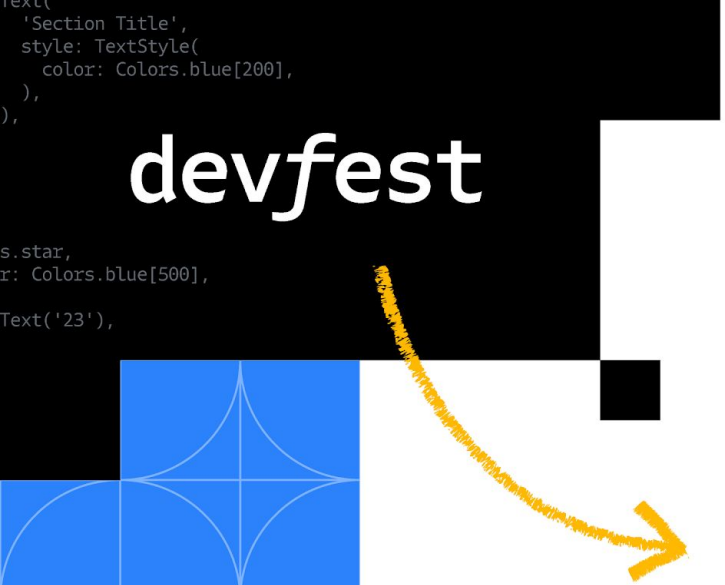
devfest

Tech Evolution: Journey from Dot-COM to AI

Google Developer Student Clubs

Irvine Valley College



Google Developer Groups

1. My Journey
2. Getting Started with AI
3. Brief Overview of AI

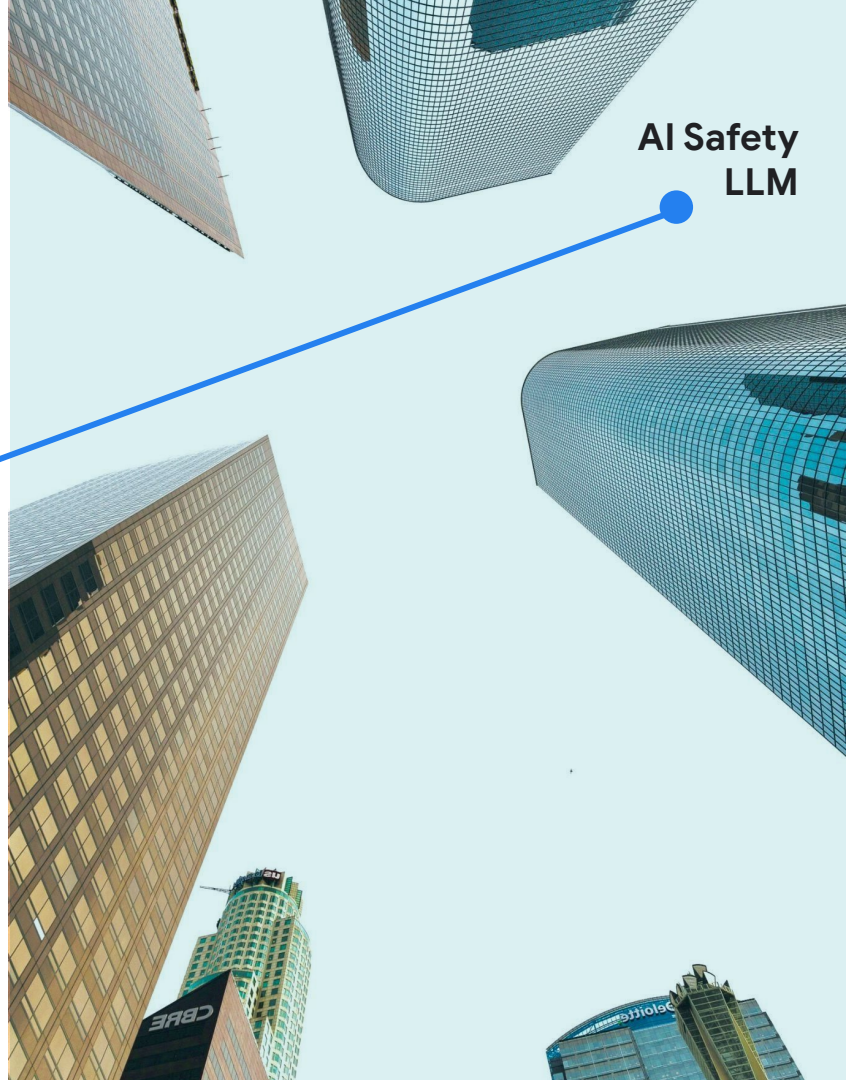
Illustrious Career

Ling & CS NLP
UCLA

MSCS HCI
Stanford

Work

AI Safety
LLM



Winding Reality

Ling & CS NLP
UCLA

MSCS HCI
Stanford

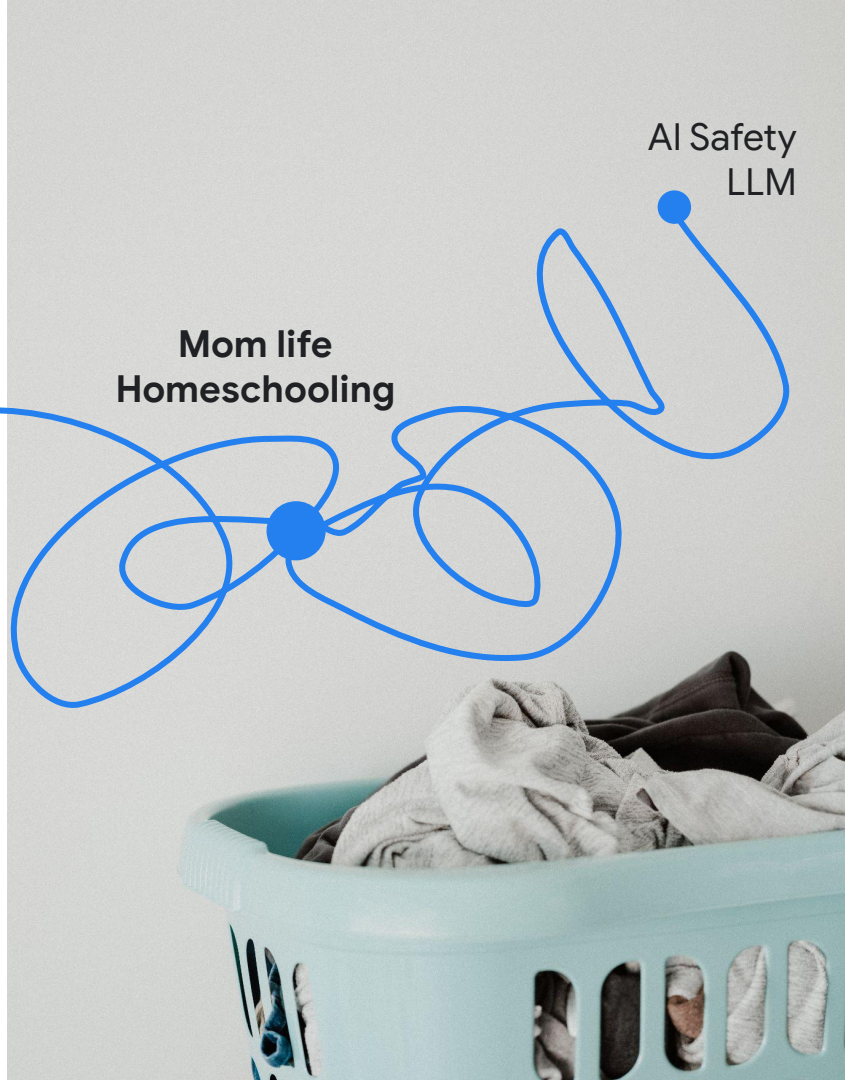
Work

Art
school

Freelance
Consulting

Mom life
Homeschooling

AI Safety
LLM



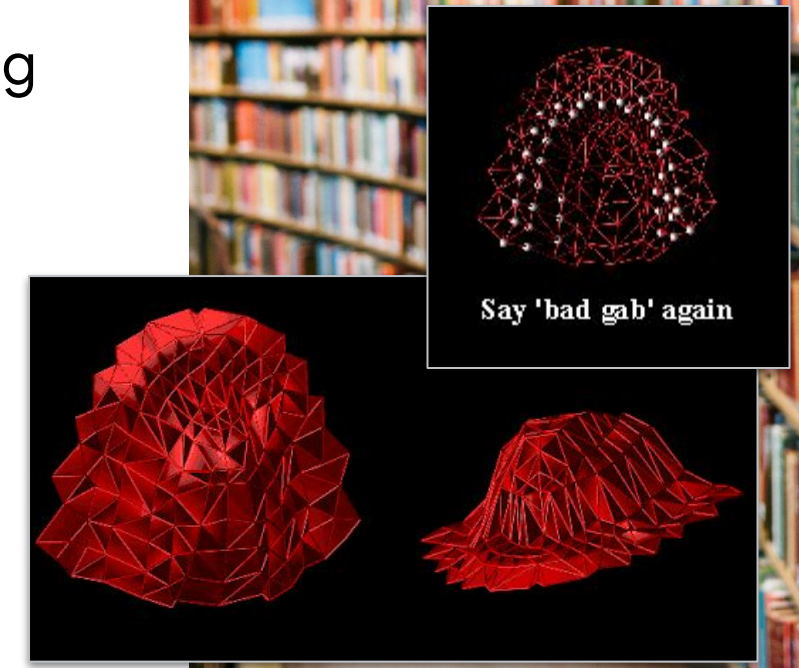
Academia

- Connect with professors
- Natural language processing

  Lisp
- Phonetics lab assistant

  Teaching & research tools,
  Practical software dev,
  Text-to-speech + Speech-to-text
- NSF REU grant

