	5	Strategic Growth, Identity, and Student Success	1st	5	1	2
Dan Arena	3	Enhancing the Undergraduate Student Experience	1st	3	5	2
Graham Hemingway	2	Reimagining Graduate Education and Research	1st	2	3	1
Bobby Bodenheimer	2	Reimagining Graduate Education and Research	1st	2	3	4
Diego Mesa	2	Reimagining Graduate Education and Research	1st	2	3	1
Ipek Oguz	3	Enhancing the Undergraduate Student Experience	1st	3	2	1
Jesse Spencer-Smith	5	Strategic Growth, Identity, and Student Success	1st	5	3	2
Daniel Moyer	2	Reimagining Graduate Education and Research	1st	2	5	4
Xenofon Koutsoukos	1	Building a Stronger Faculty Community and Infrastructure	1st	1	3	5
Maithilee Kunda	4	Curriculum Innovation and the Future of Computing Education	1st	4	5	2
Kamrul Hasan	4	Curriculum Innovation and the Future of Computing Education	1st	4	3	2
Charreau Bell	3	Enhancing the Undergraduate Student Experience	1st	3	5	4

A Case Study of AI-Augmented Problem Solving with ChatGPT

- ChatGPT yielded a solution quickly without the need to write any code!

Manual Coding (Hours)



No-Code Reasoning (Minutes)



ChatGPT collapses coding complexity into conversation

A Case Study of AI-Augmented Problem Solving with ChatGPT

- We'll now examine the ChatGPT conversation that generated these results

The screenshot shows the ChatGPT web interface. The browser address bar displays the URL: chatgpt.com/c/6a57befb-d04c-8331-8fc6-b0b2c96599e6. The left sidebar contains navigation options: ChatGPT, New chat, Search, Projects, Scheduled, Images, Library, Plugins, Agents, Codex, GPTs, Recents, Faculty Retreat Discussion Groups, and Regeneración de imagen. The main chat area shows a document titled "Ideas and topics to discuss at the fa..." with a blue document icon. The document content is: "Please analyze the attached MS Word file, which contains Ideas and topics to discuss at an upcoming faculty retreat, and cluster them into five discussion groups, giving each group a descriptive and concise heading, and a sentence that summarizes the focus of the discussion group." Below the document, the AI response states: "After reviewing the brainstorming list, I see five natural themes that capture nearly all of the ideas while creating discussion groups that are broad enough for productive faculty conversations." This is followed by a table with three columns: Discussion Group, Summary, and Representative Topics. The table contains one row of data. A download icon is visible over the bottom right of the table.

ChatGPT

New chat

Search

Projects

Scheduled

Images

Library

Plugins

Agents

Codex

GPTs

Recents

Faculty Retreat Discussion Groups

Regeneración de imagen

Ideas and topics to discuss at the fa... Document

Share

Please analyze the attached MS Word file, which contains Ideas and topics to discuss at an upcoming faculty retreat, and cluster them into five discussion groups, giving each group a descriptive and concise heading, and a sentence that summarizes the focus of the discussion group.

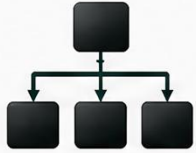
After reviewing the brainstorming list, I see five natural themes that capture nearly all of the ideas while creating discussion groups that are broad enough for productive faculty conversations.

Discussion Group	Summary	Representative Topics
1. Building a Stronger Faculty Community and Infrastructure	How can we organize the department so that faculty are better supported, recognized, and able to collaborate effectively while reducing administrative	Awards and recognition committee (#1); ABET subcommittees (#2); professional development grants (#5–6); research support for Professors of the Practice (#9); emergency teaching continuity plans (#10); faculty Pathways groups for scheduling (#17); Brown Bag lunches (#22).

A Case Study of AI-Augmented Problem Solving with ChatGPT

1. DECOMPOSITION

Break the big idea



- Collect topic ideas from faculty
- Group ideas into discussion areas
- Gather ranked preferences
- Assign faculty to groups with constraints

2. LOGIC

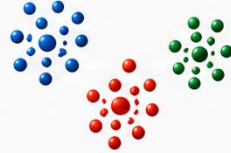
Make smart decisions



- Evaluate options and constraints
- Balance preferences and group sizes
- Choose the best solution
- Draw reliable conclusions

3. PATTERN RECOGNITION

Find what works



- Identify themes in ideas
- Recognize preference patterns
- Apply proven assignment algorithms

4. ABSTRACTION

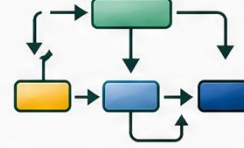
Focus on what matters



- Simplify to: people, preferences, groups, constraints
- Ignore unnecessary details
- Model as an optimization problem

5. DESIGN

Create smart solutions



- Define goals and rules
- Choose an approach (Hungarian algorithm)
- Design the workflow and prompts
- Plan for iteration

6. AUTOMATION

Let AI do the heavy lifting



- Use ChatGPT to cluster topics
- Generate algorithms and code
- Produce and refine assignments automatically

7. VALIDATION

Test, evaluate, refine



- Check all constraints
- Verify preferences and balance
- Fix issues and iterate until optimal
- Deliver the final plan

Case Study: Using ChatGPT to Assign Faculty to Retreat Discussion Groups

1 Get Ideas from Faculty

2 Cluster Topics with AI

3 Generate Google Form with AI

4 Faculty Rank Their Choices

5 AI Assigns Faculty to Groups

6 Groups Discuss Topics at Retreat

CONSTRAINTS

- Every faculty member gets one of their top 3 choices
- No assignments to undesired topics
- Groups are balanced (7 per group)

SAMPLE OUTPUT

Group	Topic Area	Members
1	Research & Innovation	7
2	Undergraduate Experience	7
3	Curriculum & AI	7
4	Faculty Development	7
5	Community & Culture	7
Total		35

RESULT

- ✓ All constraints satisfied
- ✓ Preferences honored
- ✓ Fair and transparent
- ✓ Completed in minutes with AI

People + AI
Solving Problems Together
Better decisions
Stronger community
Greater impact

Share ideas
Use AI wisely
Check results
Focus on people
Iterate & improve
Expand

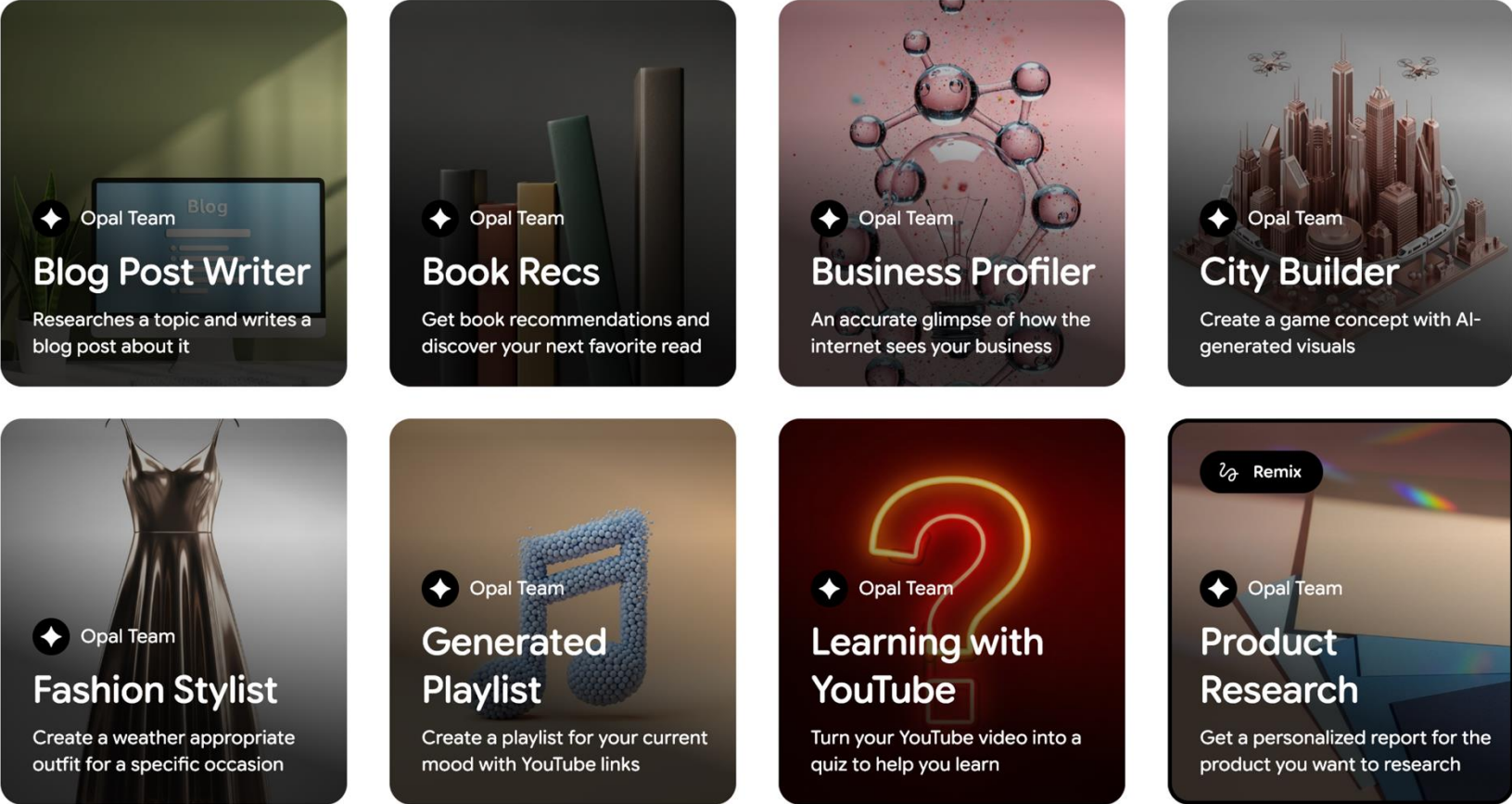
A Case Study of Agentic AI with Google Opal

A Case Study of Agentic AI with Google Opal

- Google has released an agentic framework called Opal
- Users apply natural language & a visual editor to describe their desired workflow

Build, edit and share mini-AI apps using natural language

Gallery Search

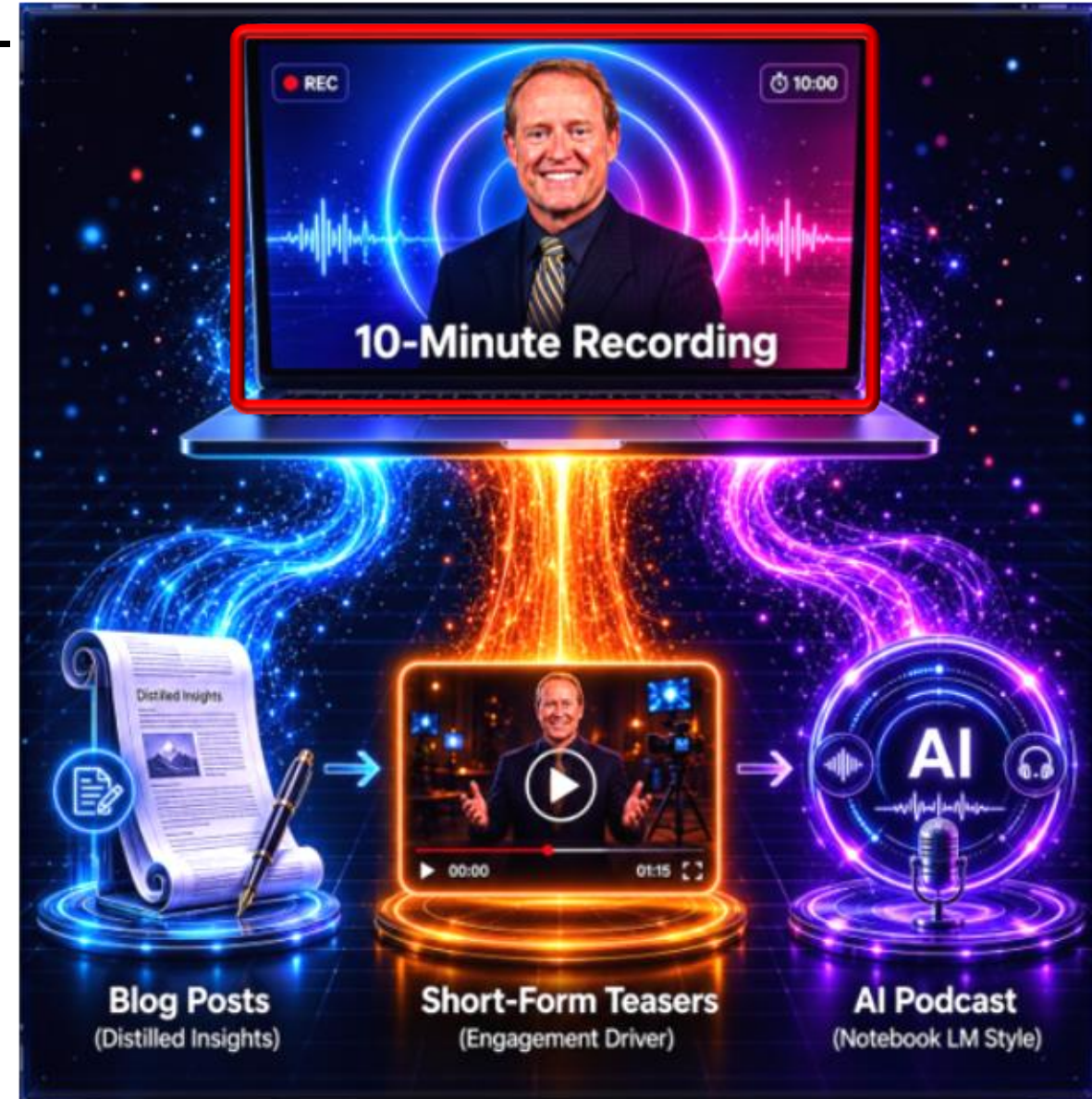


App Name	Description
Blog Post Writer	Researches a topic and writes a blog post about it
Book Recs	Get book recommendations and discover your next favorite read
Business Profiler	An accurate glimpse of how the internet sees your business
City Builder	Create a game concept with AI-generated visuals
Fashion Stylist	Create a weather appropriate outfit for a specific occasion
Generated Playlist	Create a playlist for your current mood with YouTube links
Learning with YouTube	Turn your YouTube video into a quiz to help you learn
Product Research	Get a personalized report for the product you want to research

See opal.withgoogle.com

A Case Study of Agentic AI with Google Opal

- Opal mini-apps can repurpose my long-form videos into multiple formats



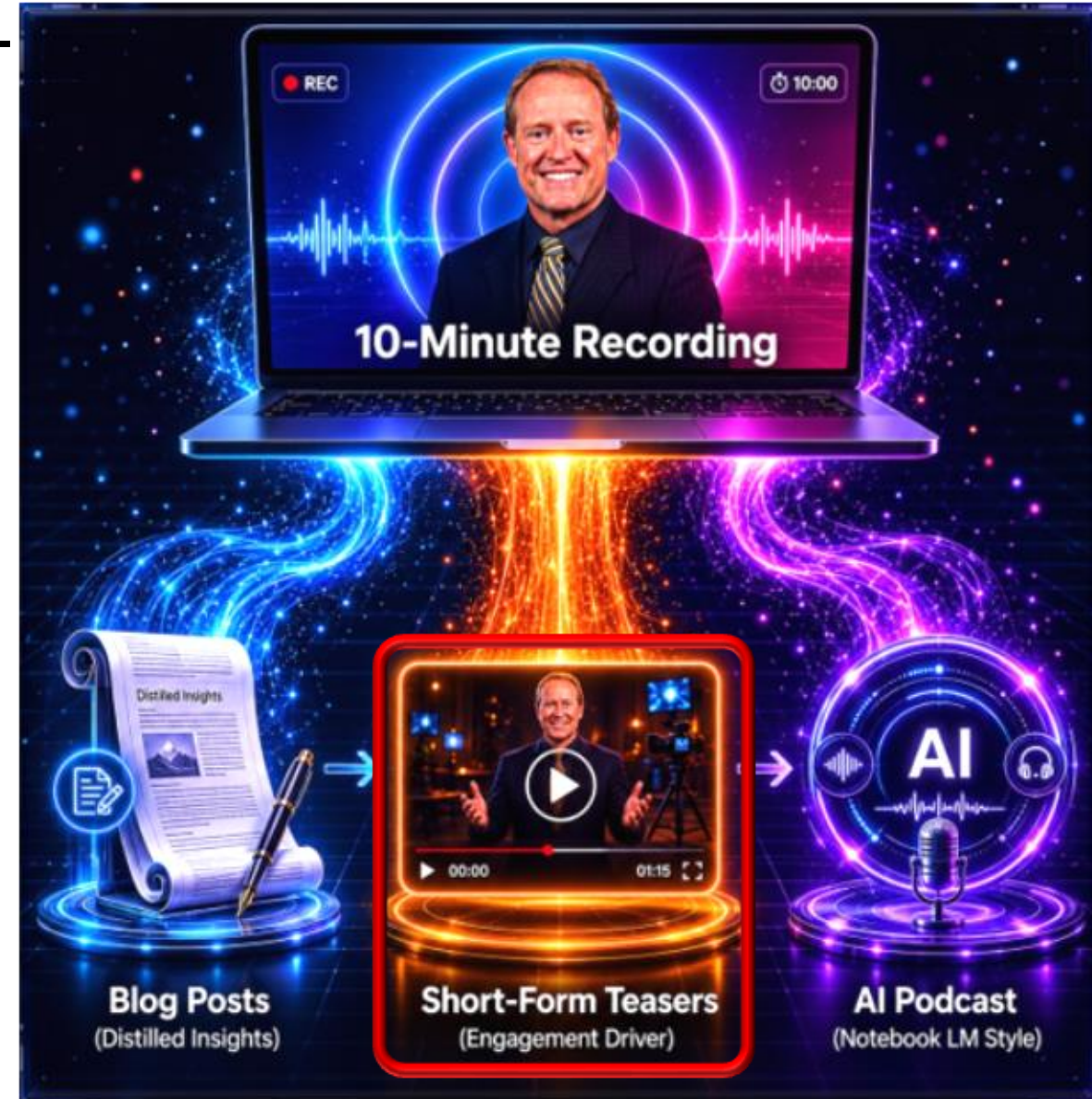
A Case Study of Agentic AI with Google Opal

