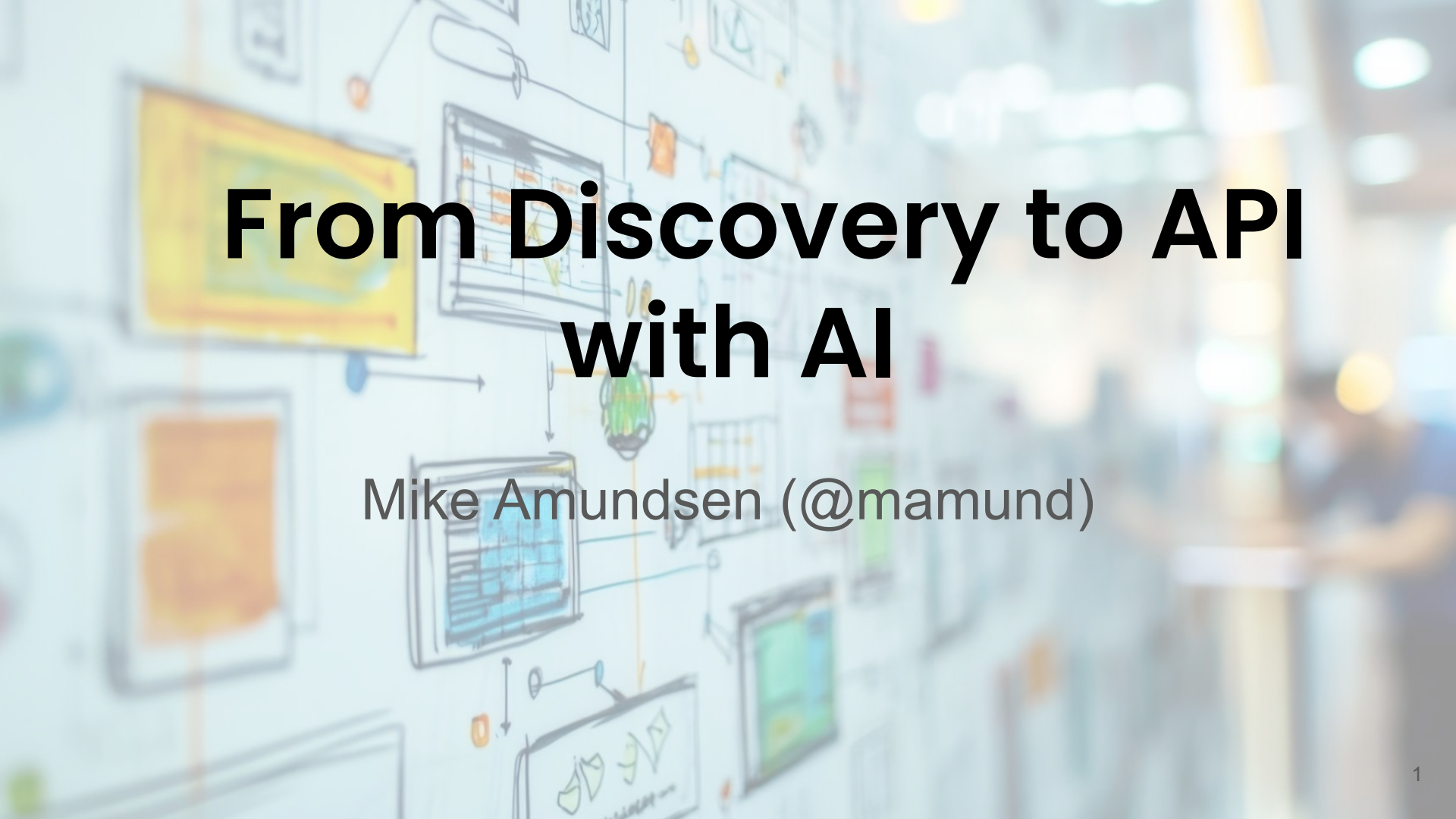


From Discovery to API with AI

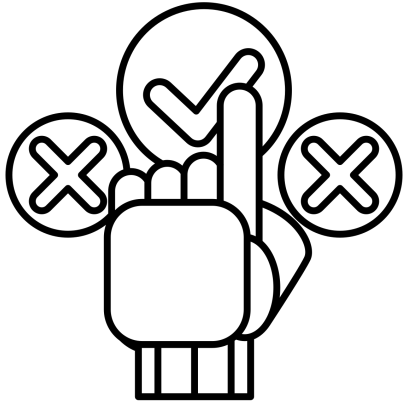
Mike Amundsen (@mamund)