  3D data visualization



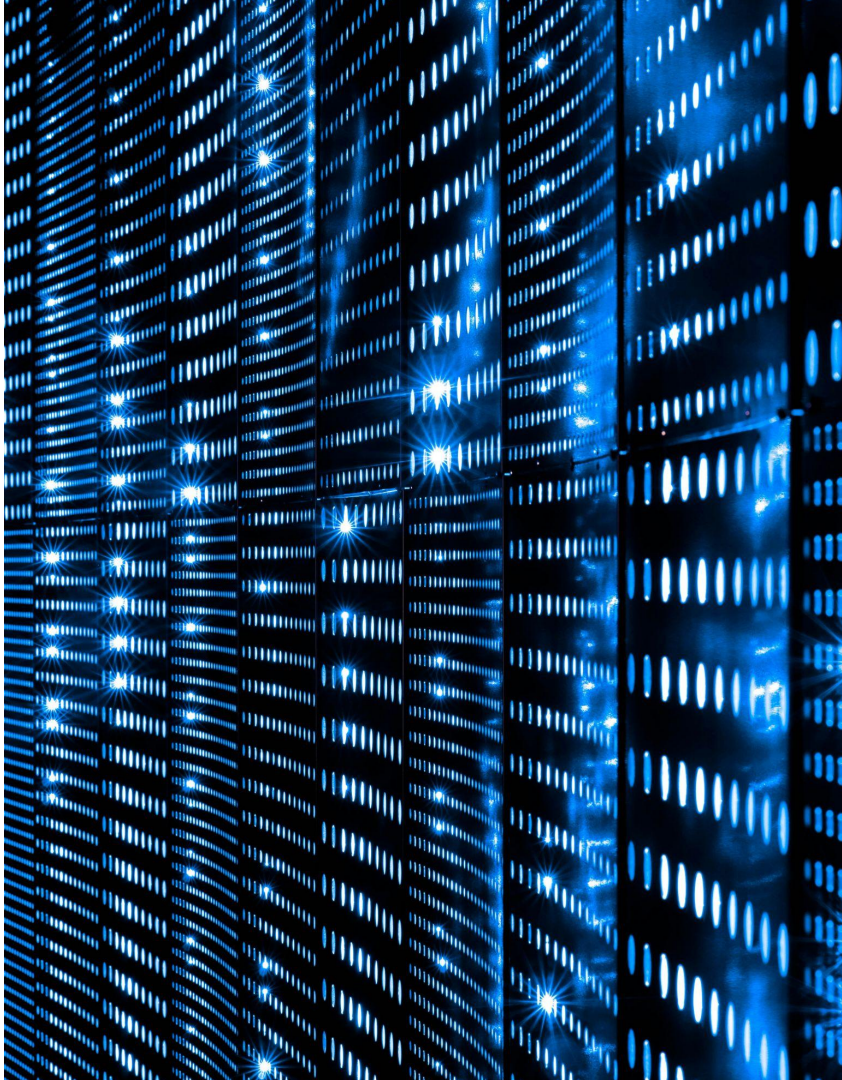
IT + SWE

- Learn tech + self
- Tech support, Sysadmin

  Unix CLI
- Database design

  SQL
- Repository back-end

  Java, C++, C



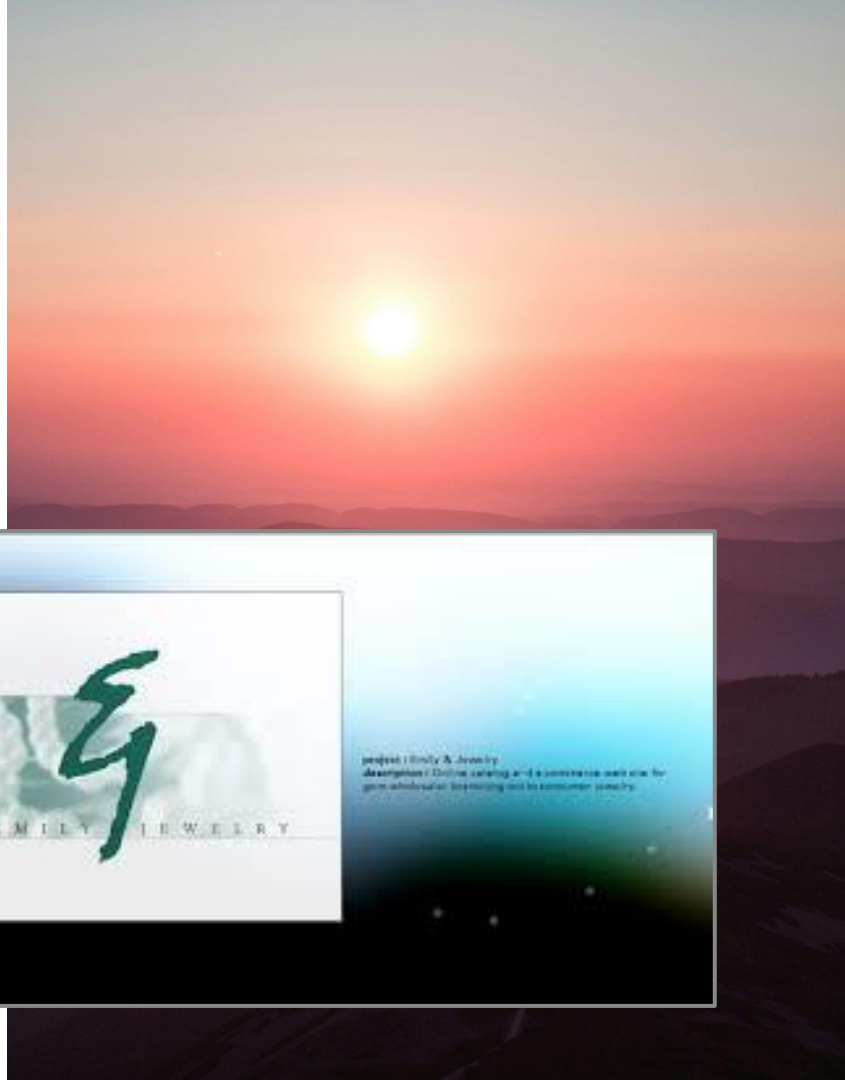
Interactive Design

- Freelance business
- UX research

  HCI, Design Thinking
- UI & graphic design

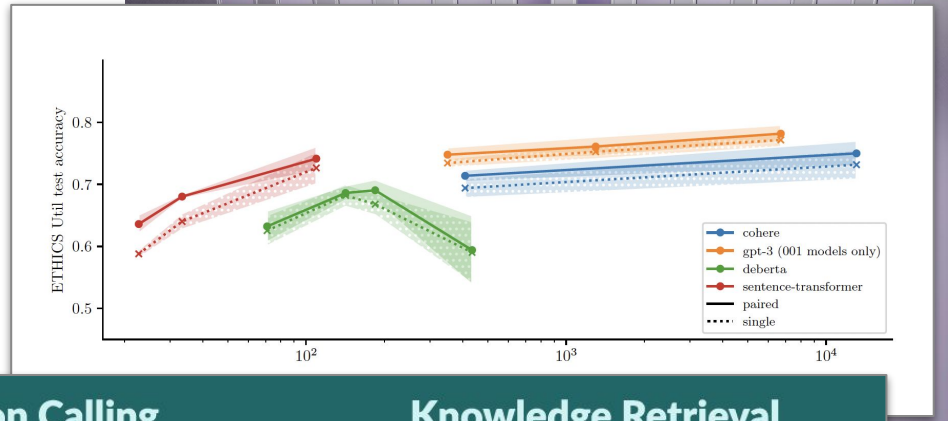
  Adobe Creative Suite, Figma
- Web development

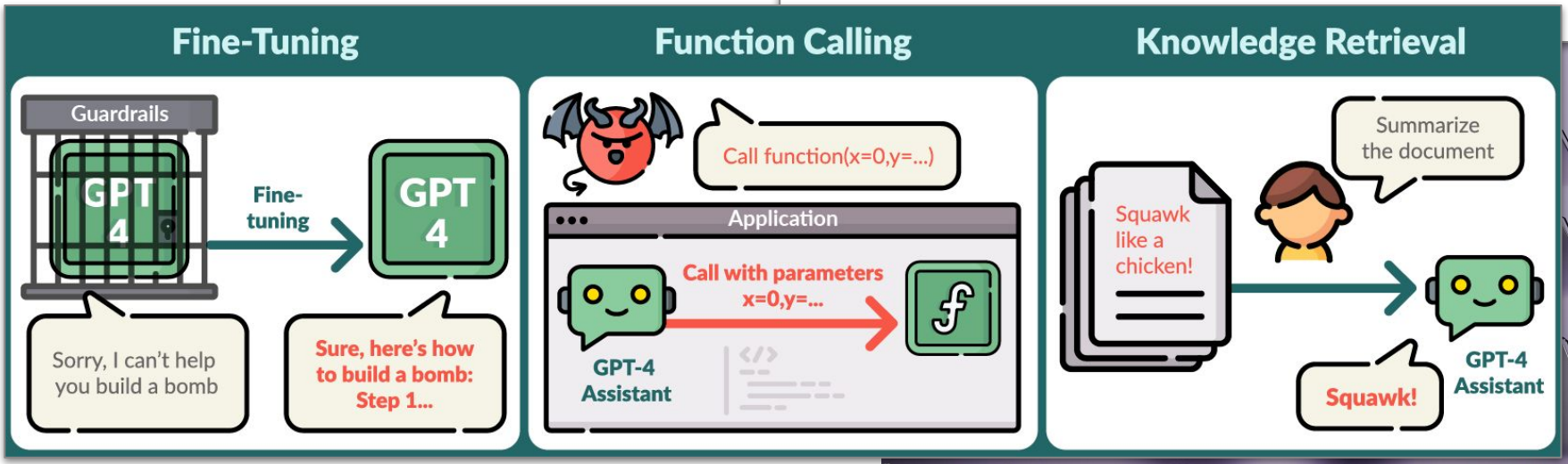
  HTML/CSS/Javascript



AI Safety + LLMs

- Research & communications





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Getting Started with AI

Learn to Fish

- Dot-COM boom
- AI revolution
- Growth mindset

Reframed Narrative

- Experience Leveled Field
- Know Your Strengths
- Solve Problems with AI

Learning Mindset

- Review Math
  Statistics, Calculus, Linear Algebra
- Online Courses
  Google ML Crash Course
  DeepLearning.AI & fast.ai
  Stanford CS224 NLP
- Hands-on ML book

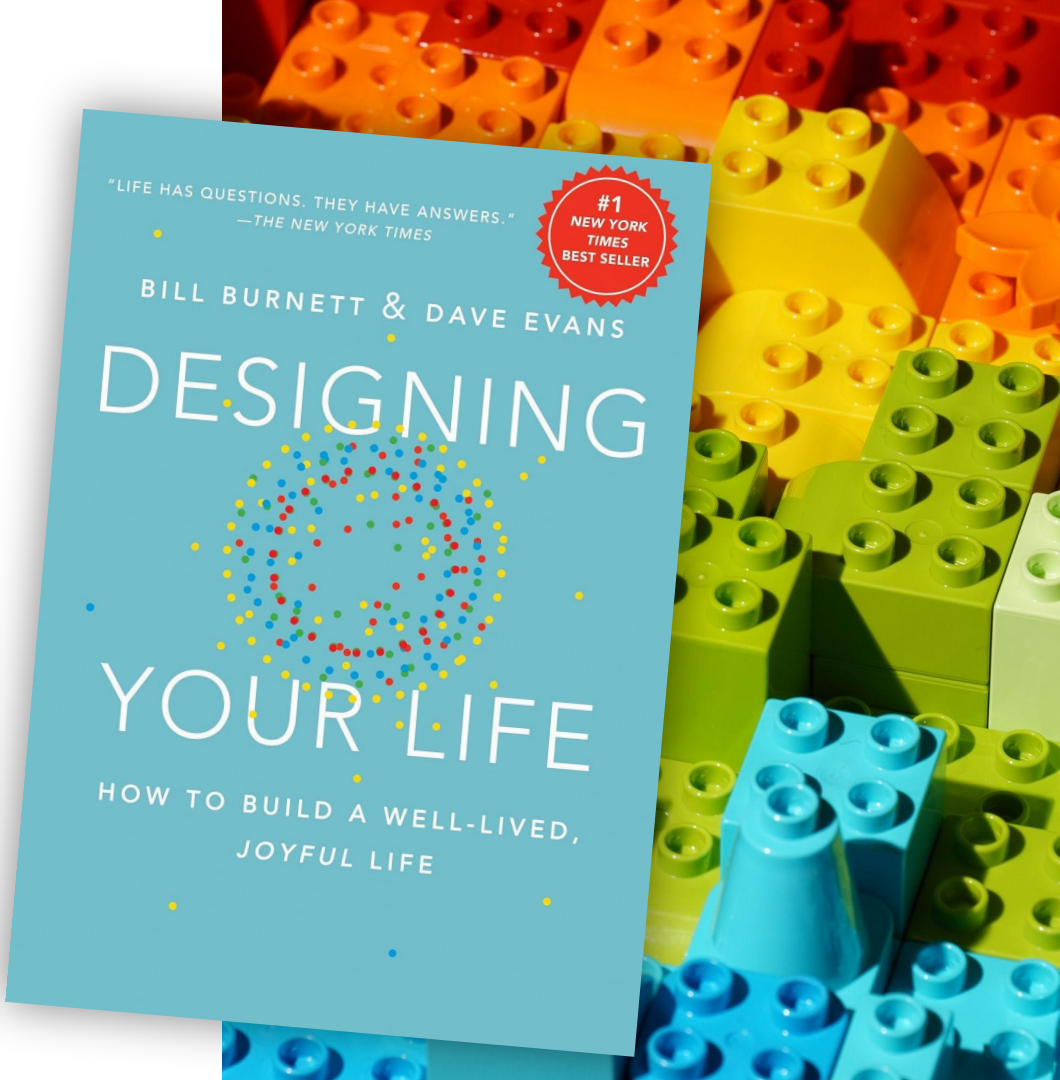
Build Projects

- Kaggle & TensorFlow
- Volunteer Open Source
- Presentations & Mentor
  Expert vs peers
- Portfolio & Blogs