- Opal mini-apps can repurpose my long-form videos into multiple formats
 - Blog posts that distill insights



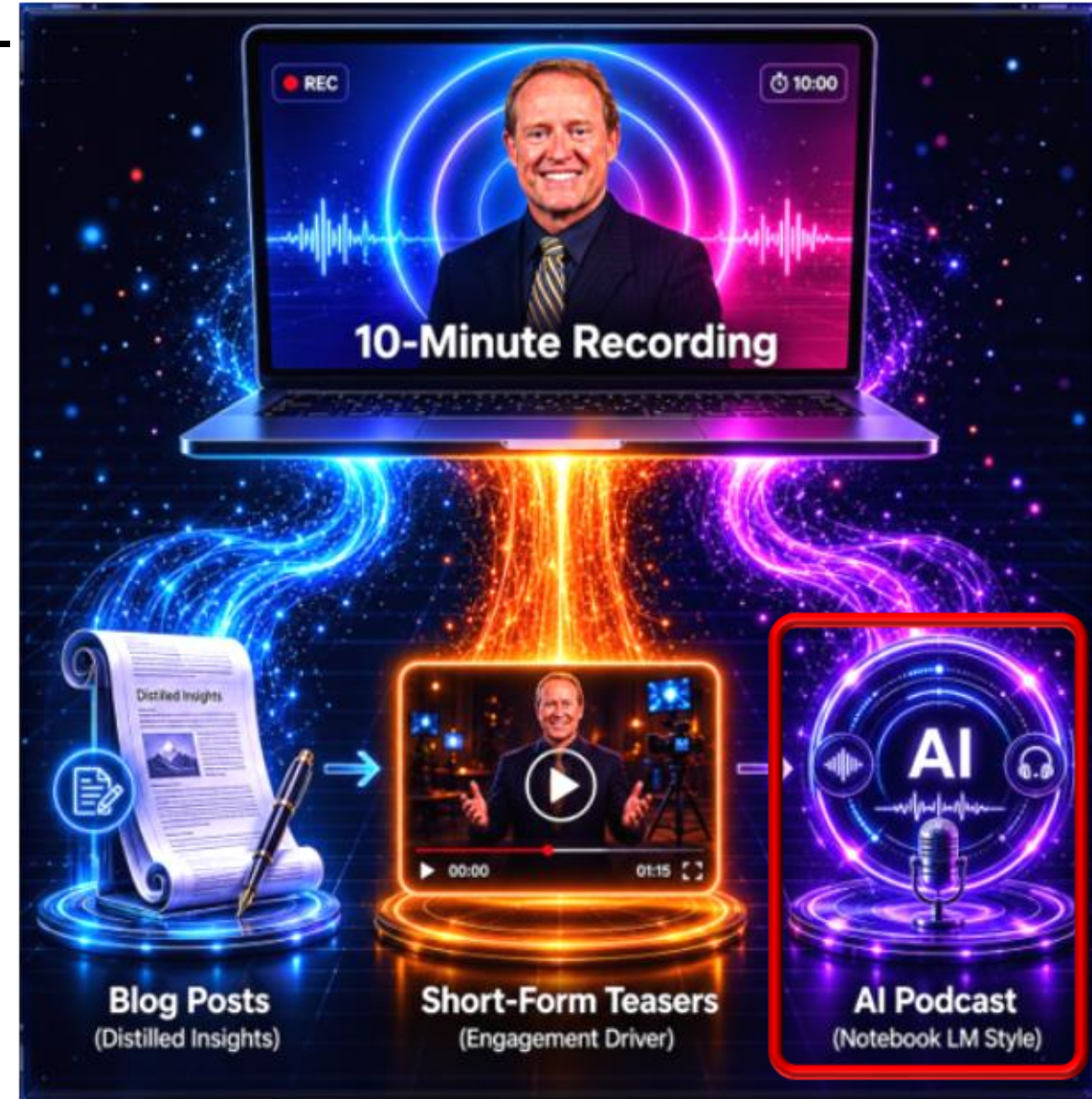
A Case Study of Agentic AI with Google Opal

- Opal mini-apps can repurpose my long-form videos into multiple formats
 - Blog posts that distill insights
 - Short 20-second teaser clips to drive engagement for longer videos &



A Case Study of Agentic AI with Google Opal

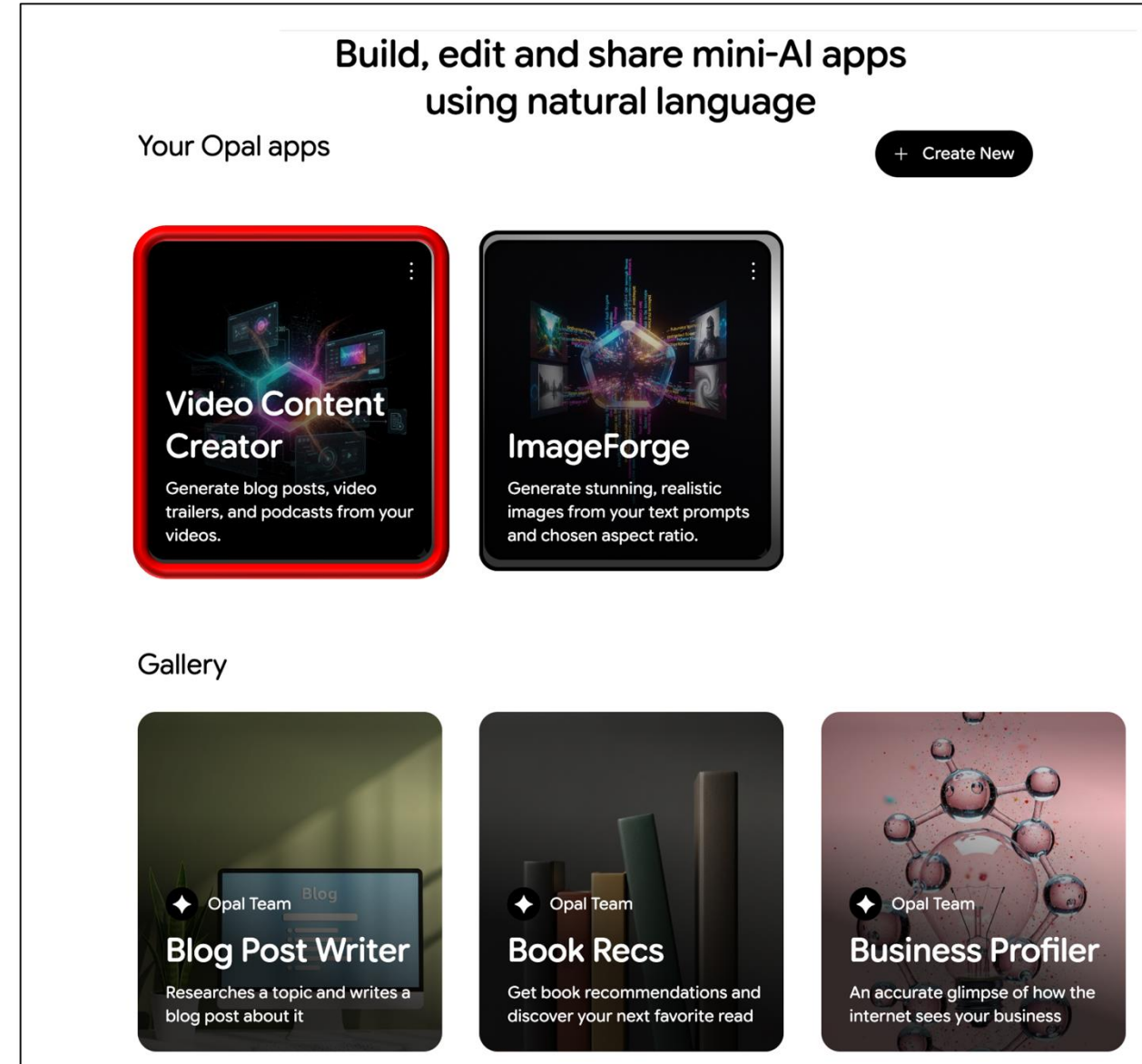
- Opal mini-apps can repurpose my long-form videos into multiple formats
 - Blog posts that distill insights
 - Short 20-second teaser clips to drive engagement for longer videos &
- AI-generated podcasts featuring conversational analysis similar to Google's NotebookLM app



See notebooklm.google

A Case Study of Agentic AI with Google Opal

- I've used Opal to create a mini-app for video content creation
- This content-repurposing engine transforms a single video into a complete multimedia package

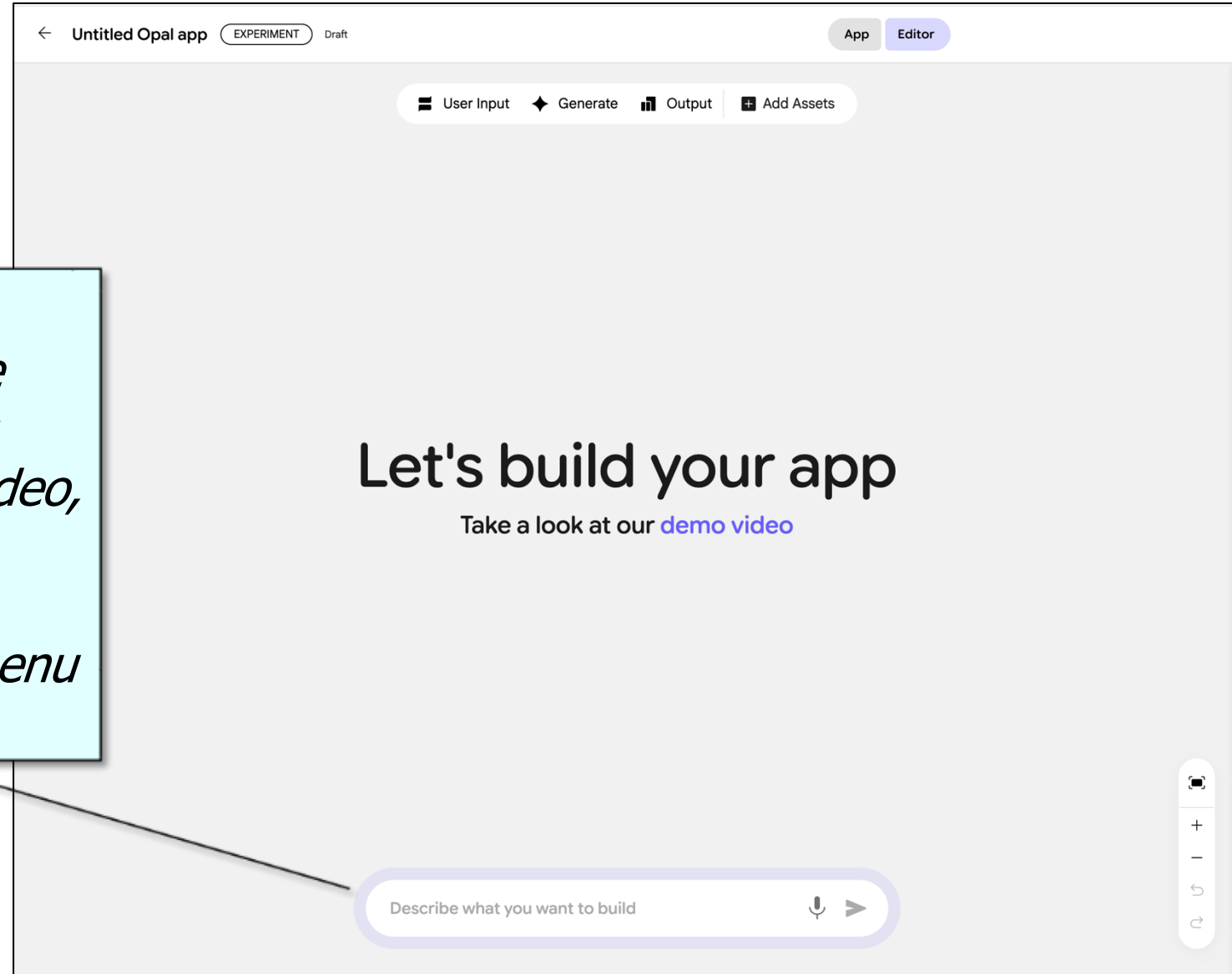


Creating & Using the Video Content Creator Mini-App with Opal

Creating & Using the Video Content Creator Mini-App with Opal

- The “Video Content Creator” mini-app was created via a single simple prompt

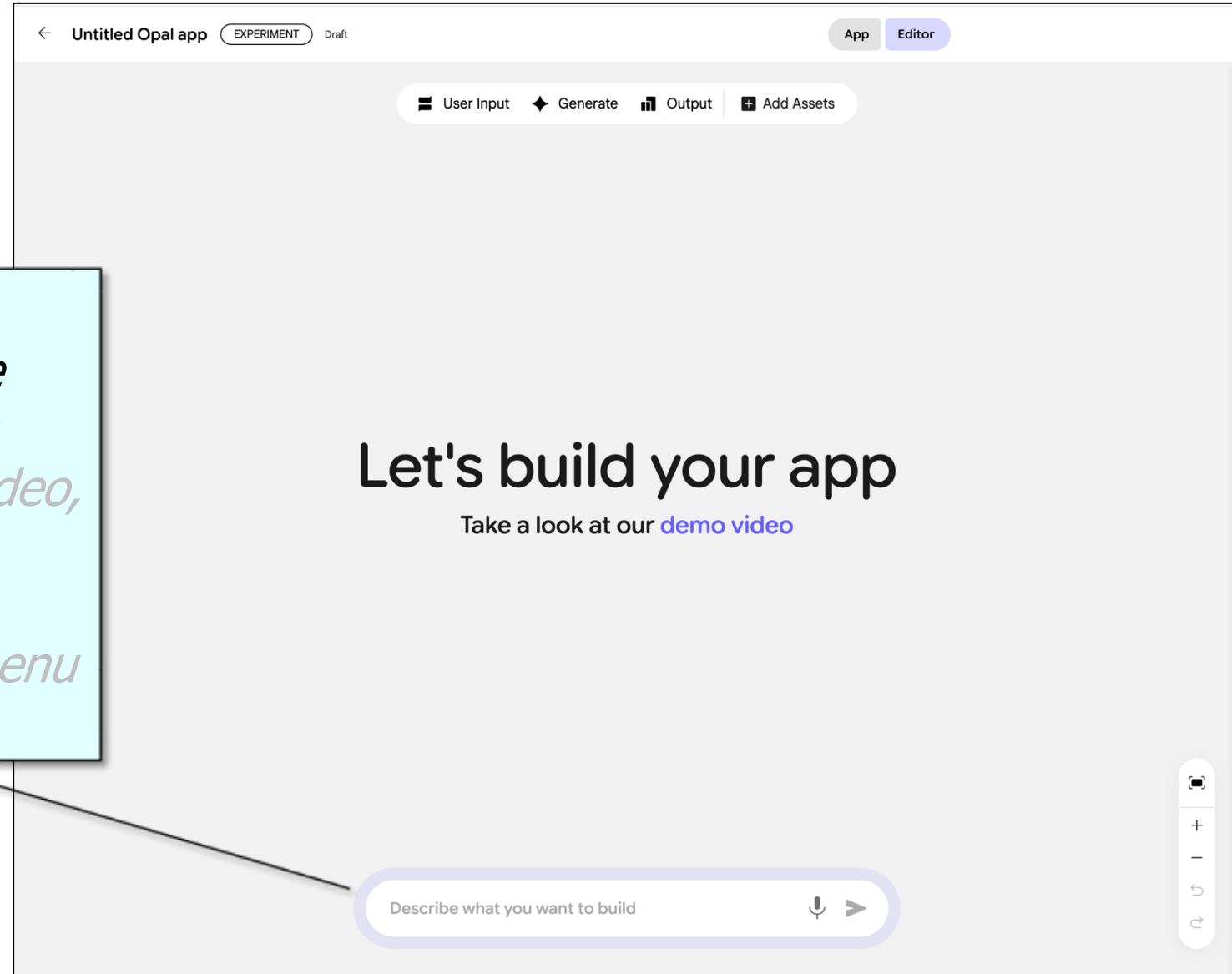
Generate a mini-app that prompts a user for a video URL and then create
1. a 1,000-word blog post containing
two images generated from the video,
2. a 20 second “trailer” video,
3. a podcast summarizing the video
and finally generate an interactive menu
to select from the results