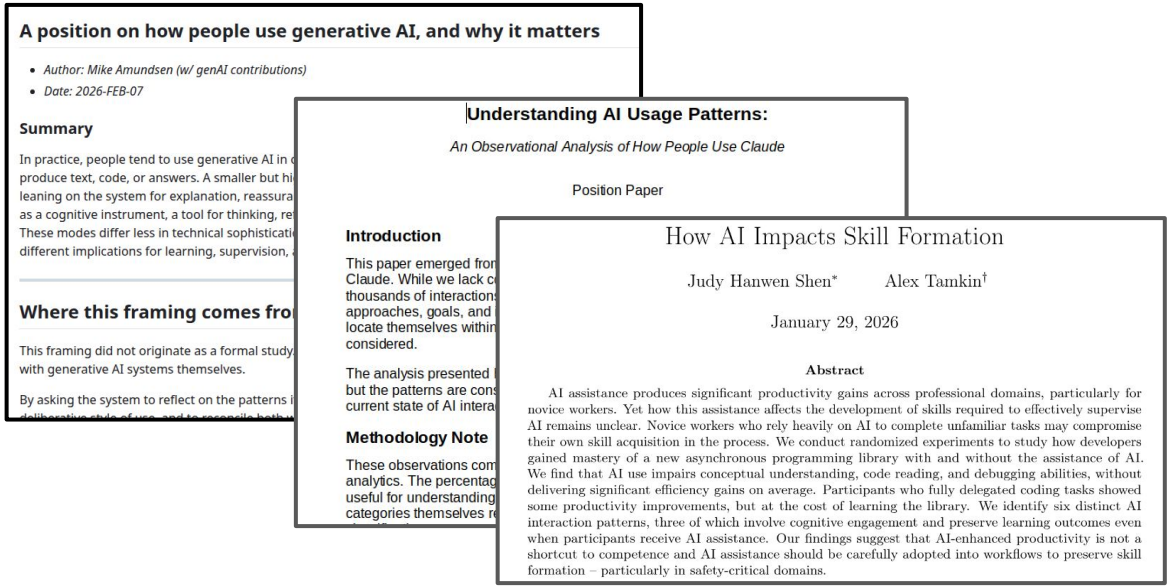

Mike Amundsen
@mamund

Generative AI and Users

How people use generative AI

- ***Generator*** : to get answers
- ***Surrogate*** : to get advice
- ***Instrument*** : to support/challenge thinking





A position on how people use generative AI, and why it matters

- *Author: Mike Amundsen (w/ genAI contributions)*
- *Date: 2026-FEB-07*

Summary

In practice, people tend to use generative AI in
produce text, code, or answers. A smaller but hi
leaning on the system for explanation, reassura
as a cognitive instrument, a tool for thinking, re
These modes differ less in technical sophisticati
different implications for learning, supervision,

Where this framing comes fro

This framing did not originate as a formal study
with generative AI systems themselves.

By asking the system to reflect on the patterns i

Understanding AI Usage Patterns:

An Observational Analysis of How People Use Claude

Position Paper

Introduction

This paper emerged fro
Claude. While we lack c
thousands of interaction
approaches, goals, and
locate themselves within
considered.