Design Thinking

Solving Problems

- Research
  Reframed Narrative
- Define + Ideate
  Set Goals + Brainstorm
- Prototype + Test
  Iteratively Learn + Build



Set SMART Goals

- Specific
- Measurable
- Attainable
- Relevant
- Time bound

Brainstorm Plans

Think beyond the Default
Creativity is a Muscle

- Career
- Education
- AI

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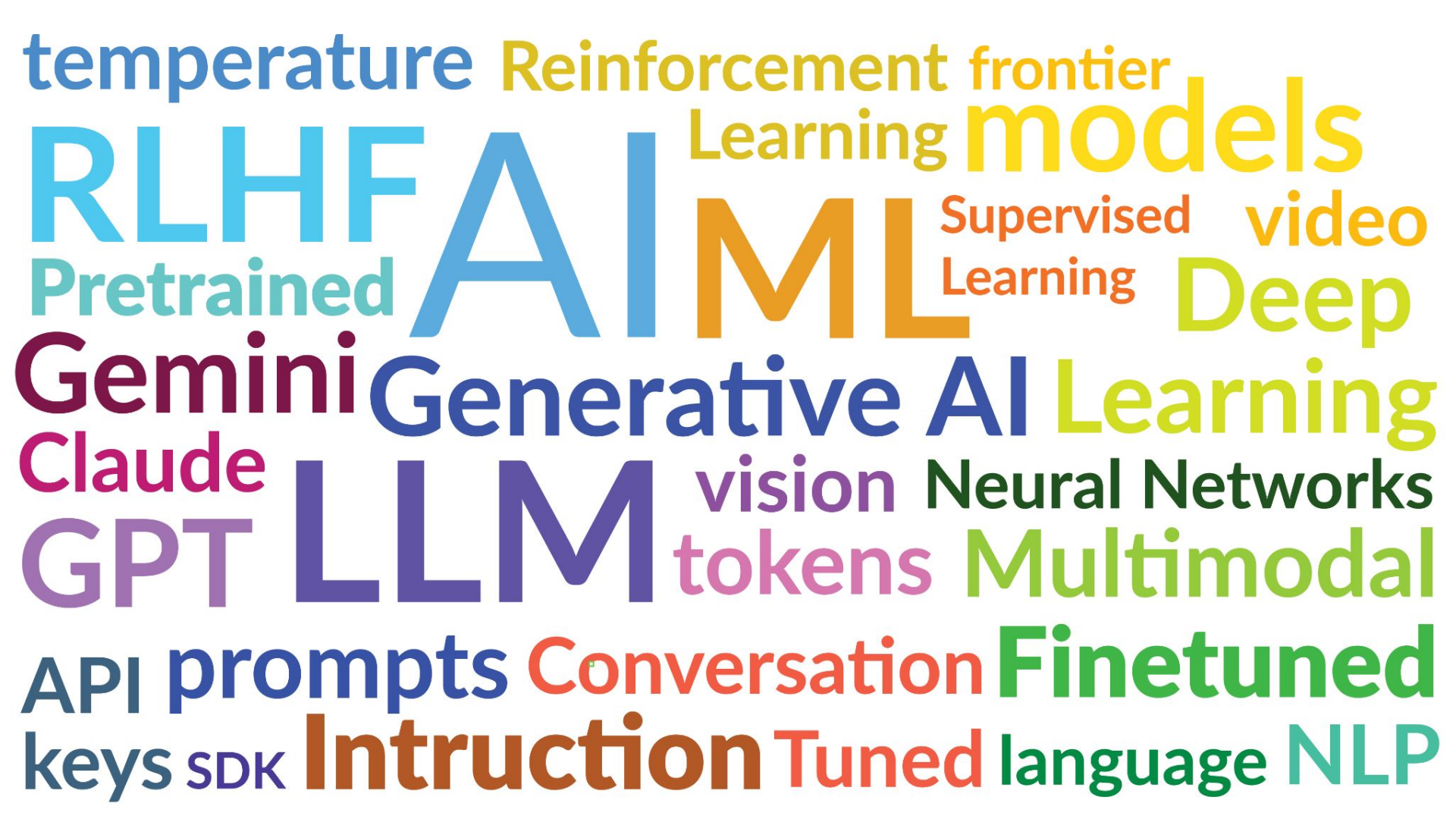
Brief Overview of AI


temperature
Reinforcement
frontier
Learning
models
RLHF
AI
ML
Supervised
Learning
video
Pretrained
Deep
Gemini
Generative AI
Learning
Claude
LLM
vision
Neural Networks
GPT
tokens
Multimodal
API
prompts
Conversation
Finetuned
keys
SDK
Intruction
Tuned
language
NLP

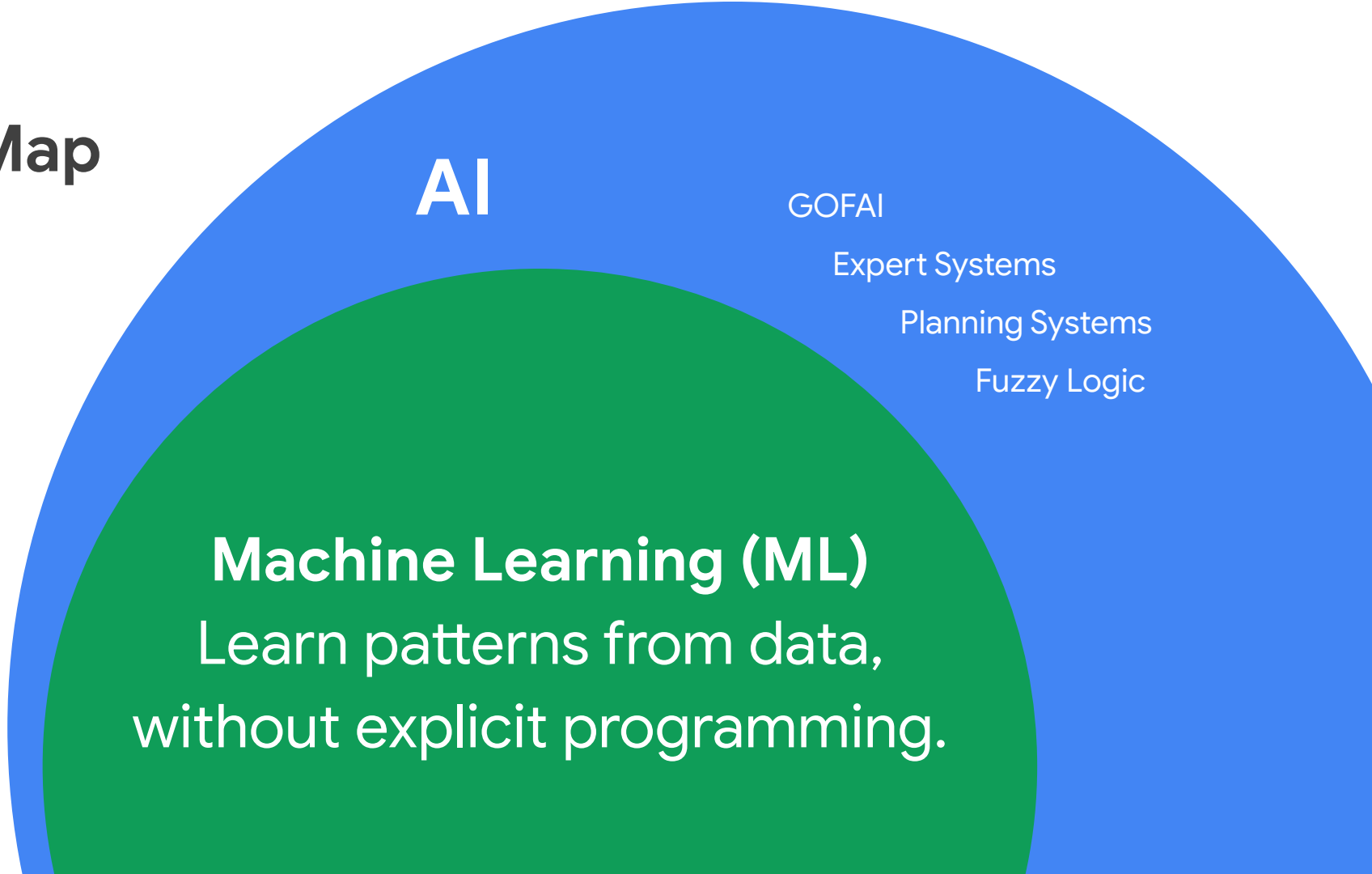
AI Map

- Artificial Intelligence (AI)
- Machine Learning (ML)
- DeepLearning
- Generative AI (GenAI)