Creating & Using the Video Content Creator Mini-App with Opal

- The “Video Content Creator” mini-app was created via a single simple prompt

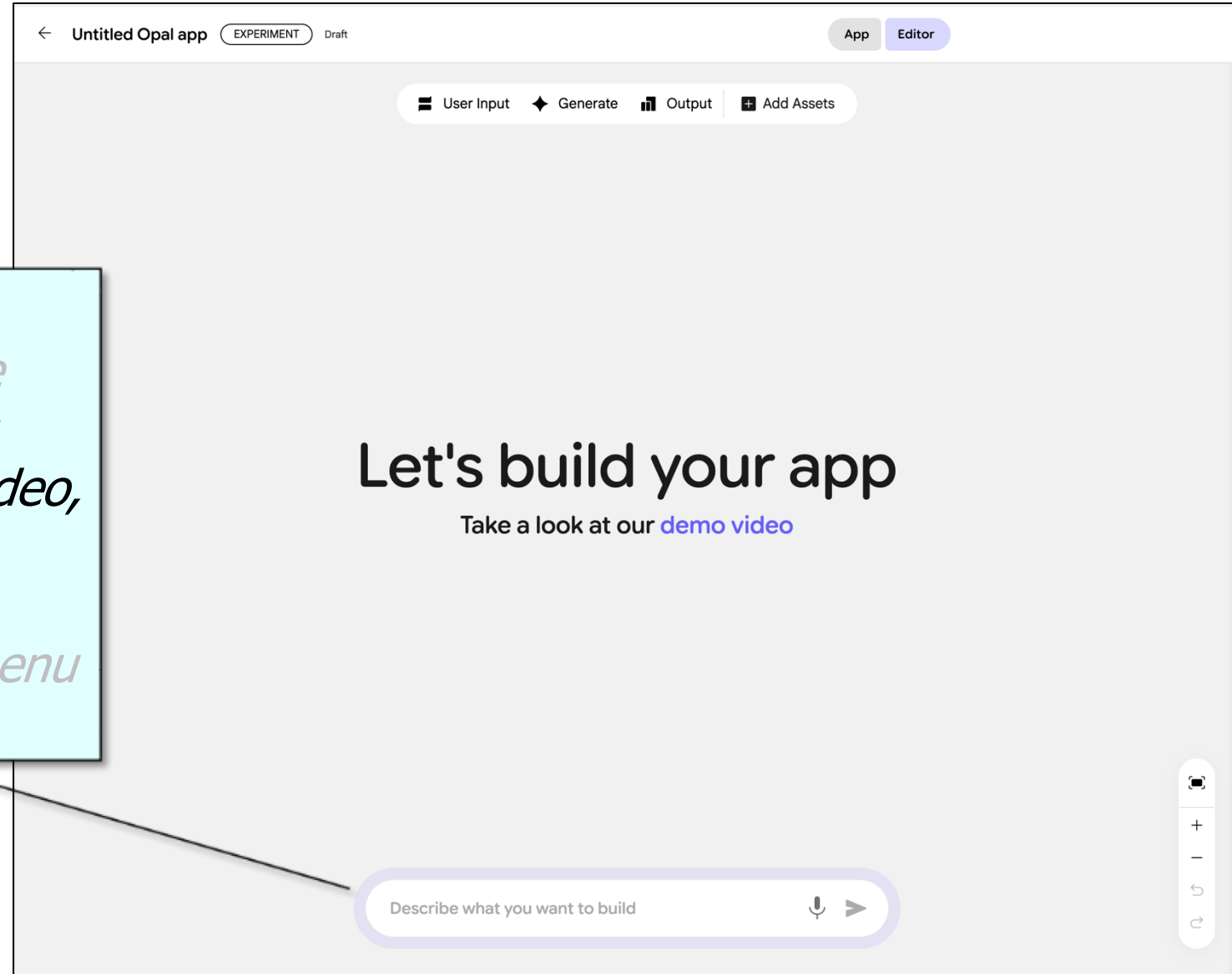
Generate a mini-app that prompts a user for a video URL and then create
1. a 1,000-word blog post containing
two images generated from the video,
2. a 20 second “trailer” video,
3. a podcast summarizing the video
and finally generate an interactive menu
to select from the results



Creating & Using the Video Content Creator Mini-App with Opal

- The “Video Content Creator” mini-app was created via a single simple prompt

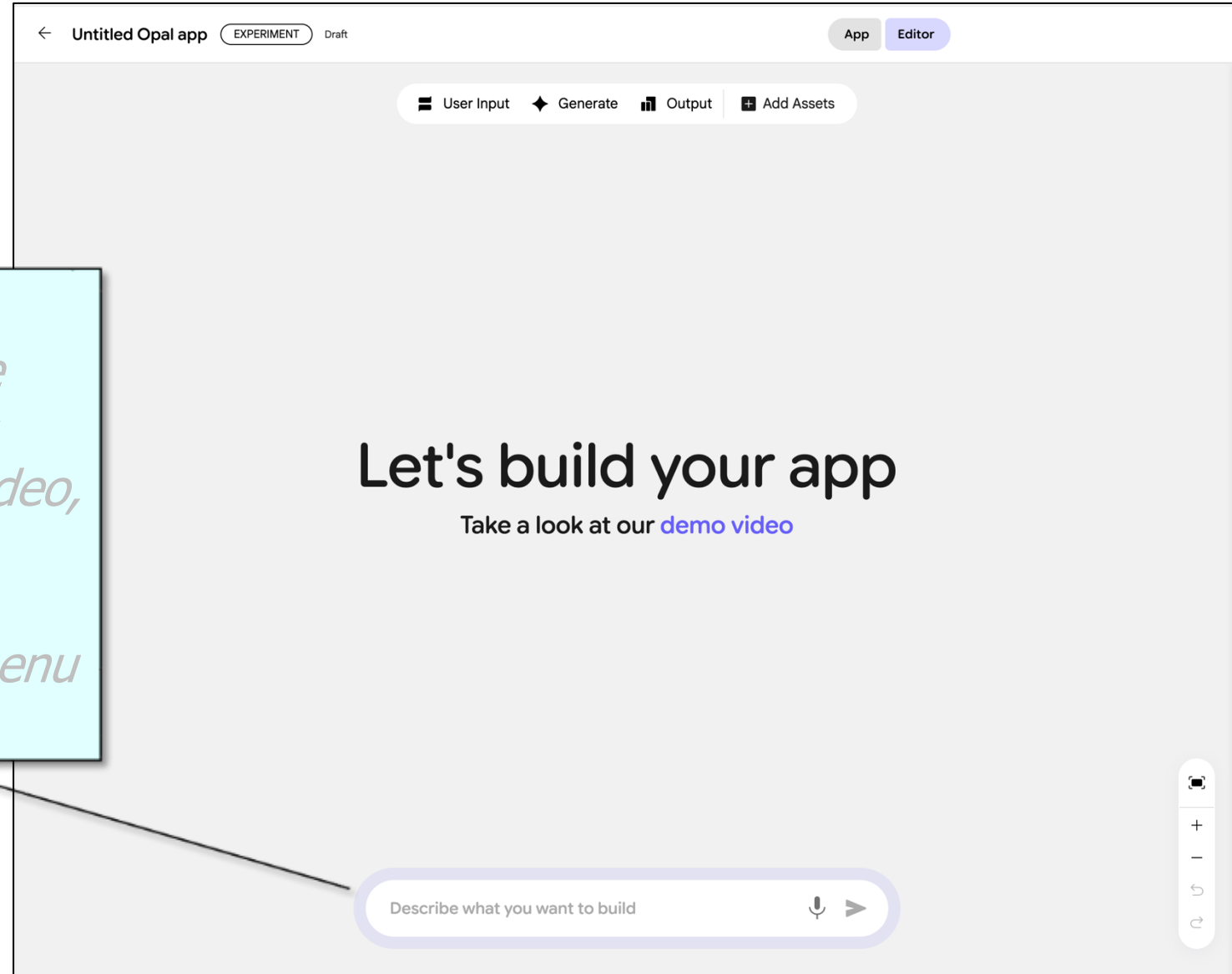
Generate a mini-app that prompts a user for a video URL and then create
1. a 1,000-word blog post containing
two images generated from the video,
2. a 20 second “trailer” video,
3. a podcast summarizing the video
and finally generate an interactive menu
to select from the results



Creating & Using the Video Content Creator Mini-App with Opal

- The “Video Content Creator” mini-app was created via a single simple prompt

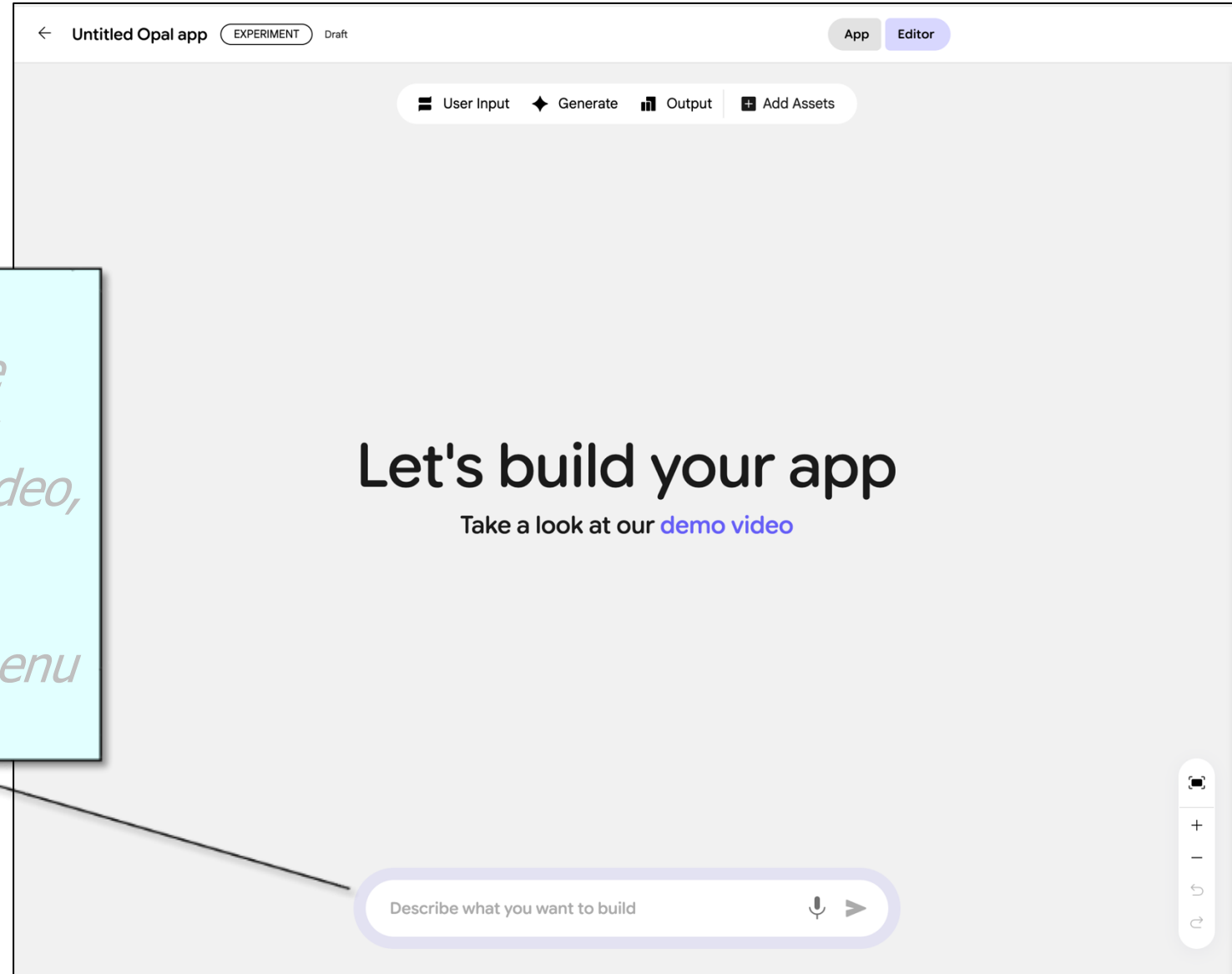
Generate a mini-app that prompts a user for a video URL and then create
1. a 1,000-word blog post containing
two images generated from the video,
2. a 20 second “trailer” video,
3. a podcast summarizing the video
and finally generate an interactive menu
to select from the results



Creating & Using the Video Content Creator Mini-App with Opal

- The “Video Content Creator” mini-app was created via a single simple prompt

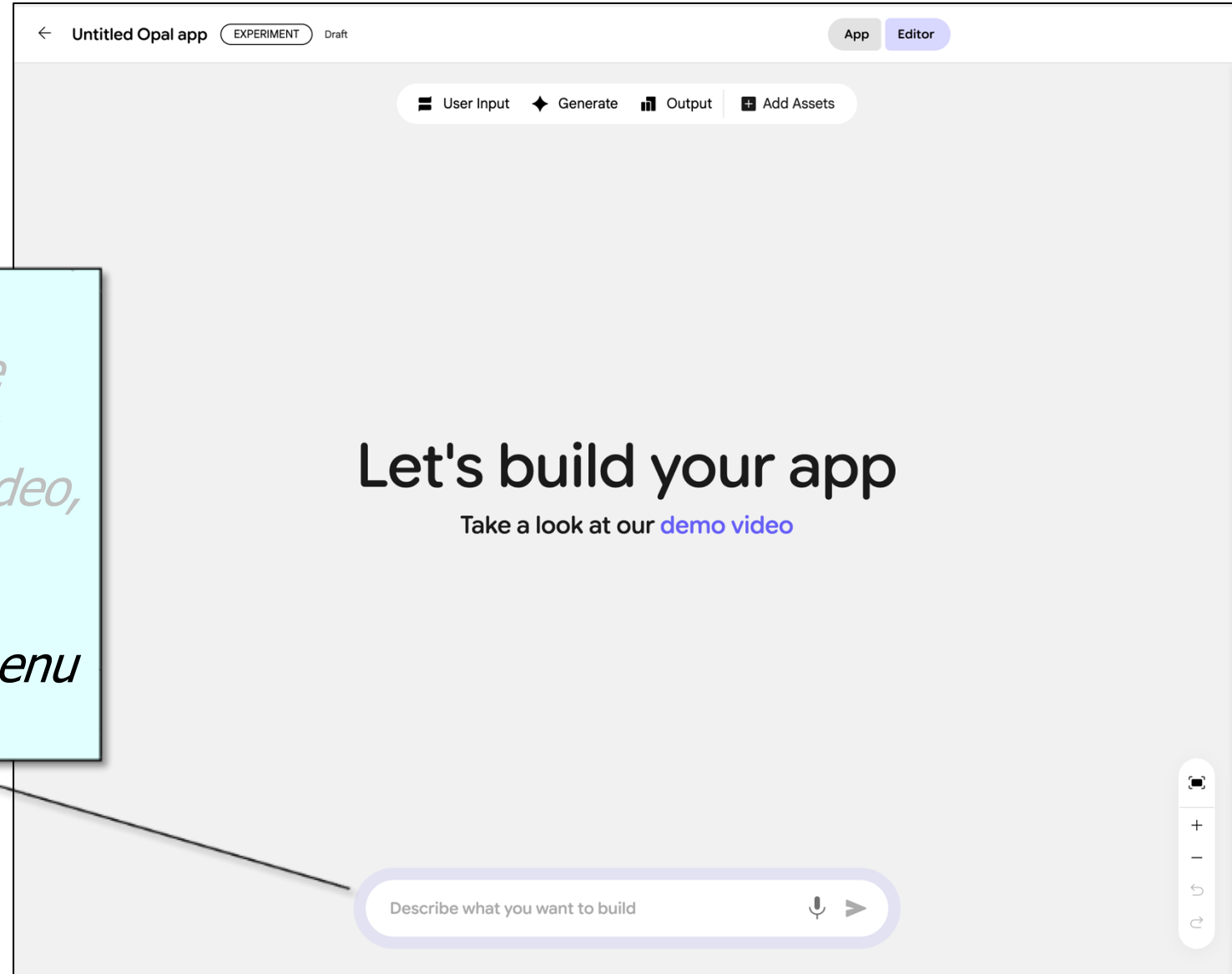
Generate a mini-app that prompts a user for a video URL and then create
1. a 1,000-word blog post containing
two images generated from the video,
2. a 20 second “trailer” video,
3. a podcast summarizing the video
and finally generate an interactive menu
to select from the results