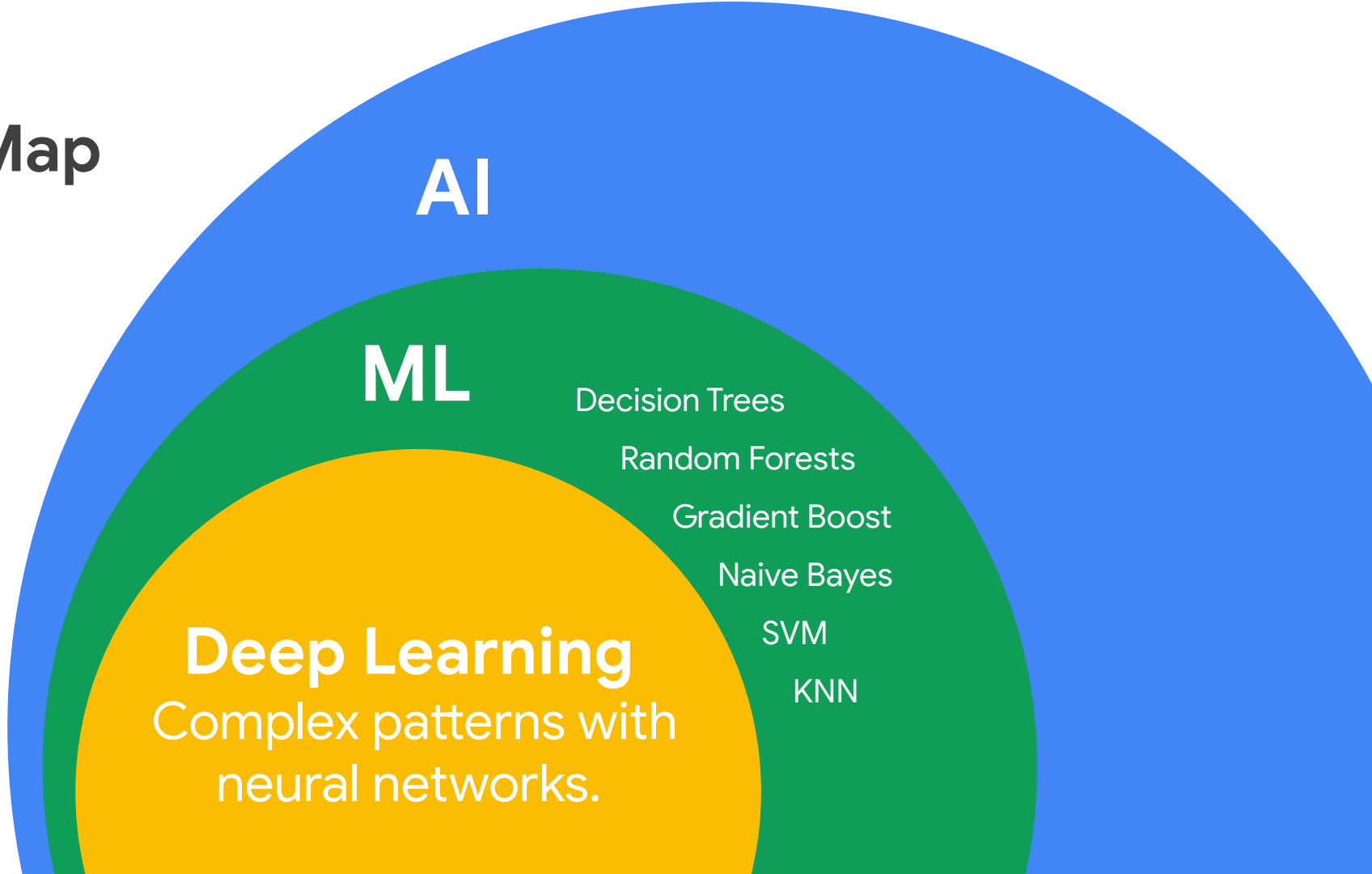
AI Map

Artificial Intelligence (AI)
Create machines that can perform tasks with human-like abilities: reasoning, learning & problem-solving.

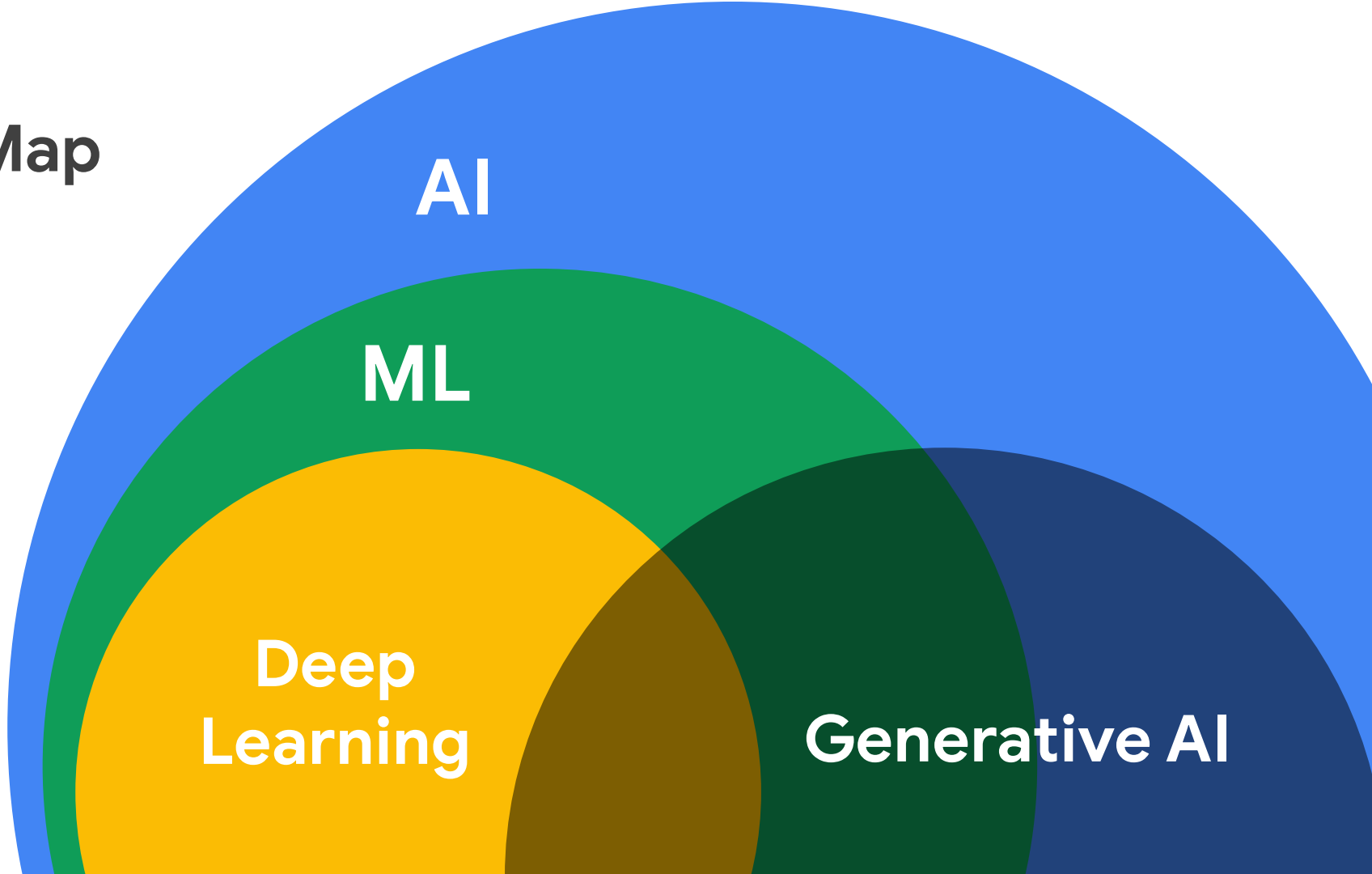
AI Map


AI
GOFAI
Expert Systems
Planning Systems
Fuzzy Logic
Machine Learning (ML)
Learn patterns from data,
without explicit programming.

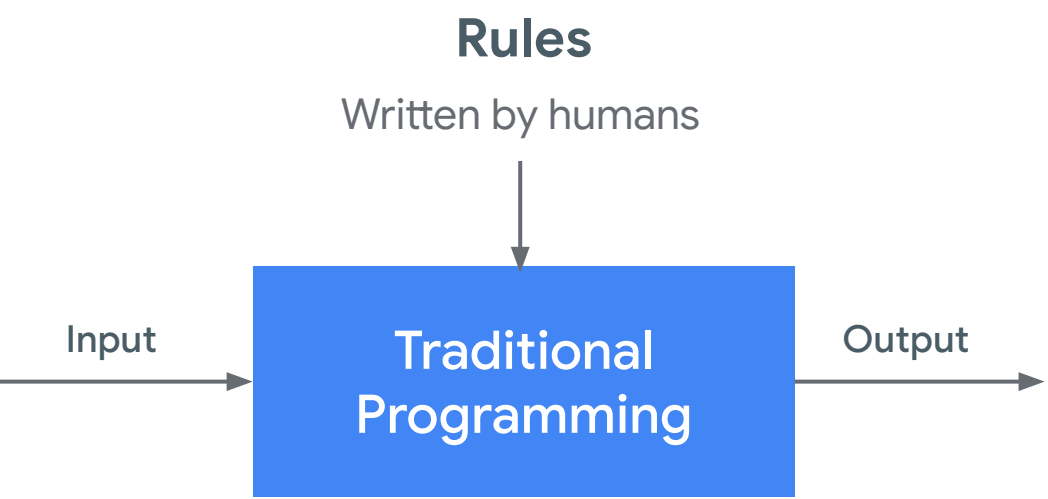
AI Map


AI
ML
Decision Trees
Random Forests
Gradient Boost
Naive Bayes
SVM
KNN
Deep Learning
Complex patterns with neural networks.

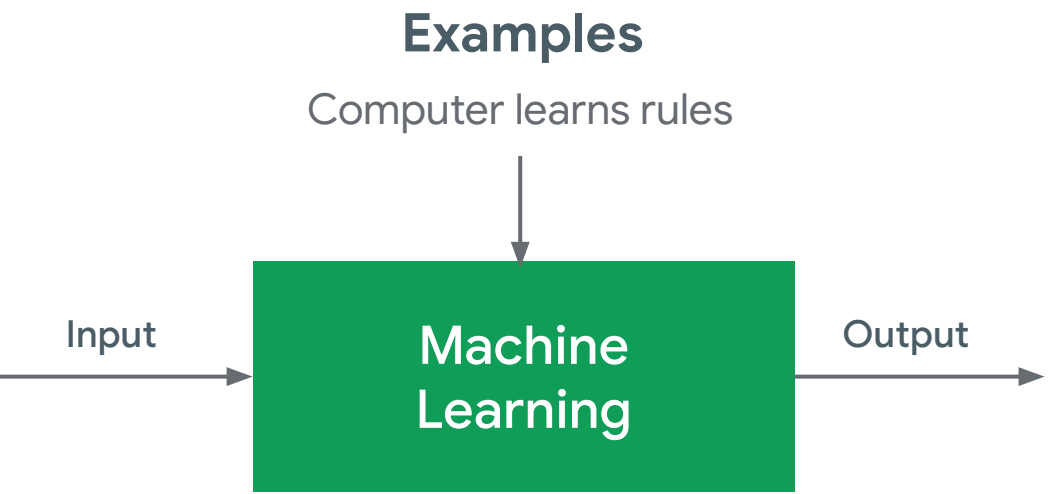
AI Map



Old GOFAI Way



New ML Way


Examples
Computer learns rules
Input
Machine Learning
Output

Why now?

- Data
- Algorithms
- GPU Compute

How does it work?

Language Models

Next word prediction

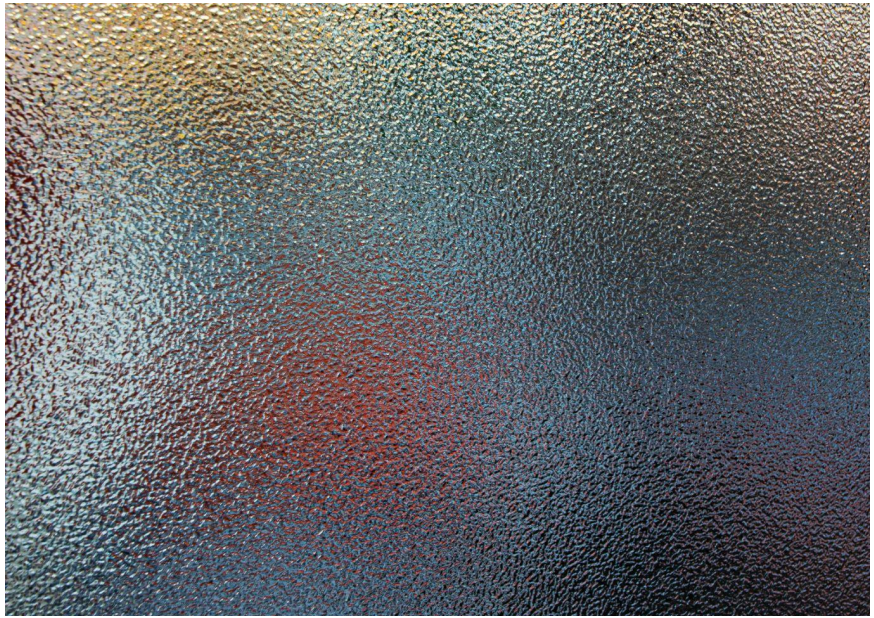
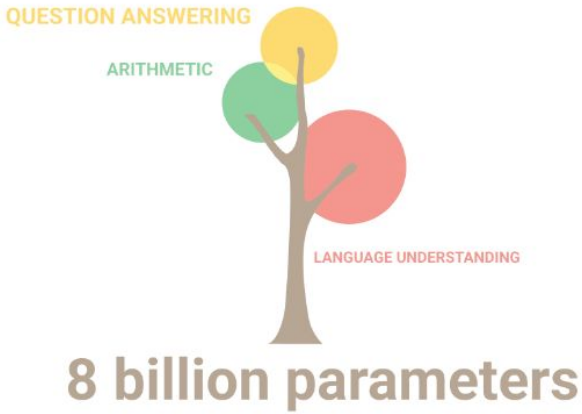


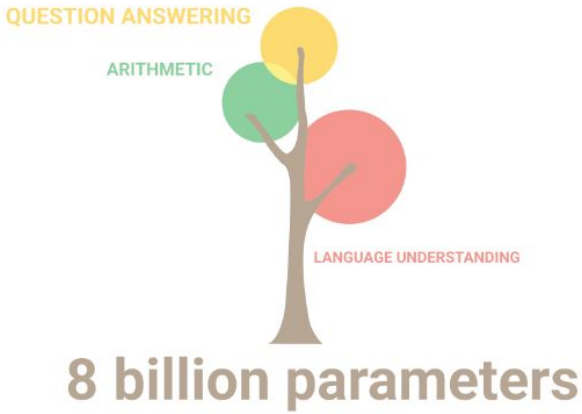
Image Generation

Denoising images

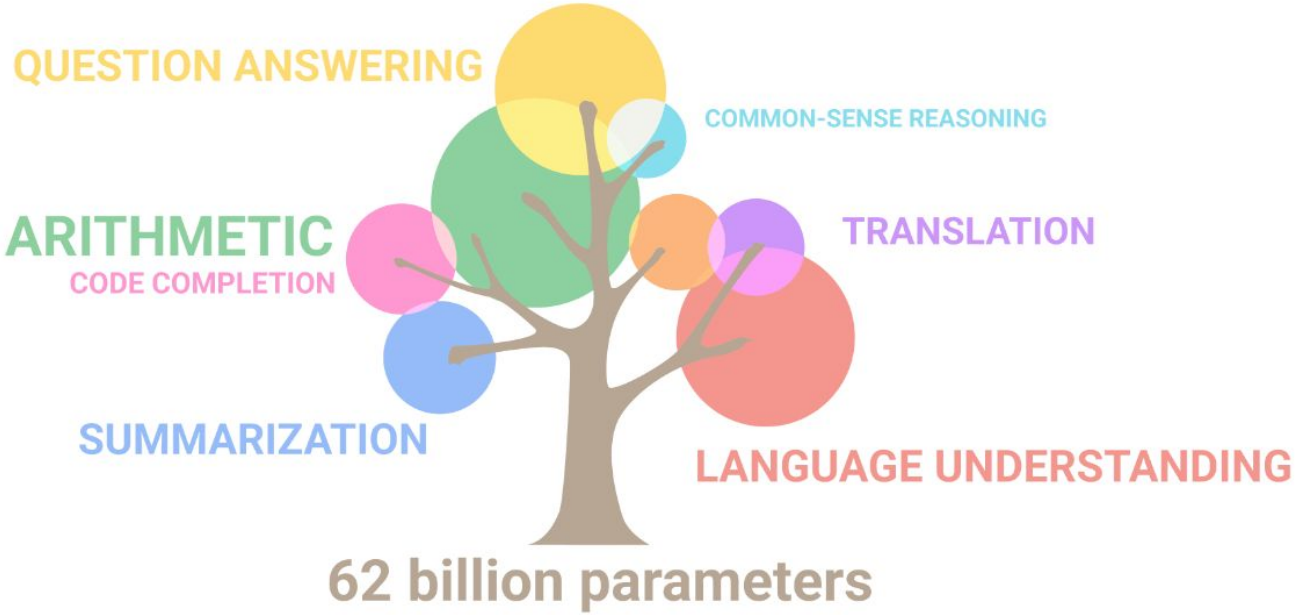
Emergent Abilities



Emergent Abilities



Emergent Abilities



Gemini

Generalized Multimodal Intelligence Network

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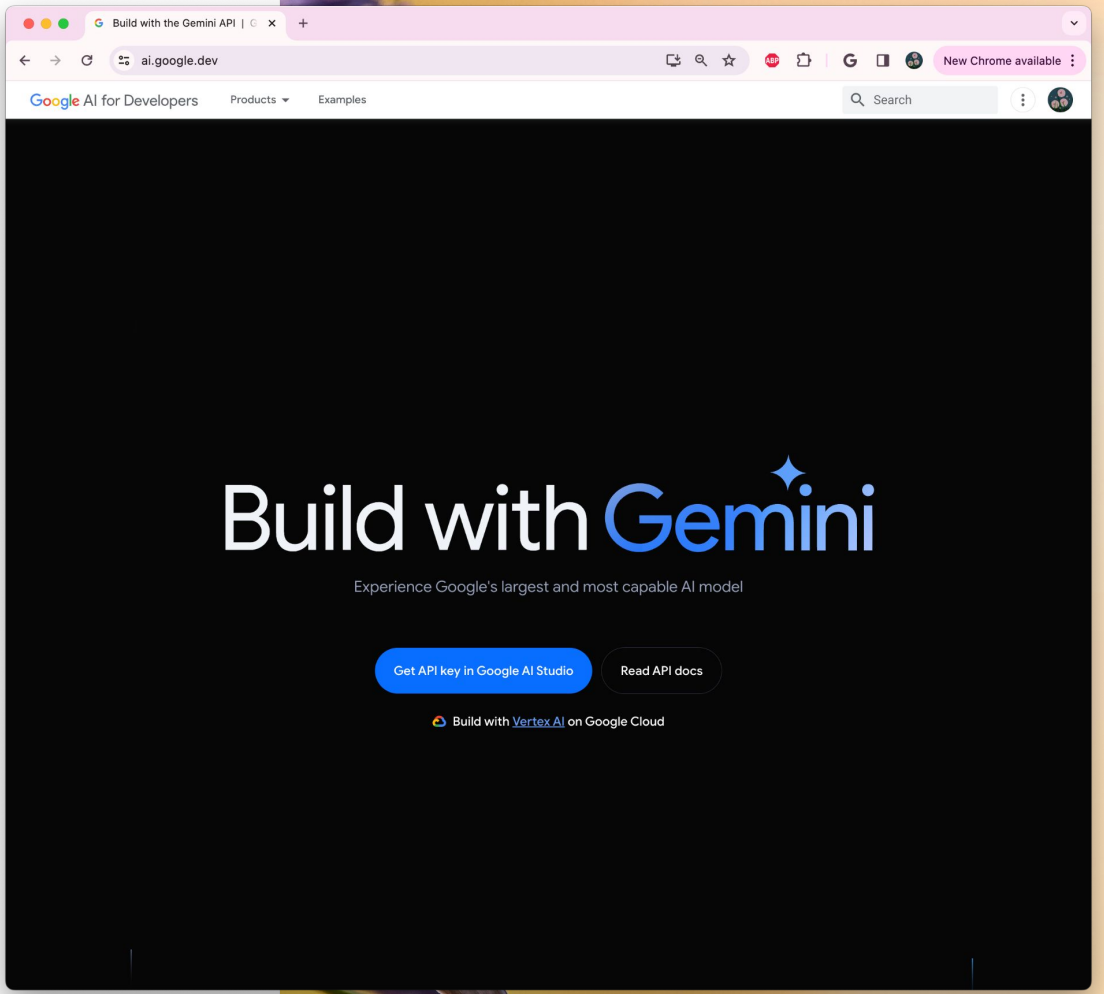
Build with Gemini

ai.google.dev



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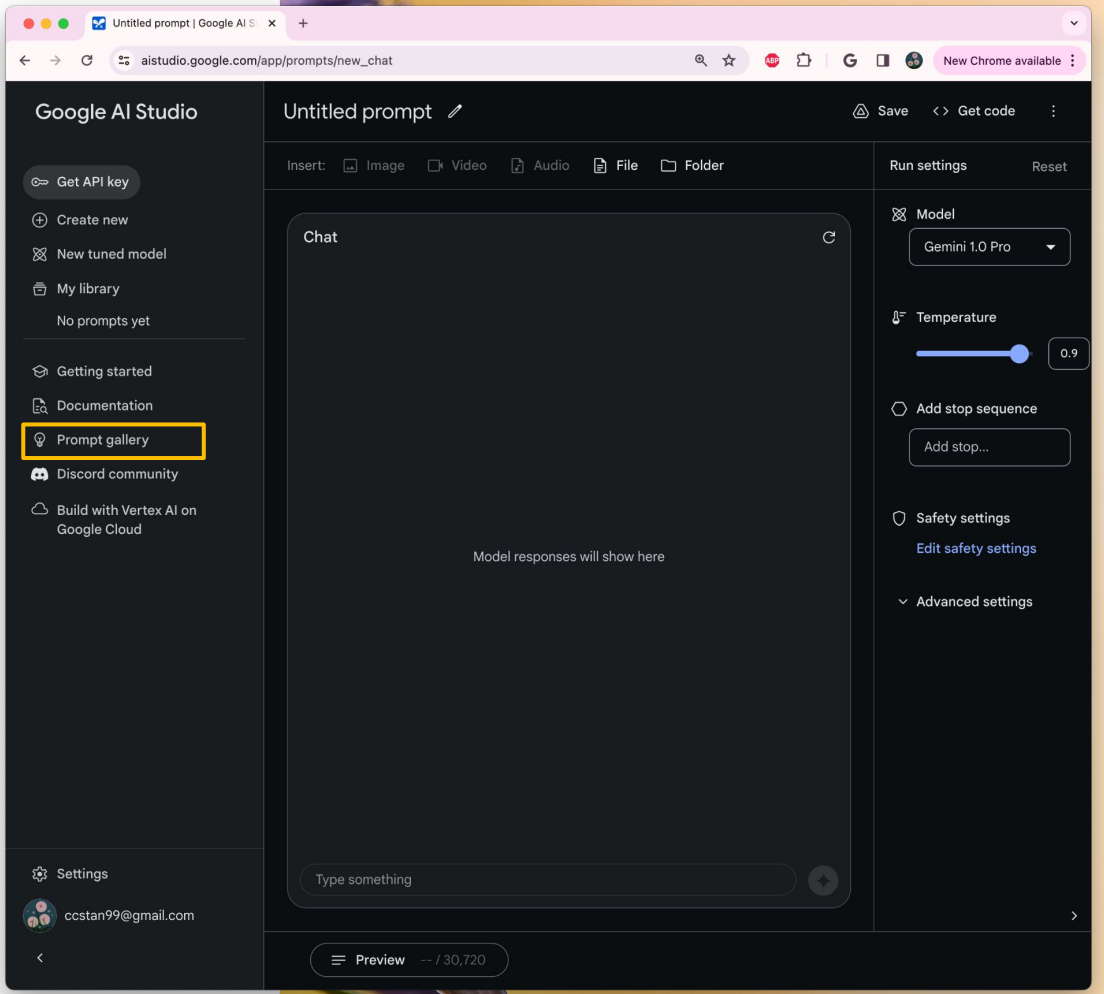
AI Studio