Creating & Using the Video Content Creator Mini-App with Opal

- The “Video Content Creator” mini-app was created via a single simple prompt

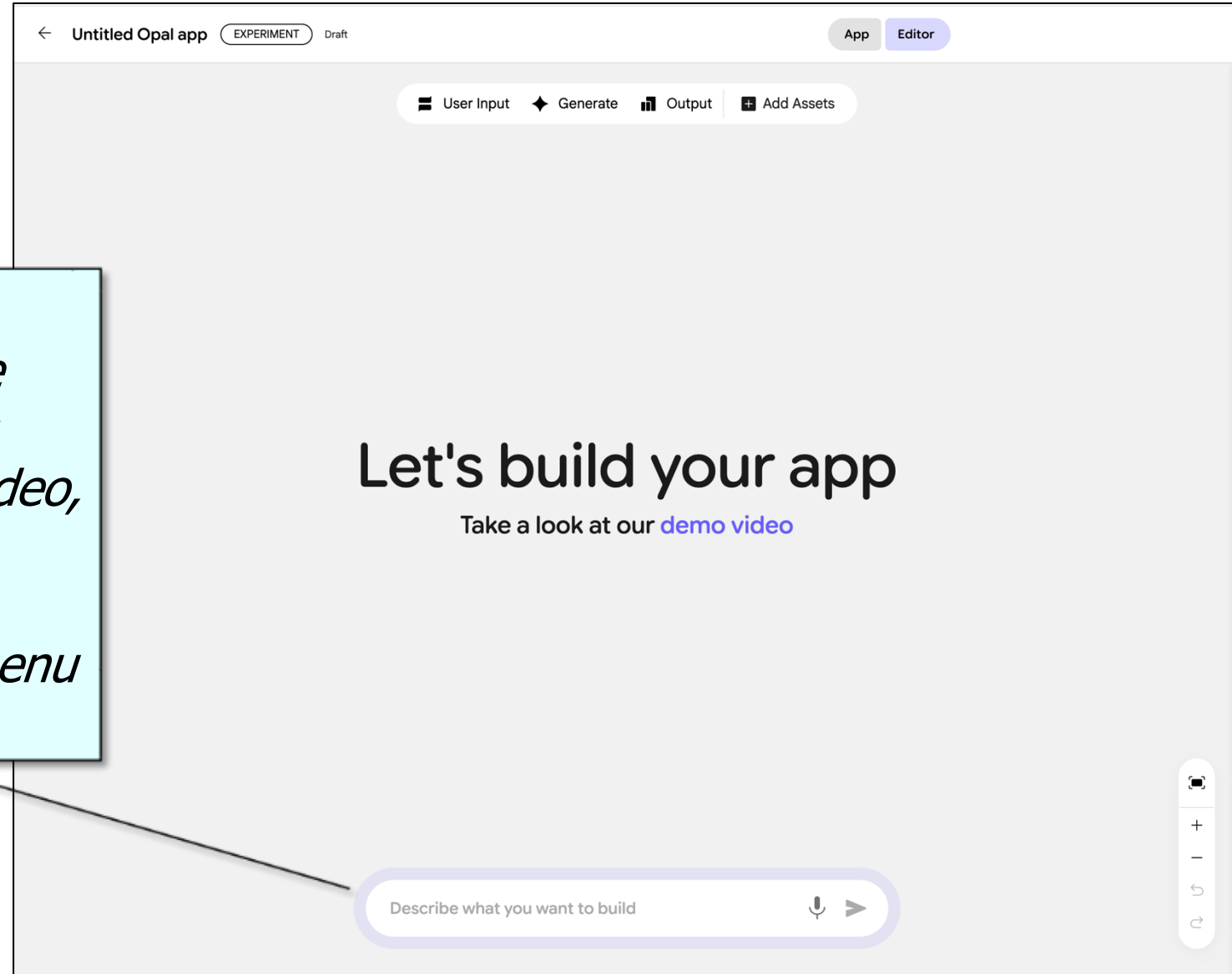
Generate a mini-app that prompts a user for a video URL and then create
1. a 1,000-word blog post containing
two images generated from the video,
2. a 20 second “trailer” video,
3. a podcast summarizing the video
and finally generate an interactive menu
to select from the results



Creating & Using the Video Content Creator Mini-App with Opal

- The “Video Content Creator” mini-app was created via a single simple prompt

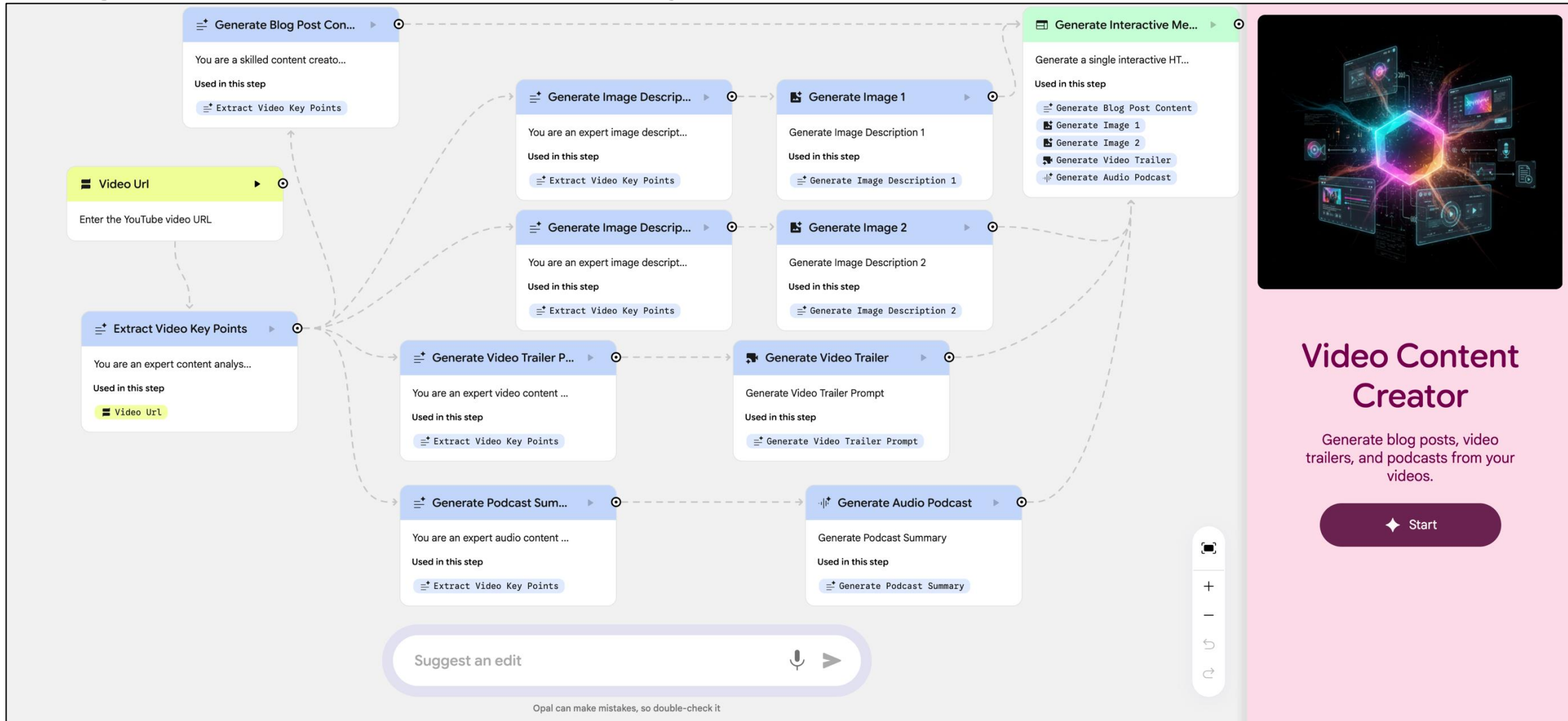
Generate a mini-app that prompts a user for a video URL and then create
1. a 1,000-word blog post containing
two images generated from the video,
2. a 20 second “trailer” video,
3. a podcast summarizing the video
and finally generate an interactive menu
to select from the results



This prompt embodies several elements of computational thinking—Opal handles the rest

Creating & Using the Video Content Creator Mini-App with Opal

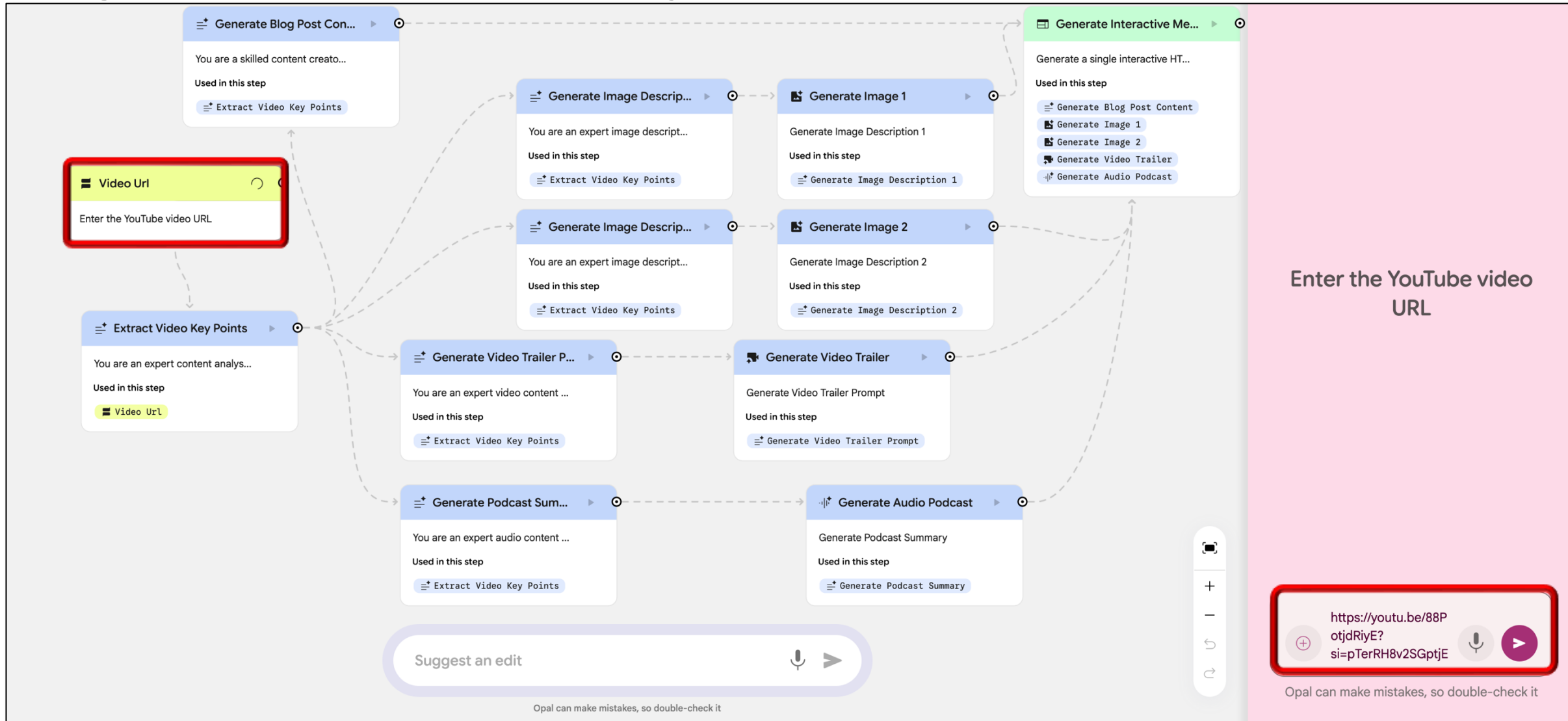
- Opal generated this mini-app in just a few seconds



This mini-app is a good example of “no-code” computational thinking

Creating & Using the Video Content Creator Mini-App with Opal

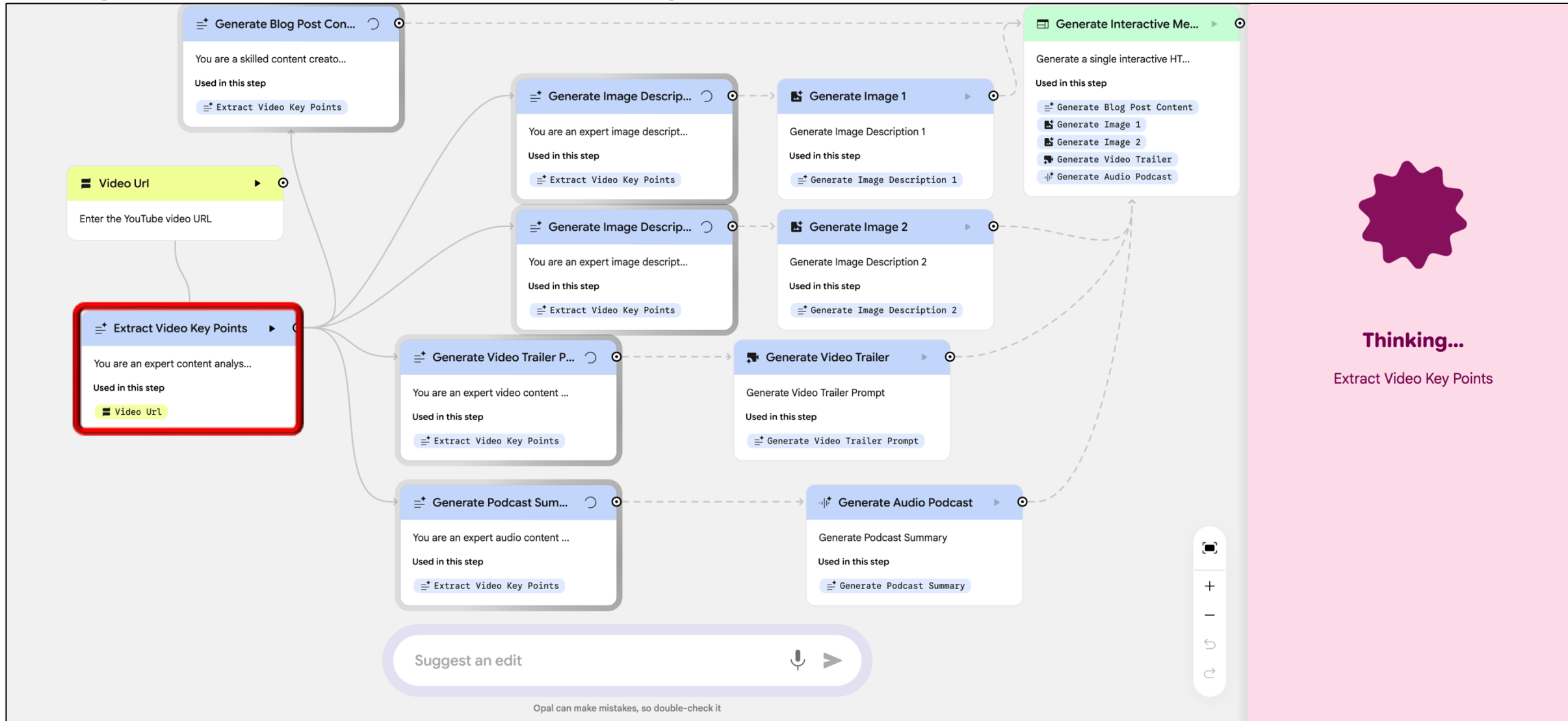
- Opal generated this mini-app in just a few seconds



First, prompt the user for a URL to input to the mini-app

Creating & Using the Video Content Creator Mini-App with Opal

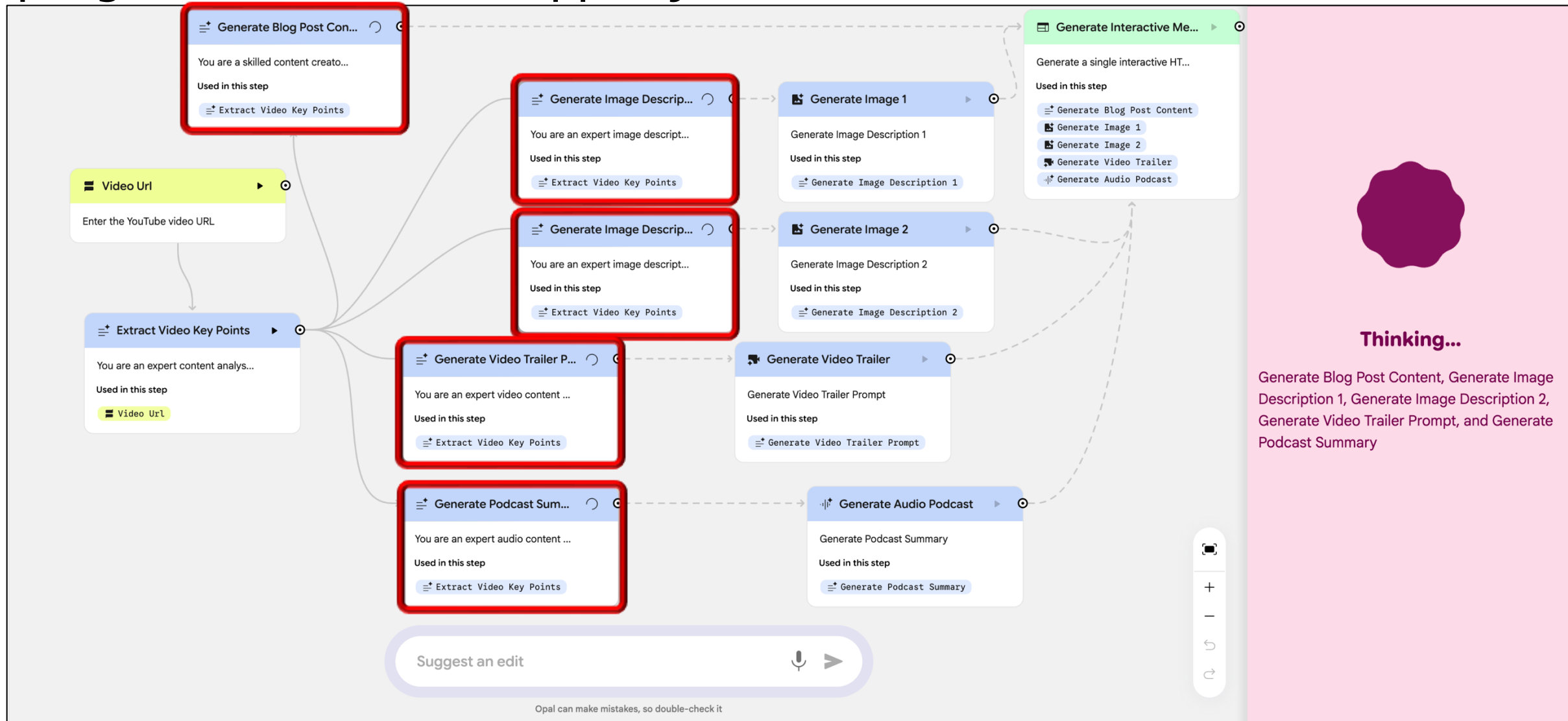
- Opal generated this mini-app in just a few seconds



Create a transcript of the video & summarize its key points

Creating & Using the Video Content Creator Mini-App with Opal

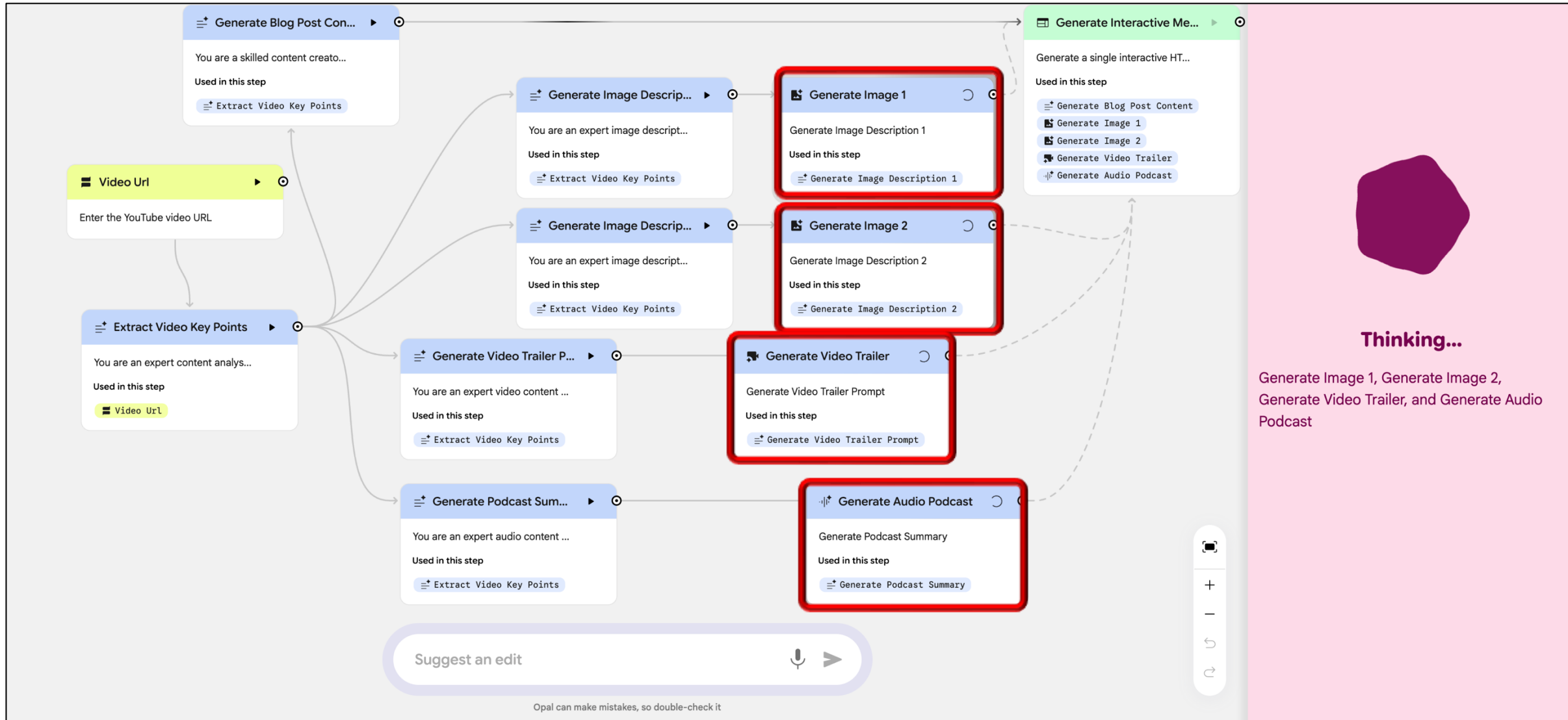
- Opal generated this mini-app in just a few seconds



Create prompts that generate a blog post (+ images), a "teaser" video trailer, & a podcast

Creating & Using the Video Content Creator Mini-App with Opal

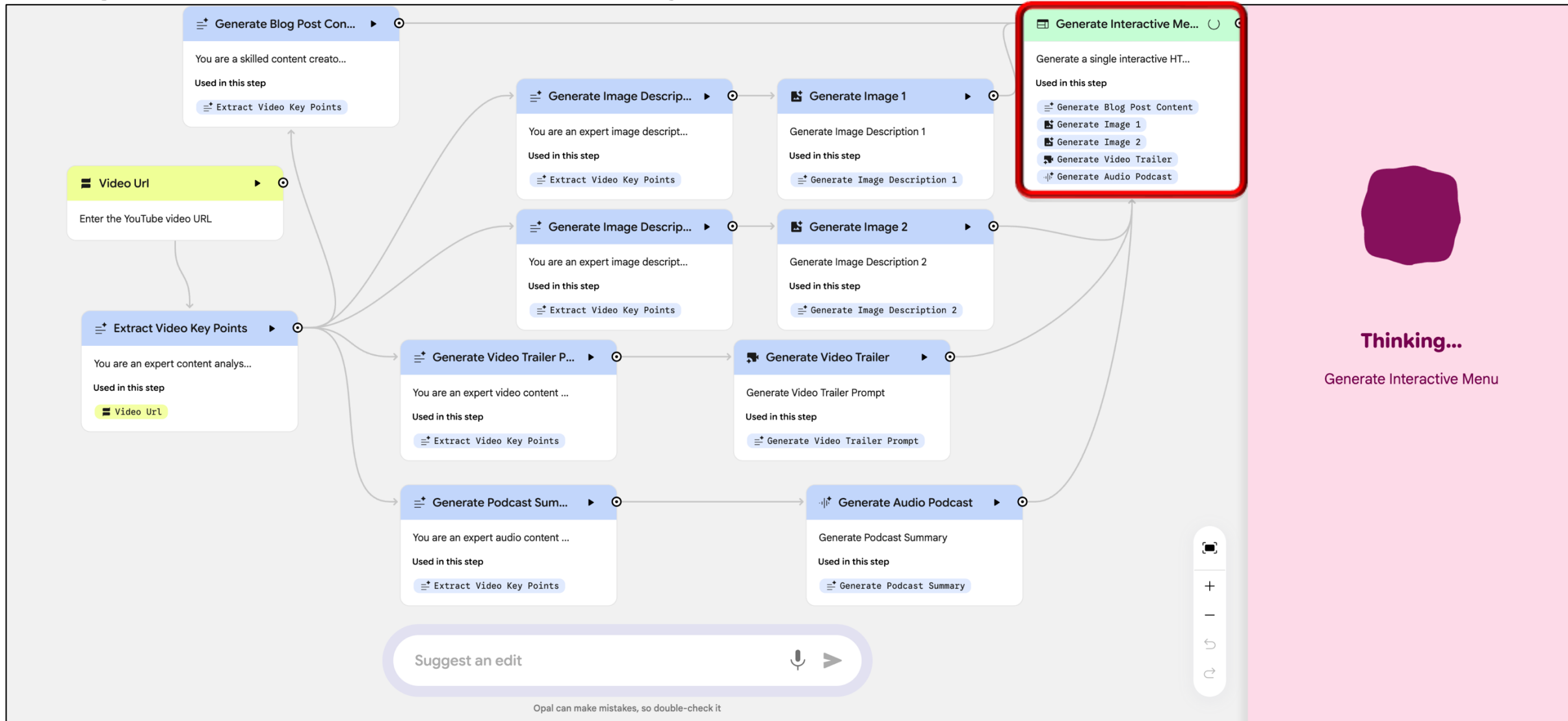
- Opal generated this mini-app in just a few seconds



Feed these prompts to agents that carry out the prompts' instructions

Creating & Using the Video Content Creator Mini-App with Opal

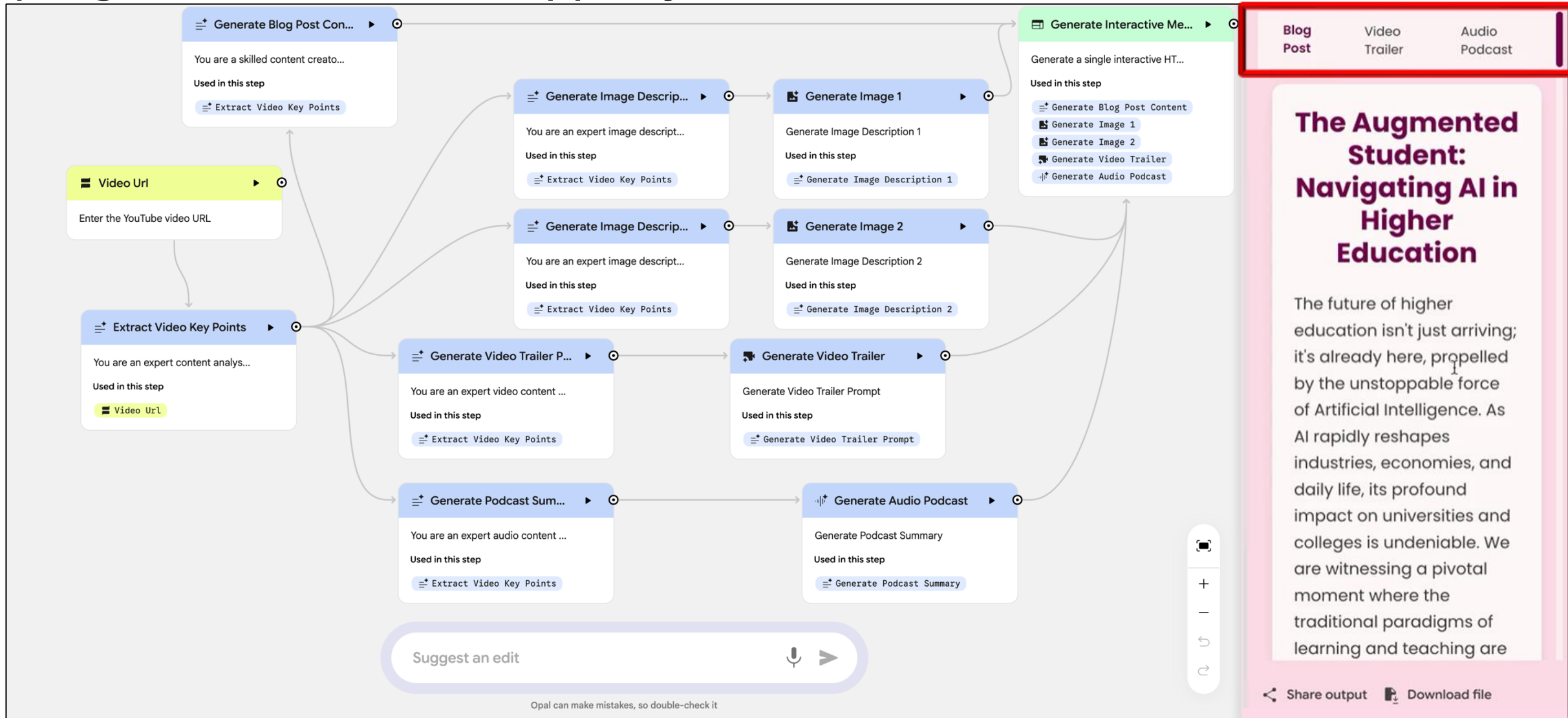
- Opal generated this mini-app in just a few seconds



Generate an interactive menu that will display all the results

Creating & Using the Video Content Creator Mini-App with Opal

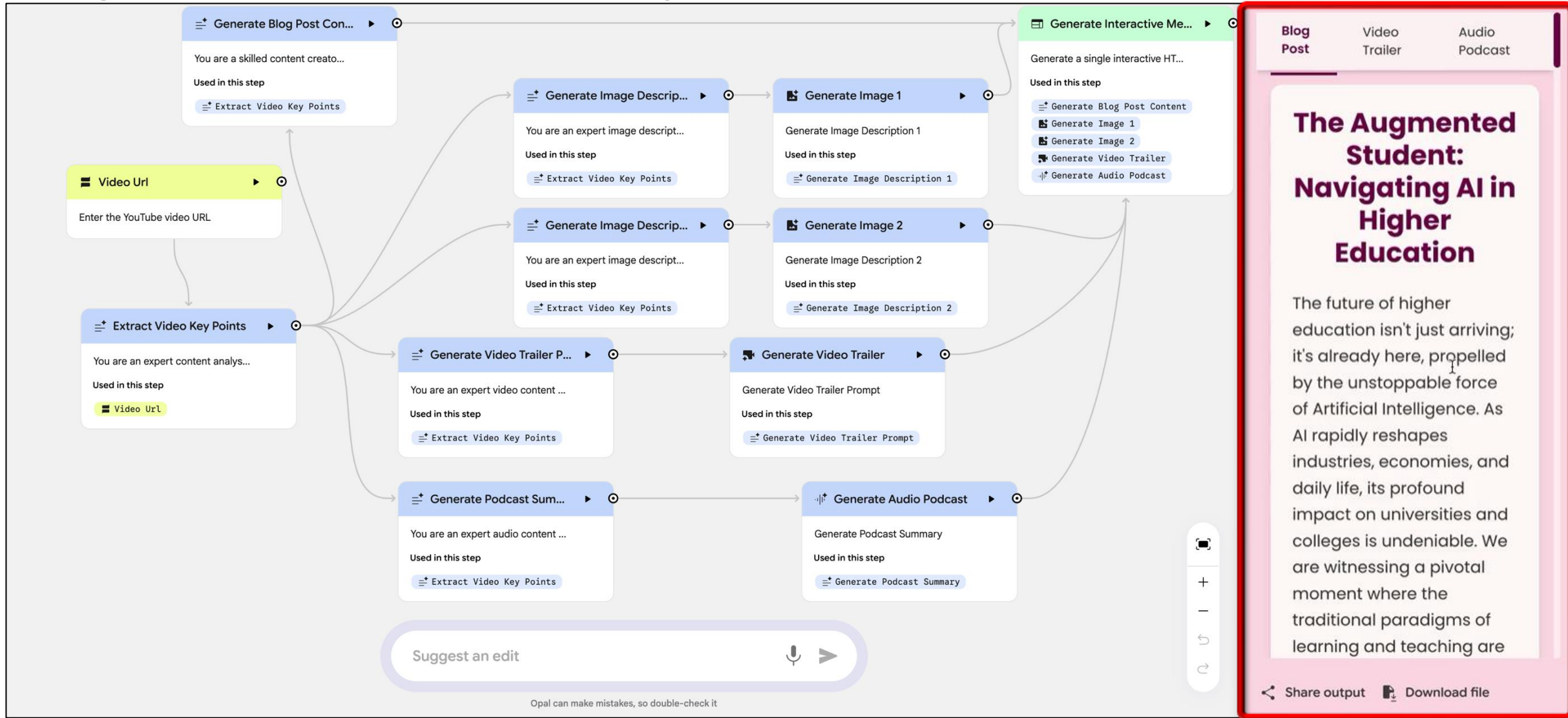
- Opal generated this mini-app in just a few seconds