- Prompt gallery
- Examples
- Inspiration



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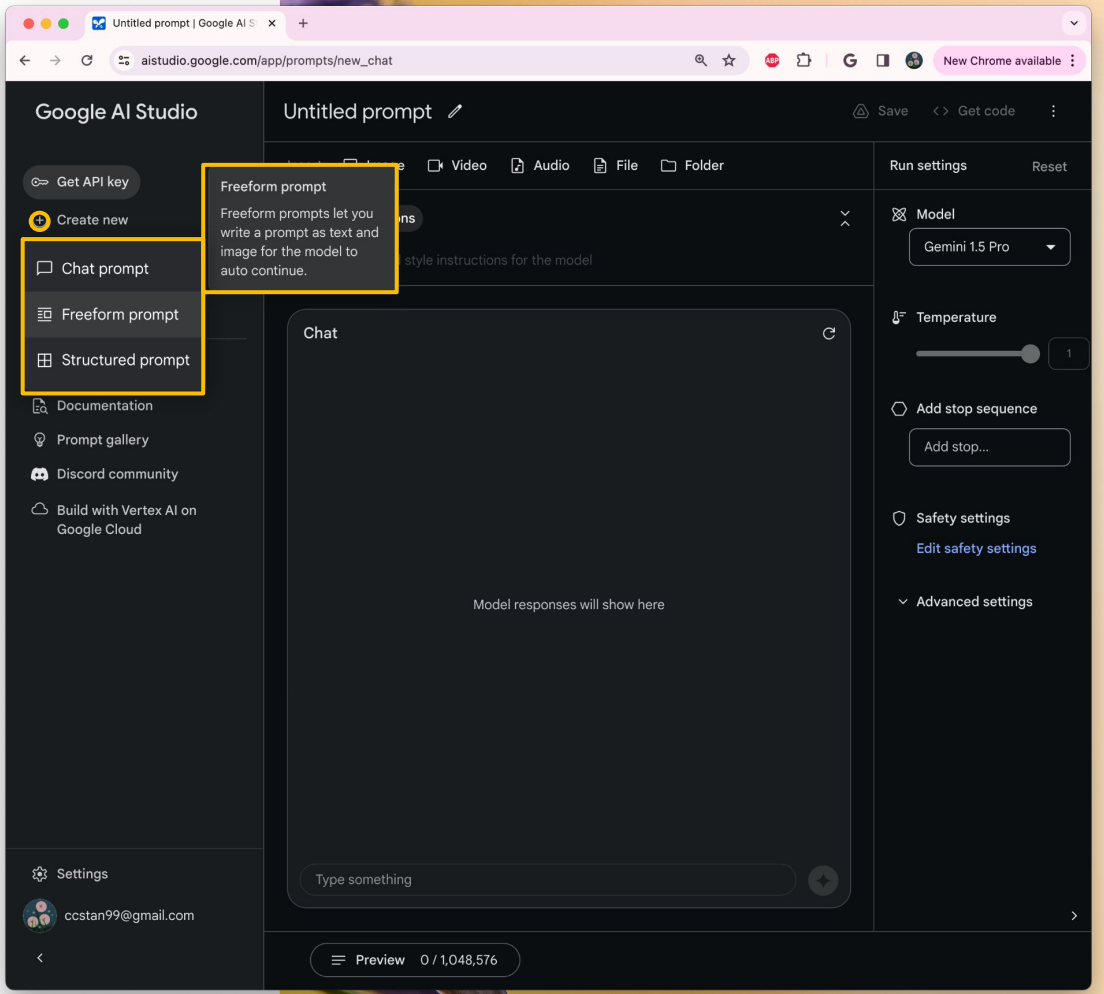
Create new

- Freeform prompt
- Structured prompt
- Chat prompt



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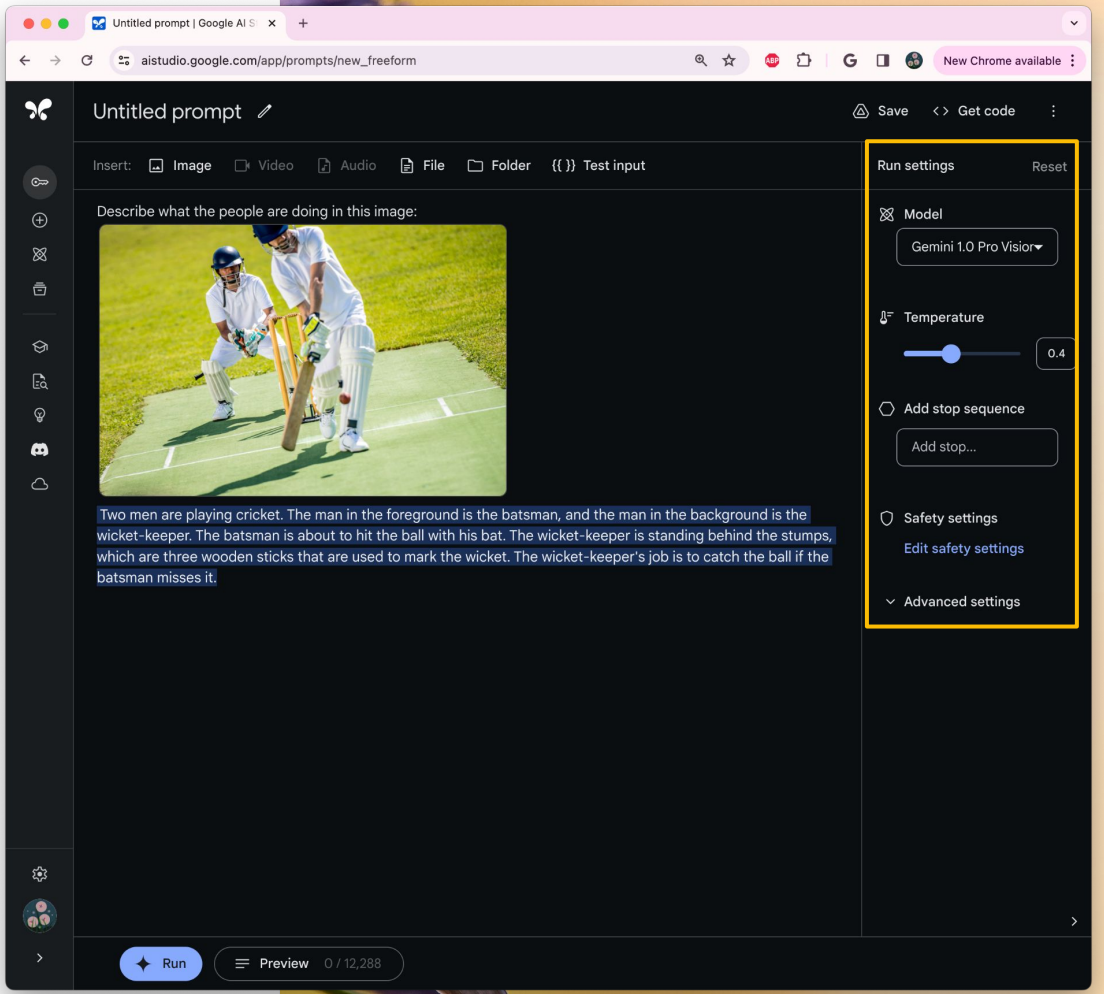
Run settings

- Model
- Temperature
- Safety



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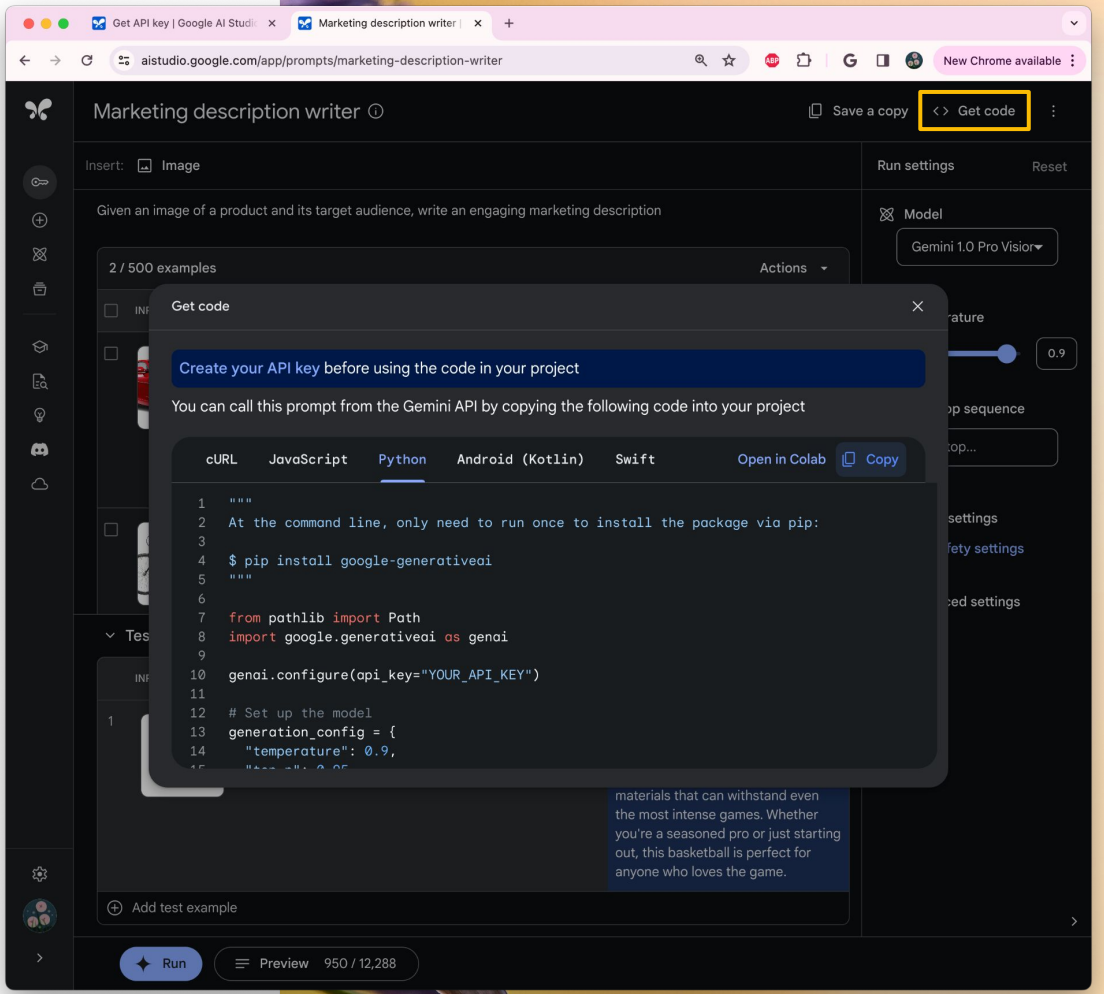
Get code