Allow users to select which results to view in their preferred order

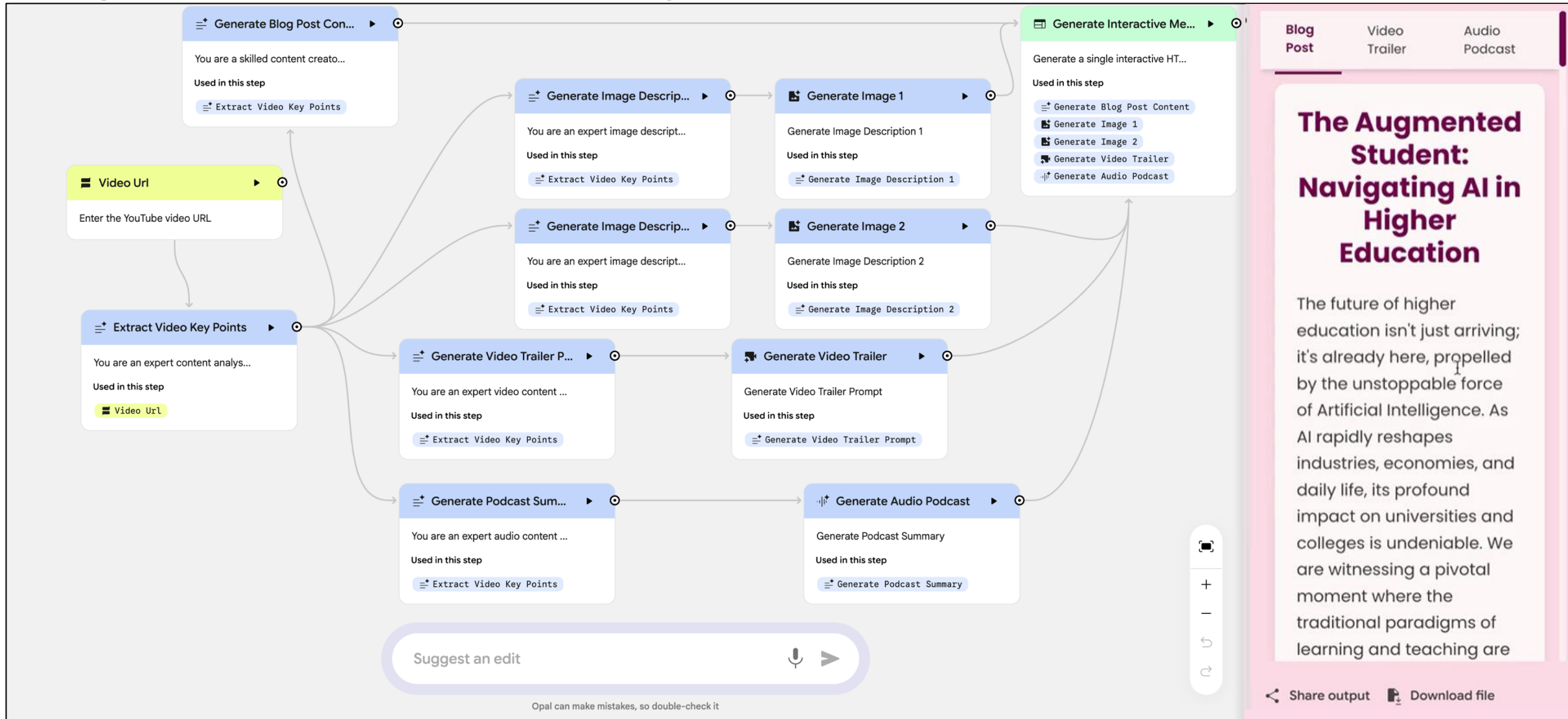
Creating & Using the Video Content Creator Mini-App with Opal

- Opal generated this mini-app in just a few seconds



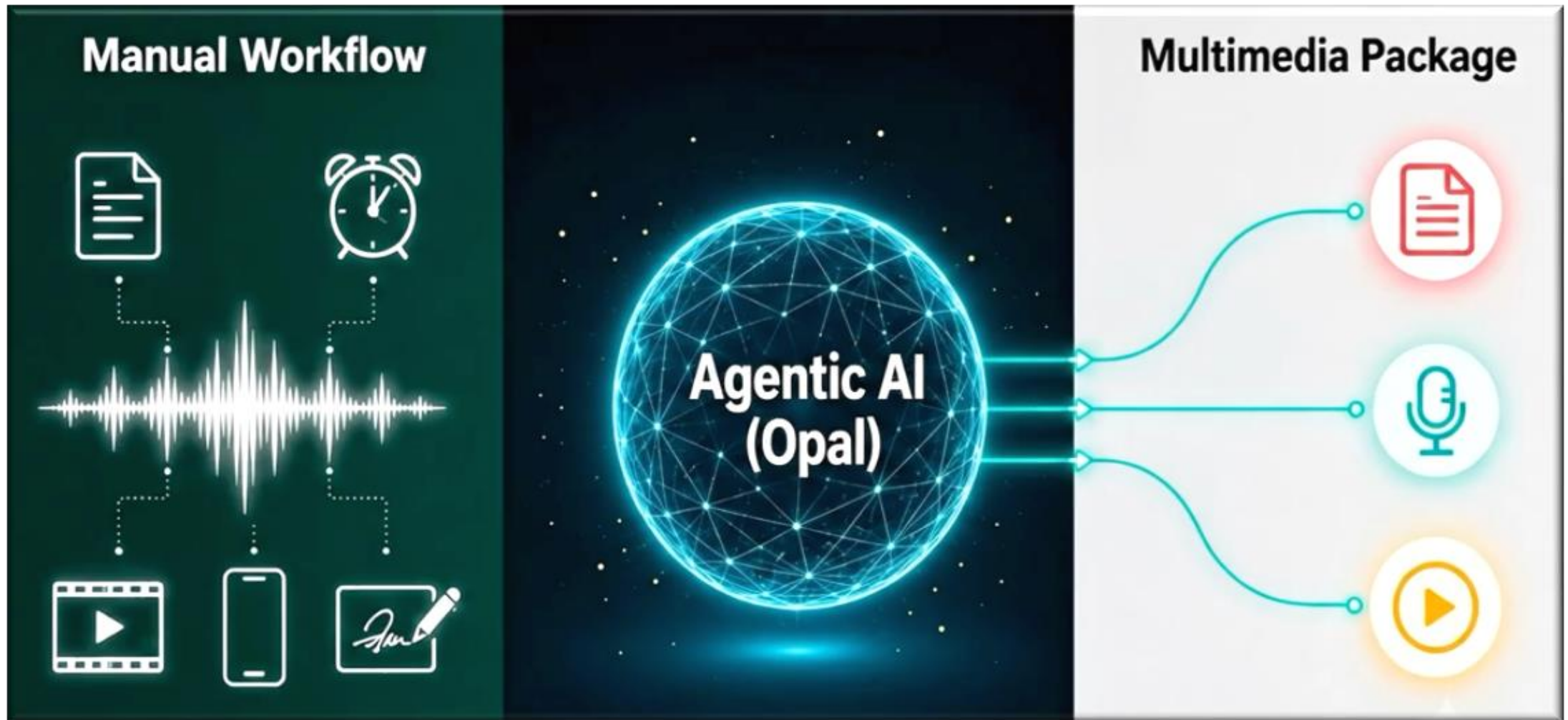
Creating & Using the Video Content Creator Mini-App with Opal

- Opal generated this mini-app in just a few seconds



Creating & Using the Video Content Creator Mini-App with Opal

- From a single no-code prompt, Opal seamlessly produced a multimedia package that streamlines a frequent part of my professional workflow



Performing this workflow previously required hours of manual effort on my part

Creating & Using the Video Content Creator Mini-App with Opal

- Computational thinking with Opal transform ideas into impactful mini-apps

1. LOGIC

Make smart decisions



- Applied structured reasoning to plan the workflow.
- Understood the video first.
- Generated assets aligned with that understanding.
- Organized results into a clear, usable menu.

2. DECOMPOSITION

Break the big idea



- Broke the goal into smaller tasks:
 - Analyze video content
 - Create blog post
 - Generate images
 - Produce trailer video
 - Generate podcast
 - Build interactive menu

3. PATTERN RECOGNITION

Find what works



- Recognized the same content-repurposing pattern in every video.
- Standardized the sequence of activities.
- Reused proven approaches to speed up creation.

4. ABSTRACTION

Focus on what matters



- Focused on the desired outputs, not technical details.
- Provided high-level requirements: URL → blog, images, trailer, podcast, menu.
- Let Opal handle implementation with AI models and tools.

5. DESIGN

Create smart solutions



- Designed a structured workflow with clear components.
- Defined interactions and dependencies between steps.
- Built an integrated experience that delivers complete value.

6. AUTOMATION

Let AI do the heavy lifting



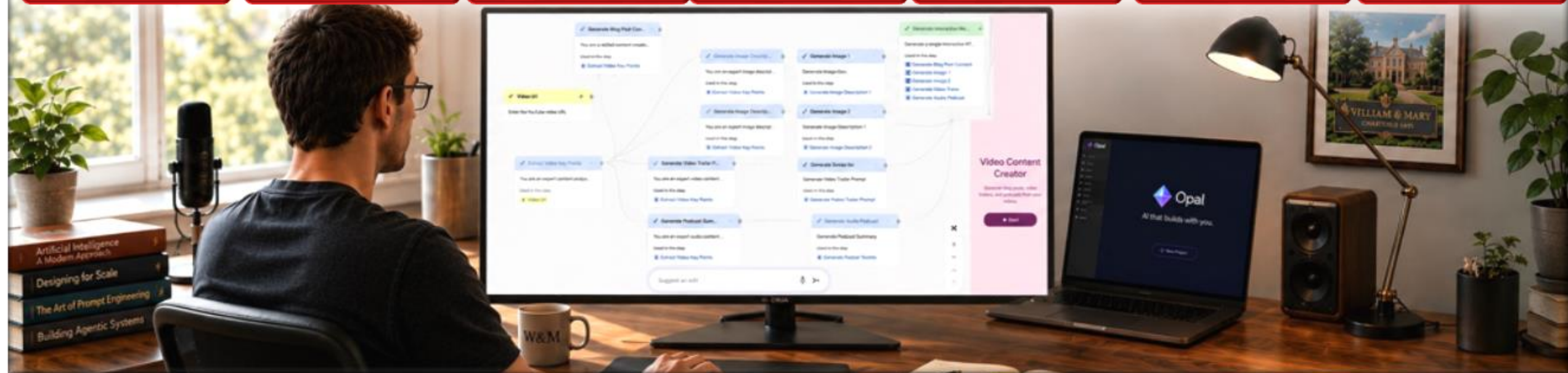
- Automated a multi-step workflow with AI.
- Generated content, media, and audio automatically.
- Transformed hours of manual work into a repeatable process.

7. VERIFICATION

Test, evaluate, refine



- Reviewed blog posts, images, podcasts, and trailers.
- Assessed quality and alignment with goals.
- Identified strengths and areas to improve (e.g., video quality).



A Case Study of Collage Creation with ChatGPT

A Case Study of Collage Creation with ChatGPT

- I recently needed to enhance a collage of family members from the past ~100 years!

These photos were yellowing, blurry, & a range of tints & tones..



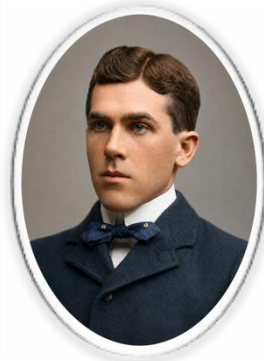
A Case Study of Collage Creation with ChatGPT

- I started by using ChatGPT to unblur, repair, upscale, & colorize 18 scanned versions of the photos



The original collage was 16"x20" so I couldn't scan it all in one fell swoop

- I ended up with 18 digital images of various shapes & sizes to put into a new photo collage

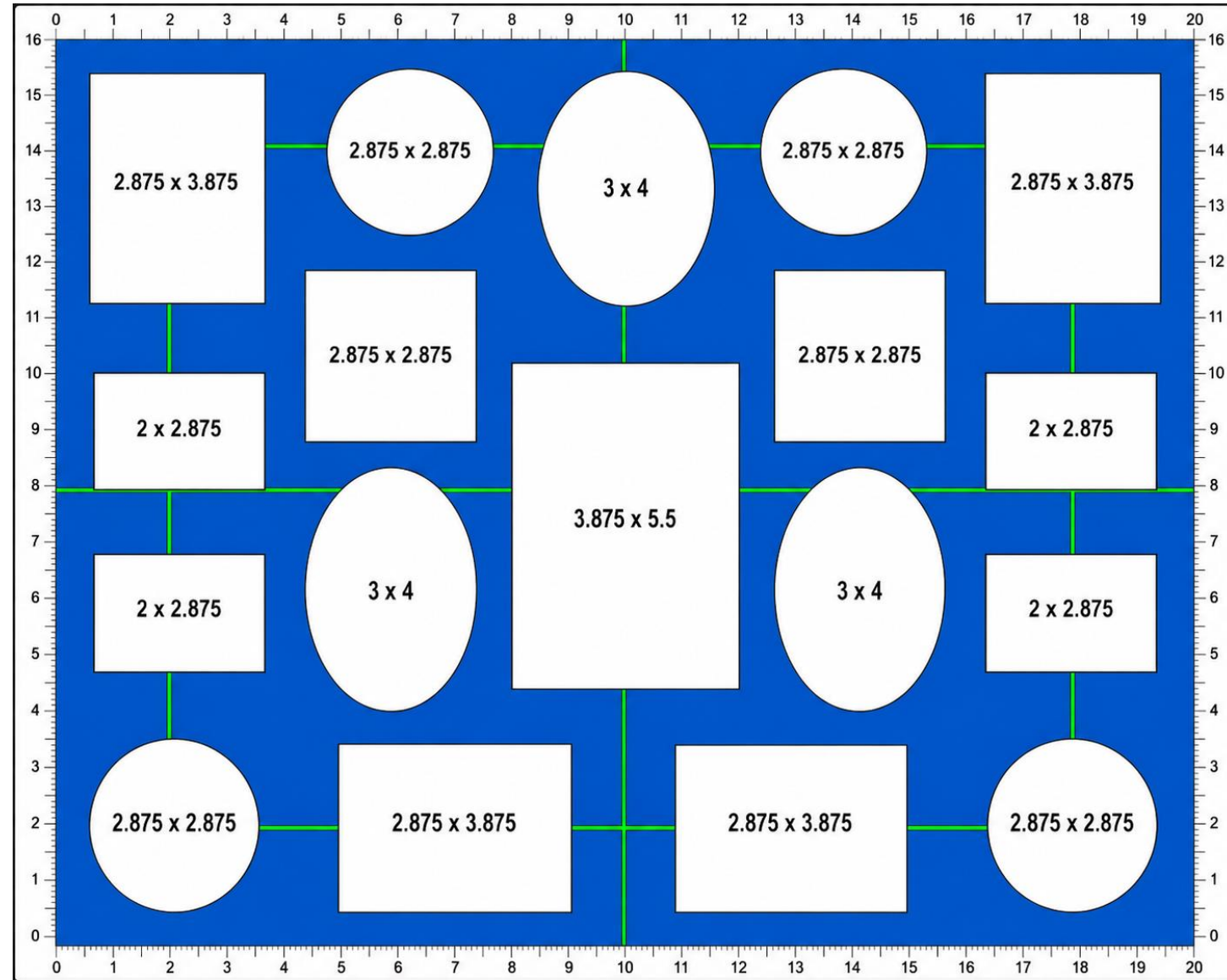


A Case Study of Collage Creation with ChatGPT



A Case Study of Collage Creation with ChatGPT

- Instead of creating the collage manually, I used ChatGPT to automatically arrange, crop, & resize the digital images onto a collage mat



I used the "Pro" version of ChatGPT 5.6 since other versions "hallucinated" the output

A Case Study of Collage Creation with ChatGPT

- I then asked ChatGPT to revise my initial prompt so that it was much more precise

Please read the following prompt and regenerate it so that it's more precise and will generate a result that respects the number of people in a given image so no one is truncated out when mapping the images to the shapes on the collage mat.

Please use the first attached collage mat image as a template and create a 300 dpi, 20×16 print-ready layout of each of the following 18 images precisely cropped to the corresponding opening in the collage mat (including the circles and ovals), with trim guides for easy cutting. I want to be able to send the resulting file directly to a photo lab with no additional layout work, so please do not change or distort any of the attached images.

A Case Study of Collage Creation with ChatGPT

- The revised prompt is much more detailed & precise!

Revised prompt

Use the first attached collage-mat image solely as the geometric template for a clean, flat, print-ready layout. Do not reproduce the screenshot interface, rulers, blue background, green guide lines, dimension labels, arrows, selection handles, shadows, or perspective distortion.

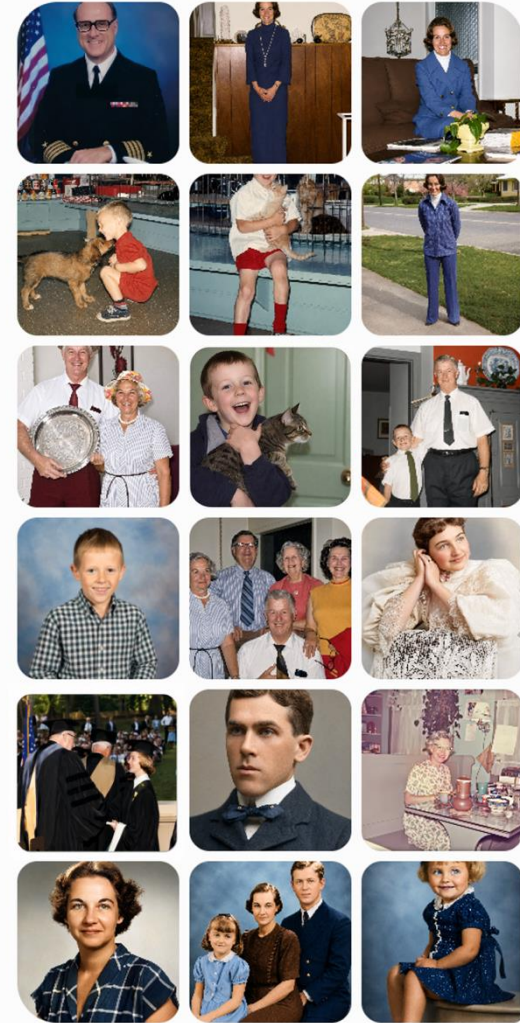
Create one 20 × 16-inch landscape canvas at exactly 300 ppi, resulting in a final raster size of 6000 × 4800 pixels. Use the sRGB color space and export the finished layout as a flattened, maximum-quality, photo-lab-ready file with no added page margins or automatic cropping.

Place the 18 supplied photographs into the 18 corresponding openings in the mat. Map source images 01–18 to the openings below in the stated order:

1. Top-left portrait rectangle — 2.875" W × 3.875" H
2. Upper-left circle — 2.875" diameter
3. Top-center vertical oval — 3" W × 4" H bounding box
4. Upper-right circle — 2.875" diameter
5. Top-right portrait rectangle — 2.875" W × 3.875" H
6. Upper-middle far-left landscape rectangle — 2.875" W × 2" H
7. Upper-middle left square — 2.875" × 2.875"
8. Large center portrait rectangle — 3.875" W × 5.5" H
9. Upper-middle right square — 2.875" × 2.875"
10. Upper-middle far-right landscape rectangle — 2.875" W × 2" H
11. Lower-middle far-left landscape rectangle — 2.875" W × 2" H
12. Lower-middle left vertical oval — 3" W × 4" H bounding box
13. Lower-middle right vertical oval — 3" W × 4" H bounding box
14. Lower-middle far-right landscape rectangle — 2.875" W × 2" H

A Case Study of Collage Creation with ChatGPT

- Next, I simply asked ChatGPT to apply the revised prompt to my images!



Please apply the revised prompt to layout the attached 18 images according to the collage template described above.

A Case Study of Collage Creation with ChatGPT

- ChatGPT “thought” for ~30 minutes & then produced its first result

Completed 20 × 16 collage layout

The 18 photographs were placed in attachment order and scaled proportionally to preserve every person visible in each source image. Where an opening’s aspect ratio could not be filled without clipping a person, neutral padding sampled from the photograph was retained deliberately.

The outer charcoal-and-white outlines are the **cut guides**, positioned **0.125 inch** beyond each mat opening.

Print-ready files

- [collage_20x16_300dpi_print_ready.pdf](#) — 20 × 16 inches, embedded at 300 ppi
- Download the print-ready JPEG — 6000 × 4800 pixels, 300 ppi, sRGB
- Download the lossless TIFF — 6000 × 4800 pixels, 300 ppi, sRGB

Review files

- [collage_20x16_preview.png](#)
- View the aperture-safety proof — review only; the magenta aperture lines are not present in the print-ready files
- [collage_layout_manifest.txt](#)

The PDF and JPEG are ready for normal photo-lab submission without additional page scaling, margins, or automatic cropping.



However, all the photos are overly cropped to fit the spaces

A Case Study of Collage Creation with ChatGPT

- Another prompt was necessary to scale the images better

Please regenerate this image by increasing the size of the various photos so they fill the shapes (e.g., circles, ovals, and rectangles) better (i.e., so there is little or no "border" around the pictures), but make sure that the people in the photos are not cropped - just the backgrounds of the photos.

A Case Study of Collage Creation with ChatGPT

- ChatGPT “thought” for another ~30 minutes & scaled the images better

Revised collage

The photographs have been enlarged to the maximum subject-safe size. Background areas were cropped first; where an image’s aspect ratio could not fill its opening without cutting off a person, a softly blended extension made only from that photograph’s background was used instead of a hard border. The people remain proportionally scaled and undistorted.

Print-ready files

- [collage_20x16_300dpi_subject_safe_fill.pdf](#)
- Download the 6000 × 4800 JPEG
- Download the lossless TIFF

All three are 20 × 16 inches, 300 ppi, landscape, and sRGB.

Review files

- [collage_20x16_subject_safe_fill_preview.png](#)
- View the aperture-safety proof — the magenta and green verification lines are not included in the print-ready files
- [collage_20x16_subject_safe_fill_manifest.txt](#)

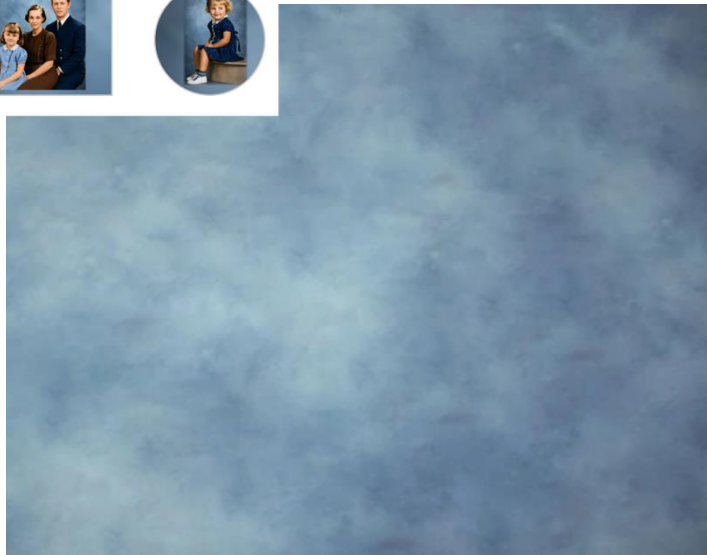
For photo-lab printing, submit the PDF or JPEG at **actual size / 100%**, with automatic cropping and “fill page” scaling disabled.



Now all the photos fit the spaces much better

A Case Study of Collage Creation with ChatGPT

- I then added a better background



Replace only the plain white background surrounding and between the photographs in the first image with the exact color and painted texture from the second image. Preserve the first image's original dimensions and layout. Do not redraw, regenerate, retouch, recolor, sharpen, crop, resize, move, or otherwise alter any photograph, person, face, clothing, object, frame, border, edge, or shadow. All non-background pixels must remain identical to the source image.

A Case Study of Collage Creation with ChatGPT

- Here's ChatGPT's output



Using a precise prompt & the "Pro" version ensured the photos weren't distorted

A Case Study of Collage Creation with ChatGPT

- Here's the final result with manually added 3-D borders



Trying to get Chatgpt to add these borders automatically was a bridge too far..

A Case Study of Collage Creation with ChatGPT

1. UPGRADE TO ADVANCED/PRO MODELS

for Complex Visual Reasoning



- Use Pro version for precise tasks
- Minimizes hallucinations
- Ensures accurate layouts, dimensions, and multi-image constraints

2. LEVERAGE CHATGPT TO REFINE ITS OWN PROMPTS

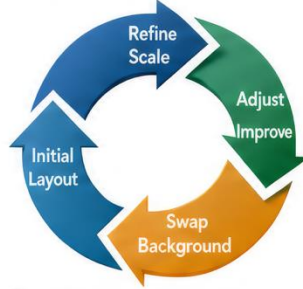
Let AI be your meta-prompt engineer



- Start with high-level intent
- Ask ChatGPT to rewrite and optimize
- Get explicit, detailed instructions

3. ITERATIVE REFINEMENT IS CRUCIAL

Expect Multi-Step Prompting



- Treat AI generation as a dialogue
- Iterate through multiple refinements
- Dial in scaling, subject safety, and aesthetics

4. BE EXPLICIT ABOUT CONSTRAINTS

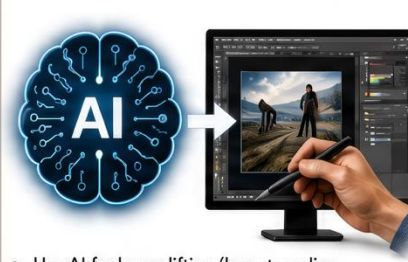
Preserve what matters



- ✓ Do not redraw
- ✓ Do not recolor
- ✓ Do not crop
- ✓ Do not alter faces
- ✓ Do not move
- ✓ Do not sharpen
- Clearly state what AI must NOT change
- Specify dimensions, DPI, color space
- Protect people, content, and layouts

5. RECOGNIZE AI LIMITS & PERFORM HYBRID WORKFLOWS

Combine AI power with human judgment



- Use AI for heavy lifting (layout, scaling, colorization, repair, compositing)
- Use manual tools for finishing touches and precise micro-edits
- Know when to stop prompting

6. ALLOW SUFFICIENT COMPUTE TIME

Complex tasks need time



- Multi-image reasoning is compute heavy
- Expect ~30 minutes per iteration
- Be patient during long processing cycles

Case Study: Building a Subject-Safe Family Collage in 7 Iterative Steps



KEY TAKEAWAYS

- ✓ Iterate to improve scale, composition, and aesthetics
- ✓ Protect subjects and content in every step
- ✓ Combine AI efficiency with human expertise

TOOLS & WORKFLOW



AI + Human Collaboration

- ✓ Better Results
 - ✓ Faster Work
 - ✓ Higher Quality
- Smarter Together



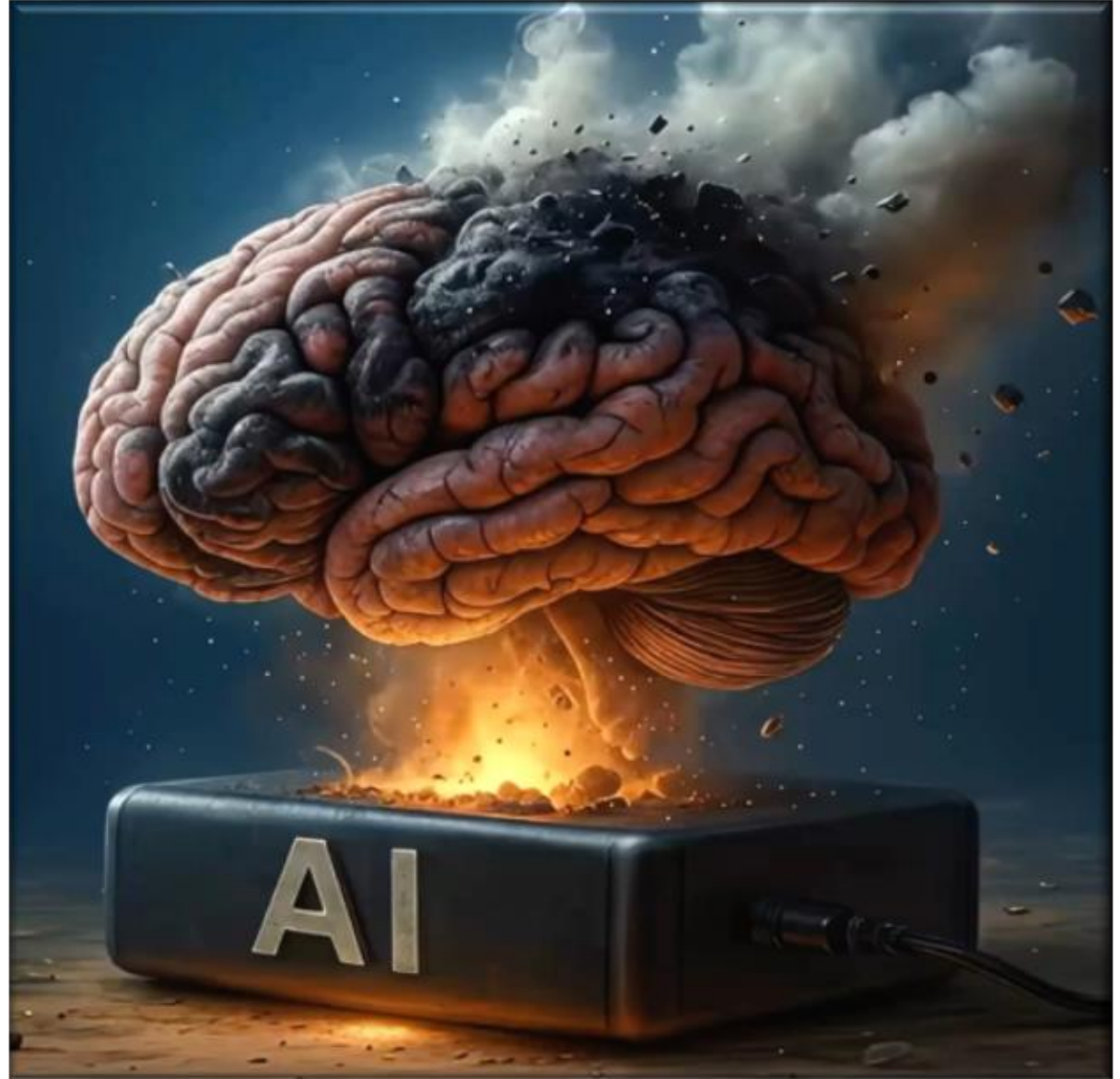
Navigating Challenges & Risks When Applying Generative AI

Navigating Challenges & Risks When Applying Generative AI



Skills Augmentation

93



Skills Erosion

Navigating Challenges & Risks When Applying Generative AI

- Computational thinking is easier to access than ever



Navigating Challenges & Risks When Applying Generative AI

- Computational thinking is easier to access than ever

A recent study found that students are more reflective & purpose-driven when using AI

Can Student Use of AI to Write Prompt Higher-Order Thinking?