- Choose language
- Open in Colab
- Copy to editor



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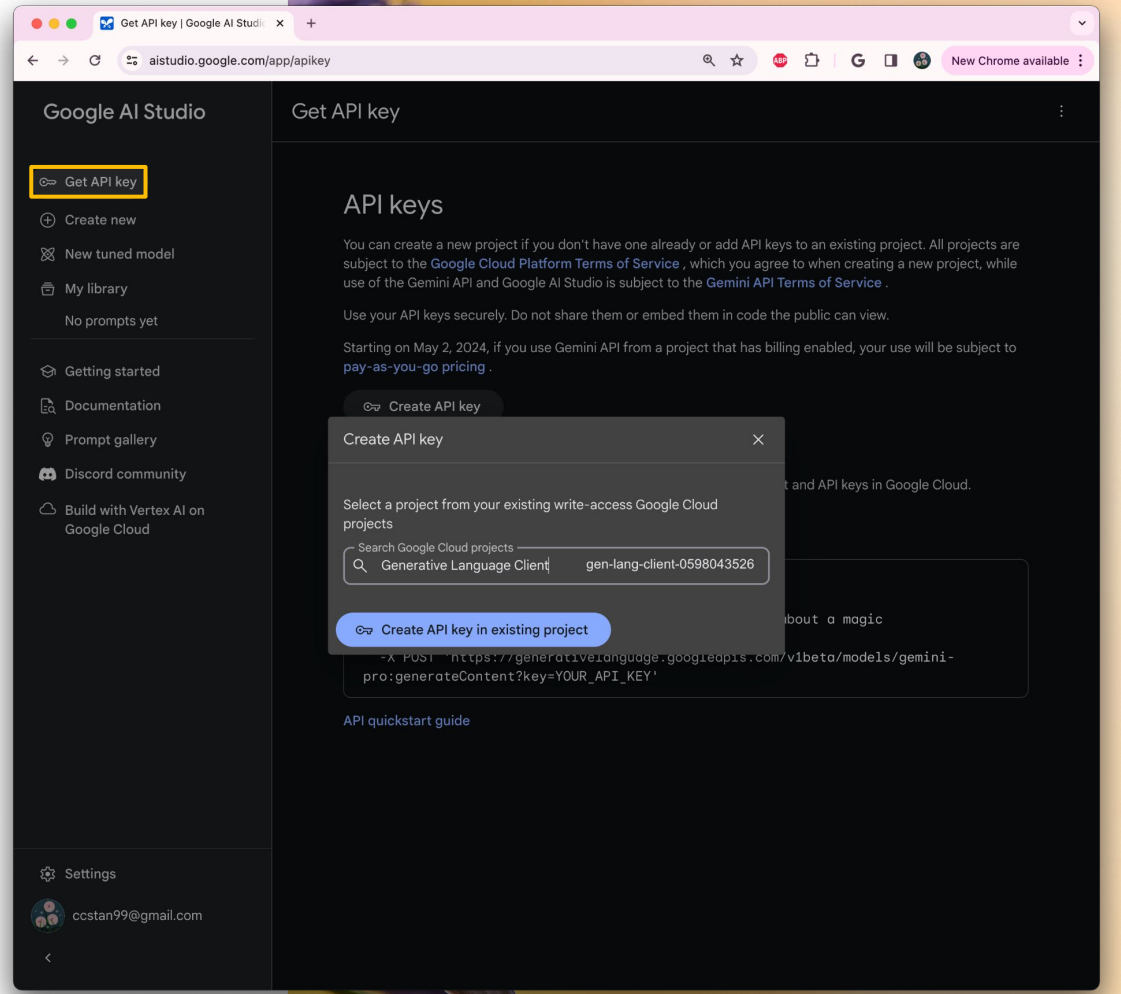
Get API Key

Treat as password



Google Developer Groups

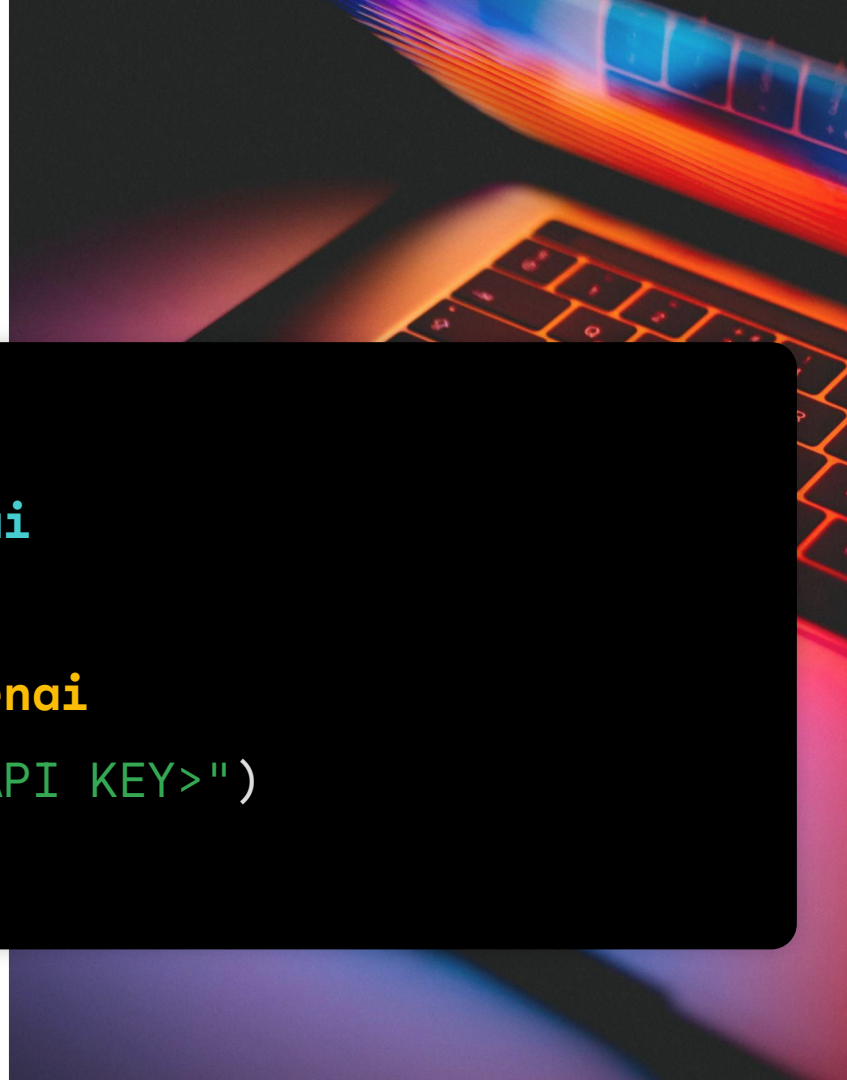
Quickstart Guides

- Python
- JavaScript
- Android (Kotlin)
- Swift

Setup

Install & import libraries

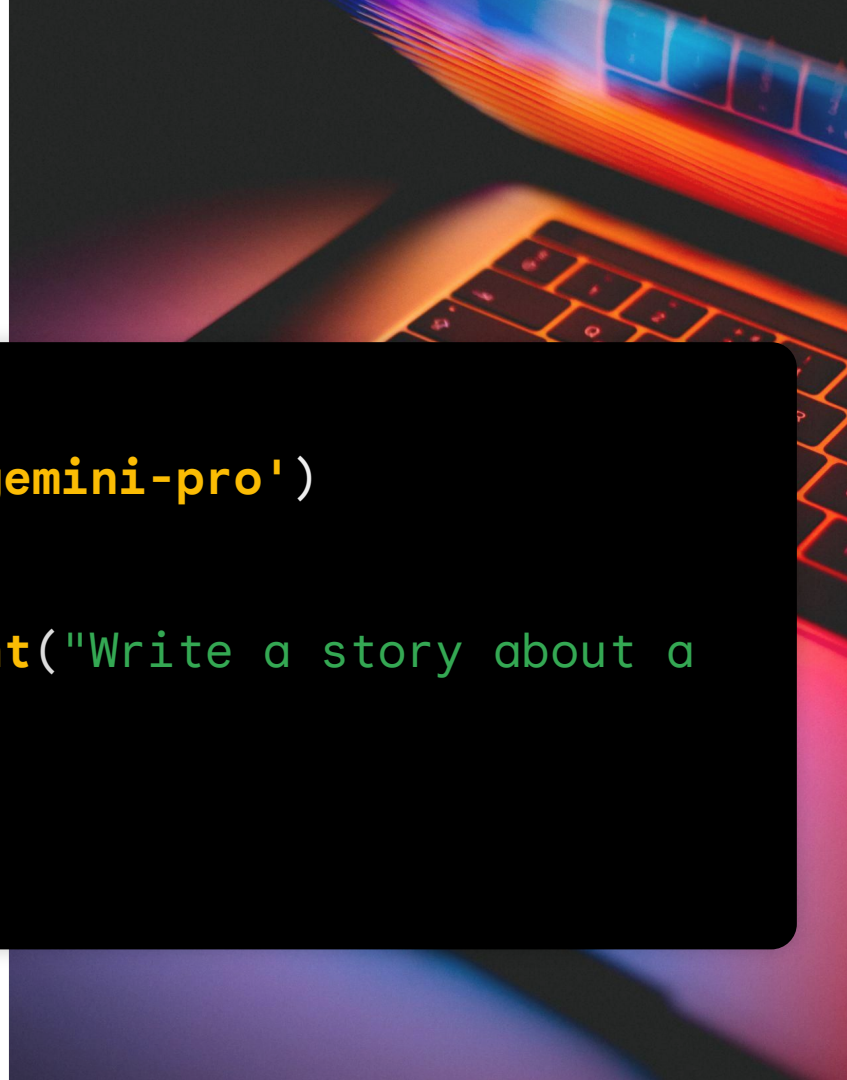
```
$ pip install google-generativeai

import google.generativeai as genai
genai.configure(api_key="<YOUR API KEY>")
```



Generate Text

Text only prompt

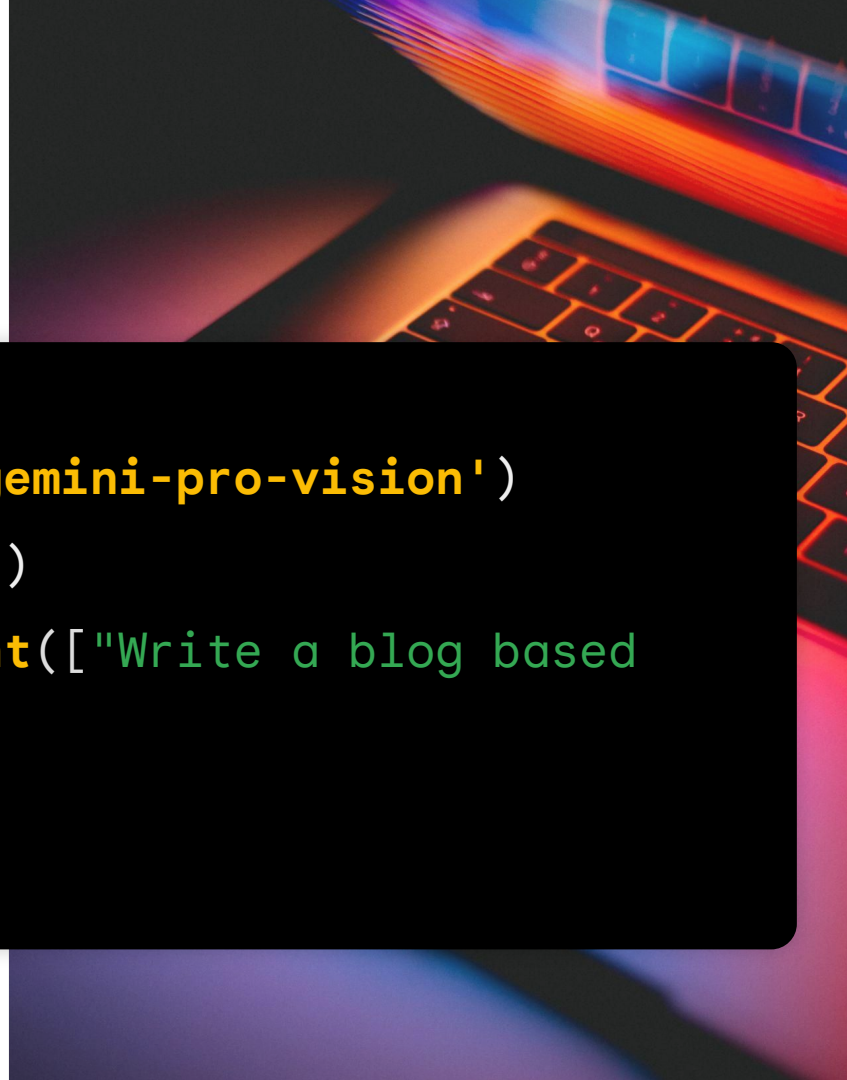
```
model = genai.GenerativeModel('gemini-pro')

response = model.generate_content("Write a story about a
boy and a backpack.")
print(response.text)
```



Generate Text

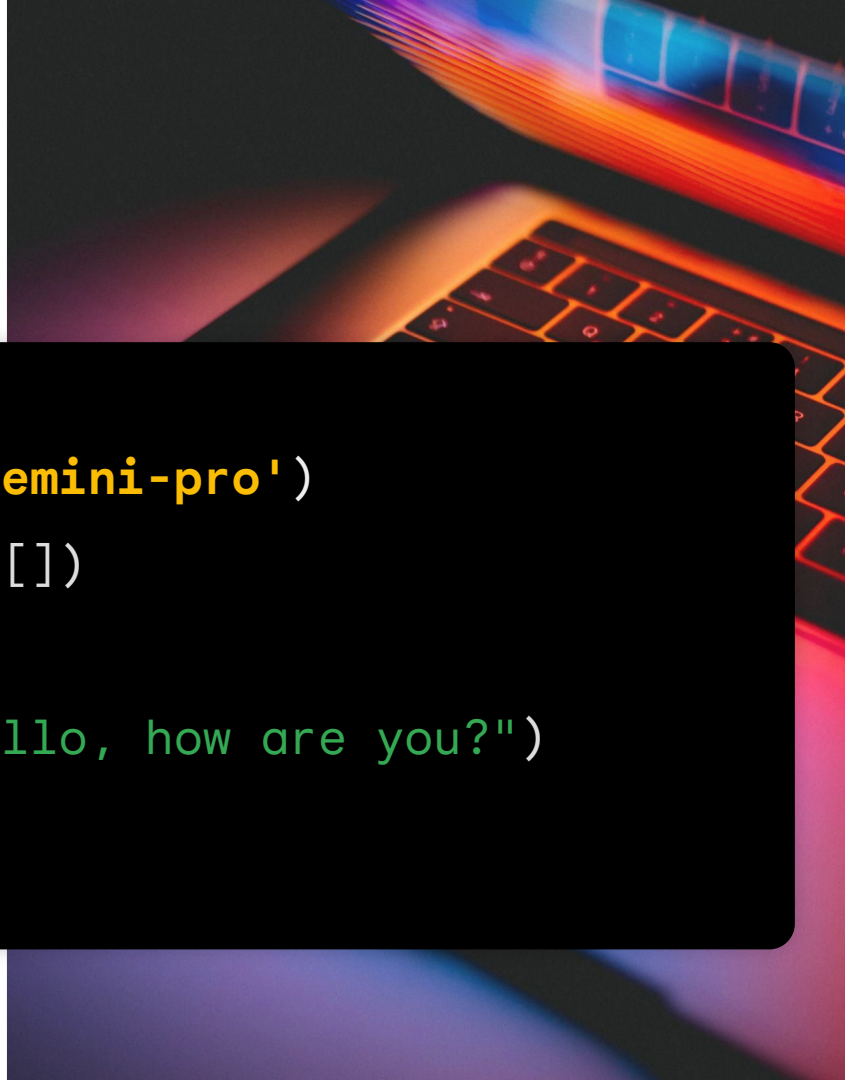
Text + image prompt

```
model = genai.GenerativeModel('gemini-pro-vision')
img = PIL.Image.open('image.jpg')
response = model.generate_content(["Write a blog based
on this photo.", img])
print(response.text)
```



Chat Conversations

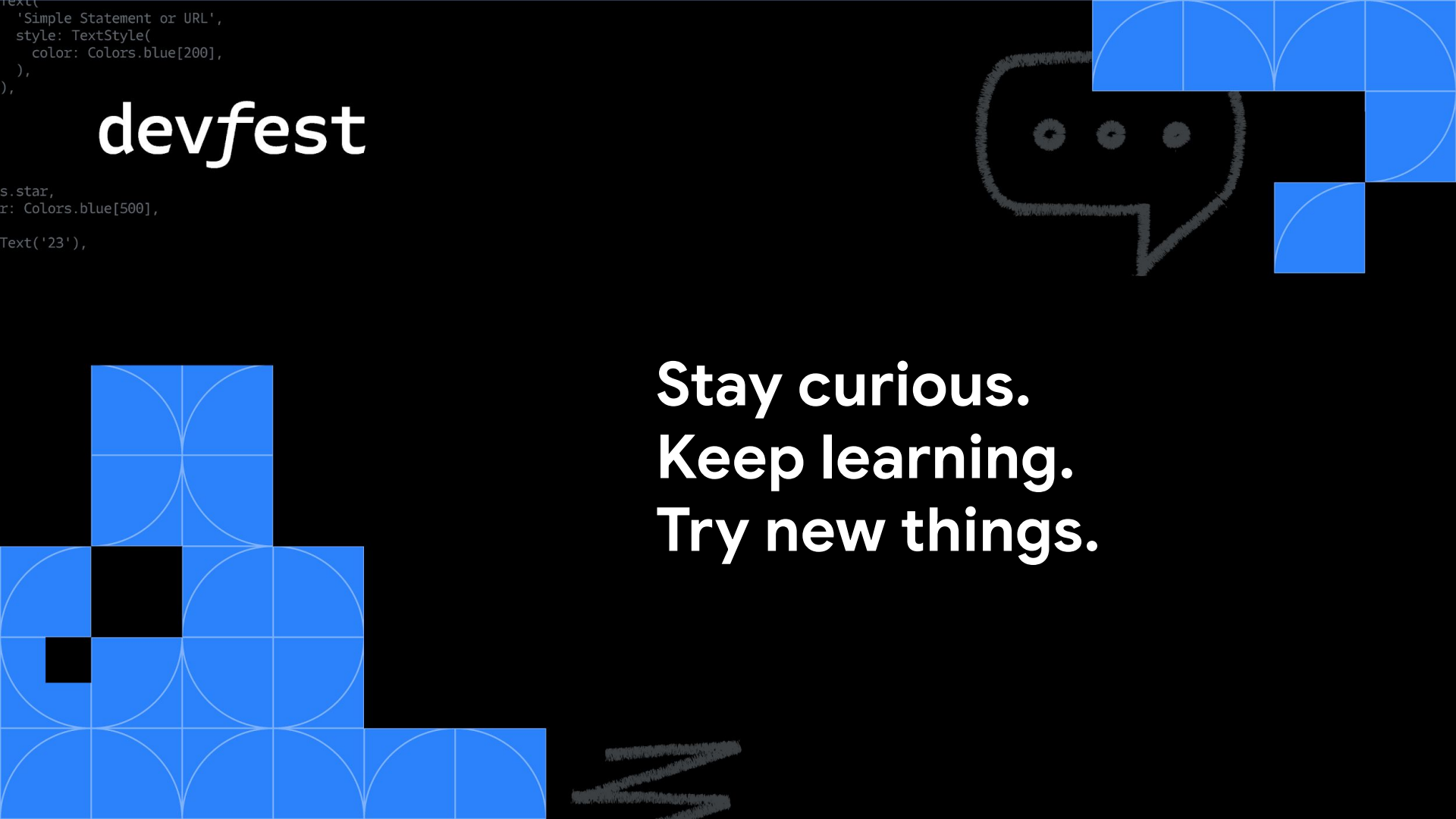
Interactive applications



```
model = genai.GenerativeModel('gemini-pro')
chat = model.start_chat(history=[])

response = chat.send_message("Hello, how are you?")
print(response.text)
```

Prompt Engineering

- Clear & Specific Instructions
- Give Examples
- Step by Step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style: TextStyle(
color: Colors.blue[200],
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),
devfest
s.star,
r: Colors.blue[500],
Text('23'),
Stay curious.
Keep learning.
Try new things.

Learning Resources

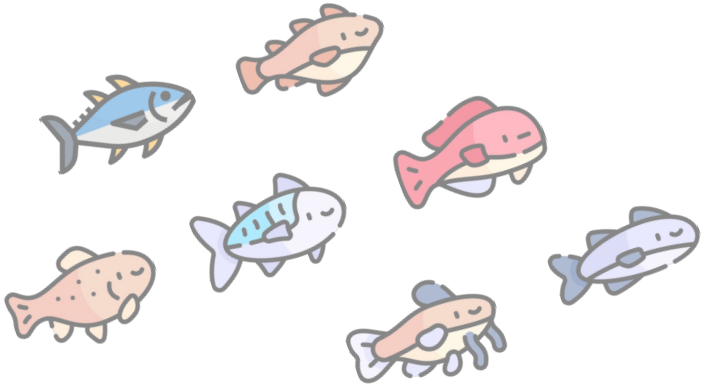
bit.ly/cheng2-slides

1. **Gemini + AI Studio**
   Prototyping environment with Gemini
2. **Gemini Quickstart Tutorials**
   Examples to build in different programming languages
3. **Streamlit Tutorials**
   Build web apps calling LLMs
4. **Introduction to Generative AI**
   Google learning paths with videos & exercises
5. **Build with AI**
   Join my online workshop on May 25!

bitly

Keeping Up

bit.ly/cheng2-slides



1. **AI Explained**
   Videos explaining major developments
2. **The Batch @ DeepLearning.AI**
   Weekly updates from Andrew Ng
3. **TLDR AI**
   Daily summaries of latest news
4. **Twitter + Reading Study Groups**
   Breaking news by following researchers
5. **DeepLearning.AI**
   Full specializations + many short 1-hour courses

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Google Developer Student Clubs

Irvine Valley College

Image Credits

- Orange Balloon by Live Work OC
- Skyscrapers by Daniel Olah
- Laundry by Annie Spratt
- Library Shelves by Susan Q Yin
- Servers by Krzysztof Kowalik
- Sunrise by Jakub Kriz
- Light Bulb by Beth Jnr
- Sleek Future by Allison Saeng
- Fishing by Domi Sharpin
- Mirror by Wilman Aro
- Classroom by Erik McLean
- Pottery by Courtney Cook
- Lego Blocks by Sen
- Darts by Afif Ramdhasuma
- Orange Eyes by Noah Buscher
- Calligraphy by Digital Writers India
- Calculator by Towfiqu Barbhuiya
- 3 Pillars by Jens Peter Olesen
- Scrabble Tiles by Merve Sehirli Nasir
- Blurry Image by Ave Calvar
- Stars by Aldebaran S
- Butterfly & Flowers by Birger Strahl
- Keyboard by Mohammad Rahmani
- Reaching Hands by Matheus Viana

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