By [Alexandra Crosnoe](#)

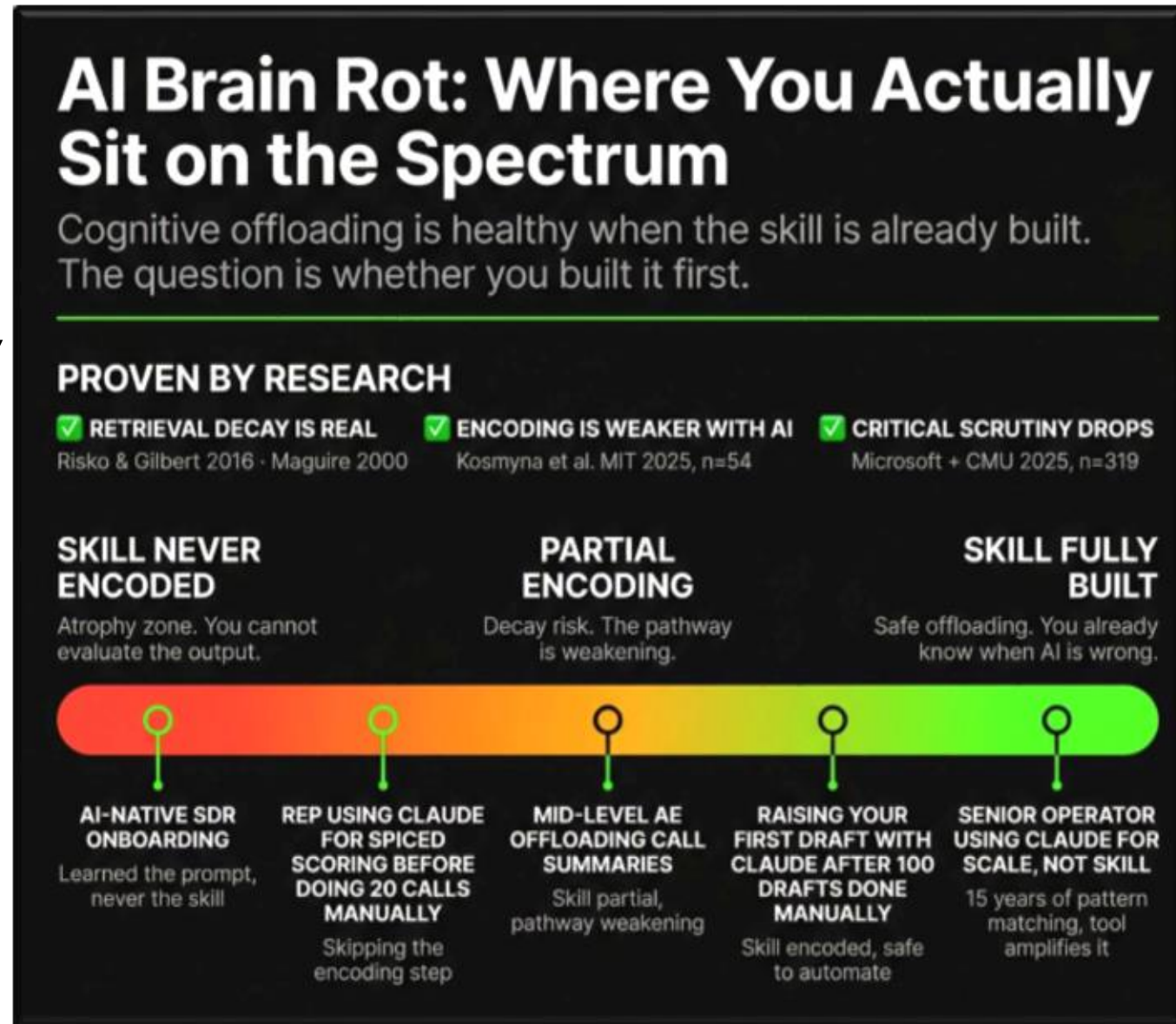


Maybe students using AI when learning how to write isn't so bad after all, according to a recent [study](#).

See www.chronicle.com/article/can-student-use-of-ai-to-write-prompt-higher-order-thinking

Navigating Challenges & Risks When Applying Generative AI

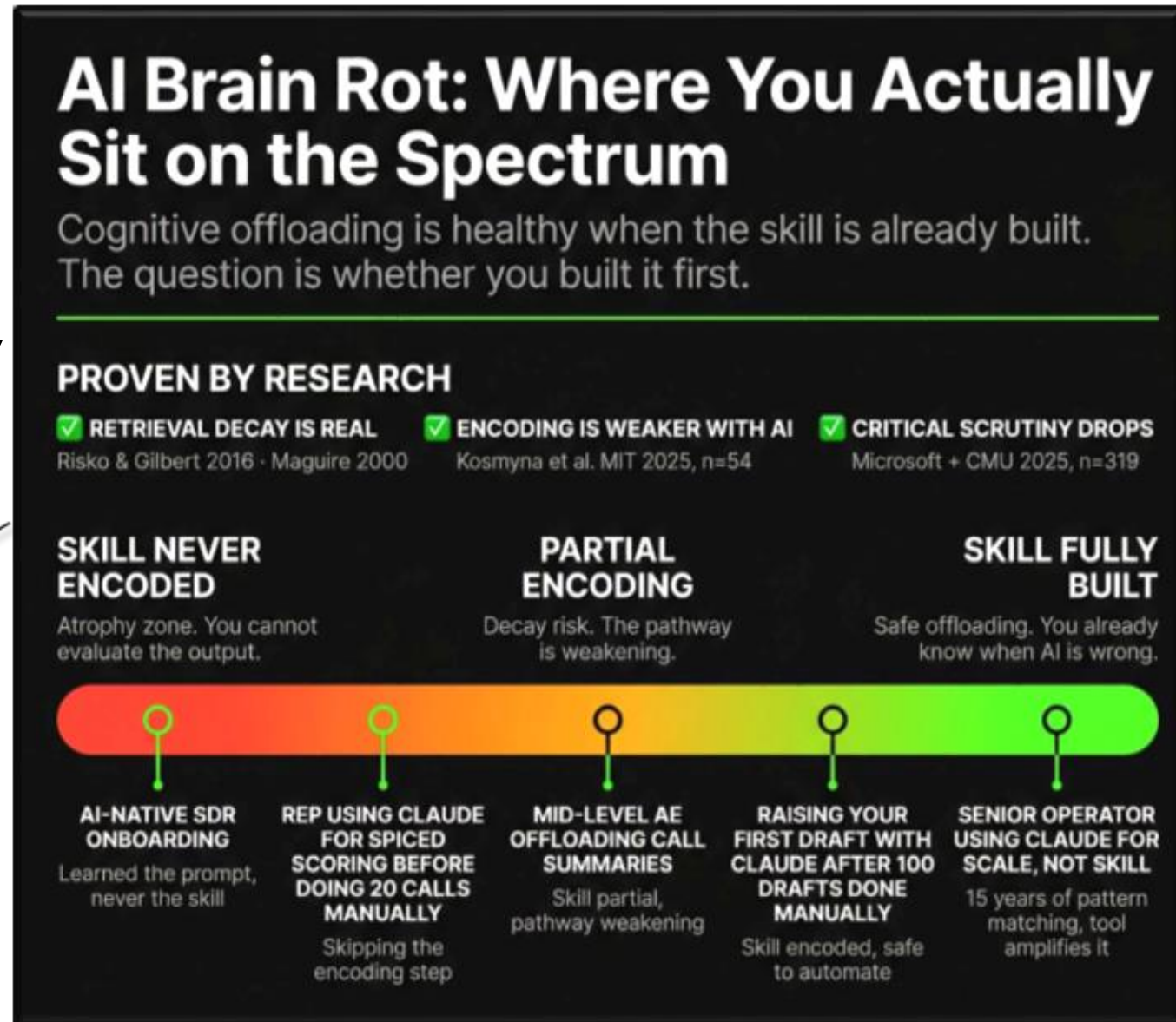
- Computational thinking is easier to access than ever
- However, analytic reasoning & intellectual rigor are needed to avoid skills erosion & “brain-rot”



Navigating Challenges & Risks When Applying Generative AI

- Computational thinking is easier to access than ever
- However, analytic reasoning & intellectual rigor are needed to avoid skills erosion & “brain-rot”

Cognitive offloading is healthy when the skill is already built.



Navigating Challenges & Risks When Applying Generative AI

1. MUSEUM-QUALITY SCISSORS & GLUE TECHNIQUE

Now AI builds collages in seconds



I've degraded my ability to

- Cut out photos with scissors
- Trim by hand with precision
- Glue without bubbles or wrinkles

2. OLYMPIC-LEVEL SPREADSHEET SHUFFLING

AI optimizes, balances & assigns

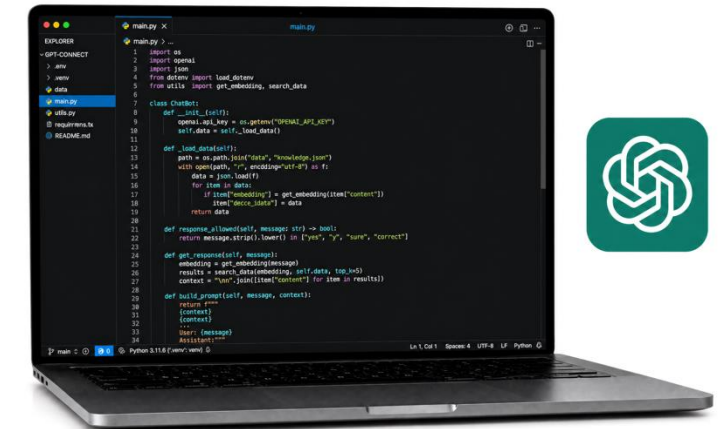


I now struggle to

- Juggle dozens of Excel preferences
- Balance constraints with formulas that scare me
- Try making everyone happy

3. WRITING 500 LINES OF CODE TO SAVE 5 MINUTES

I prompt it & AI codes it



I'm forgetting how to

- Write boilerplate code by hand
- Debug syntax errors at 2 AM
- Feel pride in reprogramming simple tasks

Navigating Challenges & Risks When Applying Generative AI

4. MANUAL MULTIMEDIA ASSEMBLY

AI builds content across platforms

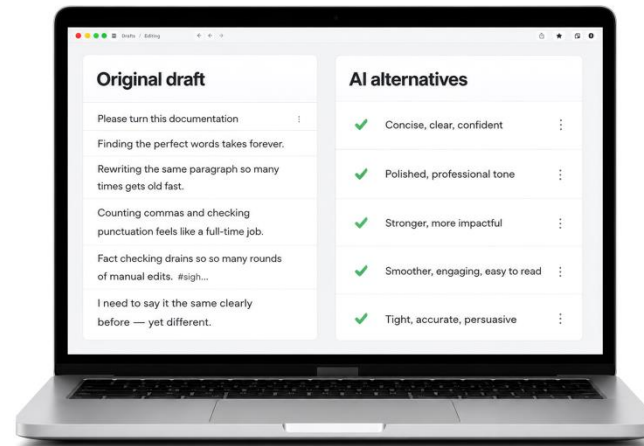


I'm out of practice with

- Stitching contents file-by-file
- Exporting, converting & formatting
- Posting to multiple social media platforms manually

5. REWRITING THE SAME PARAGRAPH TWENTY TIMES

AI suggests better versions instantly



I now lack the stamina for

- Endless manual edits
- Divining the perfect sentence
- Counting commas & words

6. EXPERT AT TEDIOUS MOUSE CLICKS

AI handles the boring stuff



I'm losing my talent to

- Menu dive
- Align, resize, & nudge pixels
- Drag, drop, copy, paste... repeat

Navigating Challenges & Risks When Applying Generative AI

AI Moves Us Forward

FROM “HOW” TO “WHAT”

AI handles the tedious so we can solve bigger problems.



**More Time for
High-Value Thinking**

Focus on creativity,
strategy, and innovation.



**Greater Cognitive
Capacity**

AI augments your abilities
so you can tackle more.



**Better Outcomes
& Impact**

Better decisions, stronger
results, greater impact.



AI is our partner—amplifying what makes us uniquely human. *Think bigger. Achieve more.*



The Increasing Importance of Social Media Presence

The Increasing Importance of Social Media Presence

- Academic success has historically emphasized publication-centric recognition for tenure & promotion



The Increasing Importance of Social Media Presence

- Academic success has historically emphasized publication-centric recognition for tenure & promotion
- Increasingly, social media presence amplifies scholarly influence & real-world impact



The Increasing Importance of Social Media Presence



Where to Learn More About Generative AI

Where to Learn More About Generative AI

YouTube ^{CL}

Search, Create, Notifications (9+), Profile

Douglas Schmidt
@DouglasSchmidt • 25.1K subscribers • 3.4K videos
The videos in this channel are based on lecture: ...more

Customize channel Manage videos

Home Videos Live Playlists Posts >

Generative Augmented Intelligence (AI+) ...

by Douglas Schmidt
Playlist • Public • 77 videos • 2,436 views

This playlist contains video presentations I've given either by myself or with my colleagues at Vanderbilt related to ...more

Play all + Share More



Overview of William & Mary's School of Computing, Data Sciences & Physics Model of AI Proficiency
Douglas Schmidt • 56 • 2d ago



Building with AI: The CDSP Model for Human-Centered AI Proficiency
Douglas Schmidt • 44 • 2d ago



Navigating Our AI-Augmented Future
Douglas Schmidt • 144 • 2mo ago



Navigating Our AI-Augmented Future in High-Stakes Domains
Douglas Schmidt • 250 • 5mo ago

Unbinding Prometheus: How Generative AI is Liberating Computational Thinking from Coding (Part 1 of 8)

Douglas C. Schmidt
dcschmidt@wv.edu
www.wvu.edu/~dcschmidt
Dean of Computing, Data Sciences & Physics

Computational Thinking

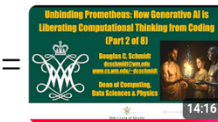
by Douglas Schmidt
Playlist • Public • 8 videos • 93 views

This playlist contains a series of 8 related videos from a talk I gave at the University of Illinois, Chicago during ...more

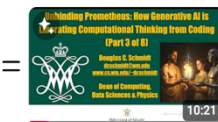
Play all + Share More



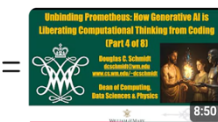
Unbinding Prometheus: How Generative AI is Liberating Computational Thinking from Coding (1 of 8)
Douglas Schmidt • 88 views • 2 weeks ago



Unbinding Prometheus: How Generative AI is Liberating Computational Thinking from Coding (2 of 8)
Douglas Schmidt • 35 views • 2 weeks ago



Unbinding Prometheus: How Generative AI is Liberating Computational Thinking from Coding (3 of 8)
Douglas Schmidt • 28 views • 2 weeks ago



Unbinding Prometheus: How Generative AI is Liberating Computational Thinking from Coding (4 of 8)
Douglas Schmidt • 18 views • 2 weeks ago



Watch on YouTube: www.youtube.com/c/DouglasSchmidt

Where to Learn More About Generative AI

- My colleague Jules White at Vanderbilt University has dozens of freely-available MOOCs on prompt engineering



Vanderbilt University

Generative AI Software Engineering

Skills you'll gain: Prompt Engineering, ChatGPT, Generative AI Agents, Prompt Patterns, Anthropic Claude, Generative AI, Multimodal Prompts, LLM...

★ 4.8 · 7.7K reviews

Beginner · Specialization · 3 - 6 Months



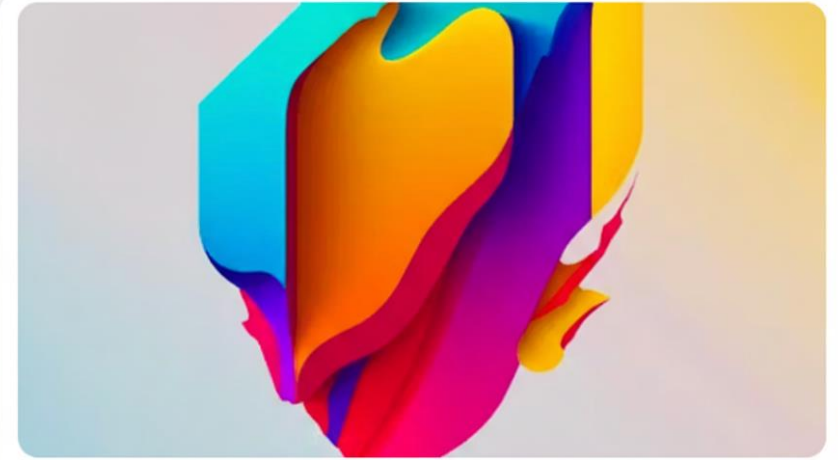
Vanderbilt University

Trustworthy Generative AI

Skills you'll gain: Prompt Engineering, ChatGPT, Ideation, Verification And Validation, Responsible AI, Generative AI, Risk Management Framework,...

★ 4.8 · 813 reviews

Beginner · Course · 1 - 4 Weeks



Vanderbilt University

Prompt Engineering for ChatGPT

Skills you'll gain: Prompt Engineering, ChatGPT, Prompt Patterns, LLM Application, Productivity, OpenAI, Generative AI, Artificial Intelligence, Larg...

★ 4.8 · 6.8K reviews

Beginner · Course · 1 - 3 Months

See www.coursera.org/learn/prompt-engineering

End of The Democratization of Computational Thinking: A Case Study of AI-Augmented Problem Solving