The analysis presented
but the patterns are cons
current state of AI intera

Methodology Note

These observations com
analytics. The percentag
useful for understanding
categories themselves r

How AI Impacts Skill Formation

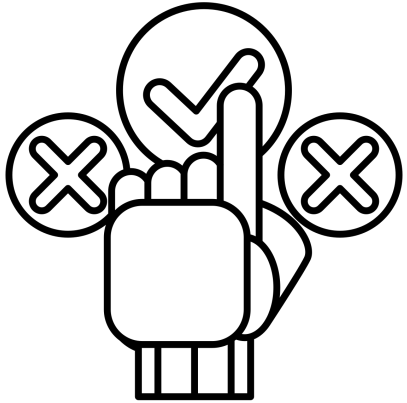
Judy Hanwen Shen* Alex Tamkin†

January 29, 2026

Abstract

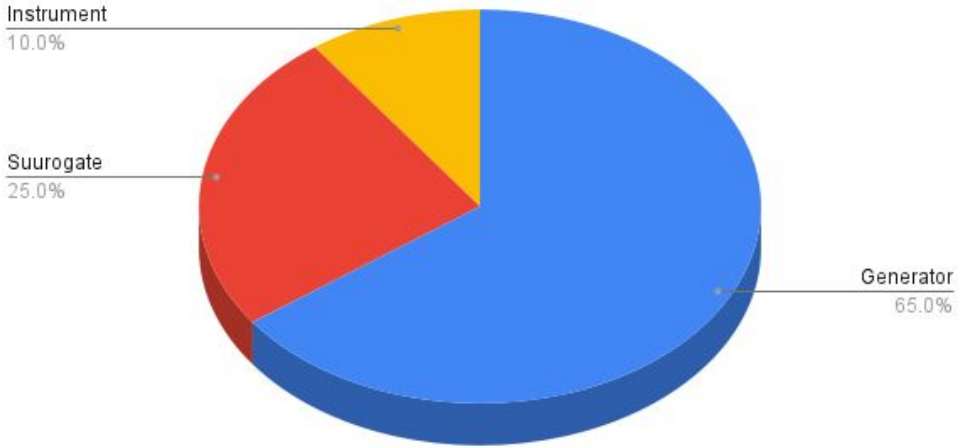
AI assistance produces significant productivity gains across professional domains, particularly for novice workers. Yet how this assistance affects the development of skills required to effectively supervise AI remains unclear. Novice workers who rely heavily on AI to complete unfamiliar tasks may compromise their own skill acquisition in the process. We conduct randomized experiments to study how developers gained mastery of a new asynchronous programming library with and without the assistance of AI. We find that AI use impairs conceptual understanding, code reading, and debugging abilities, without delivering significant efficiency gains on average. Participants who fully delegated coding tasks showed some productivity improvements, but at the cost of learning the library. We identify six distinct AI interaction patterns, three of which involve cognitive engagement and preserve learning outcomes even when participants receive AI assistance. Our findings suggest that AI-enhanced productivity is not a shortcut to competence and AI assistance should be carefully adopted into workflows to preserve skill formation – particularly in safety-critical domains.

How people use generative AI



- ***Generator*** : ~60–70%
- ***Surrogate*** : ~20–30%
- ***Instrument*** : ~5–10%

- Judgment shifts
  From humans to machines
- Skill formation weakens
  Disrupting learning culture



Andrej Karpathy
@karpathy

There's a new kind of coding I call "vibe coding", where you fully give in to the vibes, embrace exponentials, and forget that the code even exists. It's possible because the LLMs (e.g. Cursor Composer w Sonnet) are getting too good. Also I just talk to Composer with SuperWhisper so I barely even touch the keyboard. I ask for the dumbest things like "decrease the padding on the sidebar by half" because I'm too lazy to find it. I "Accept All" always, I don't read the diffs anymore. When I get error messages I just copy paste them in with no comment, usually that fixes it. The code grows beyond my usual comprehension, I'd have to really read through it for a while. Sometimes the LLMs can't fix a bug so I just work around it or ask for random changes until it goes away. It's not too bad for throwaway weekend projects, but still quite amusing. I'm building a project or webapp, but it's not really coding - I just see stuff, say stuff, run stuff, and copy paste stuff, and it mostly works.

6:17 PM · Feb 2, 2025 · **4.9M** Views

1.3K 5K 29K 15K

Signals from Our Futures Past

The cost of always having the answer

The erosion of persistence

MIKE AMUNDSEN

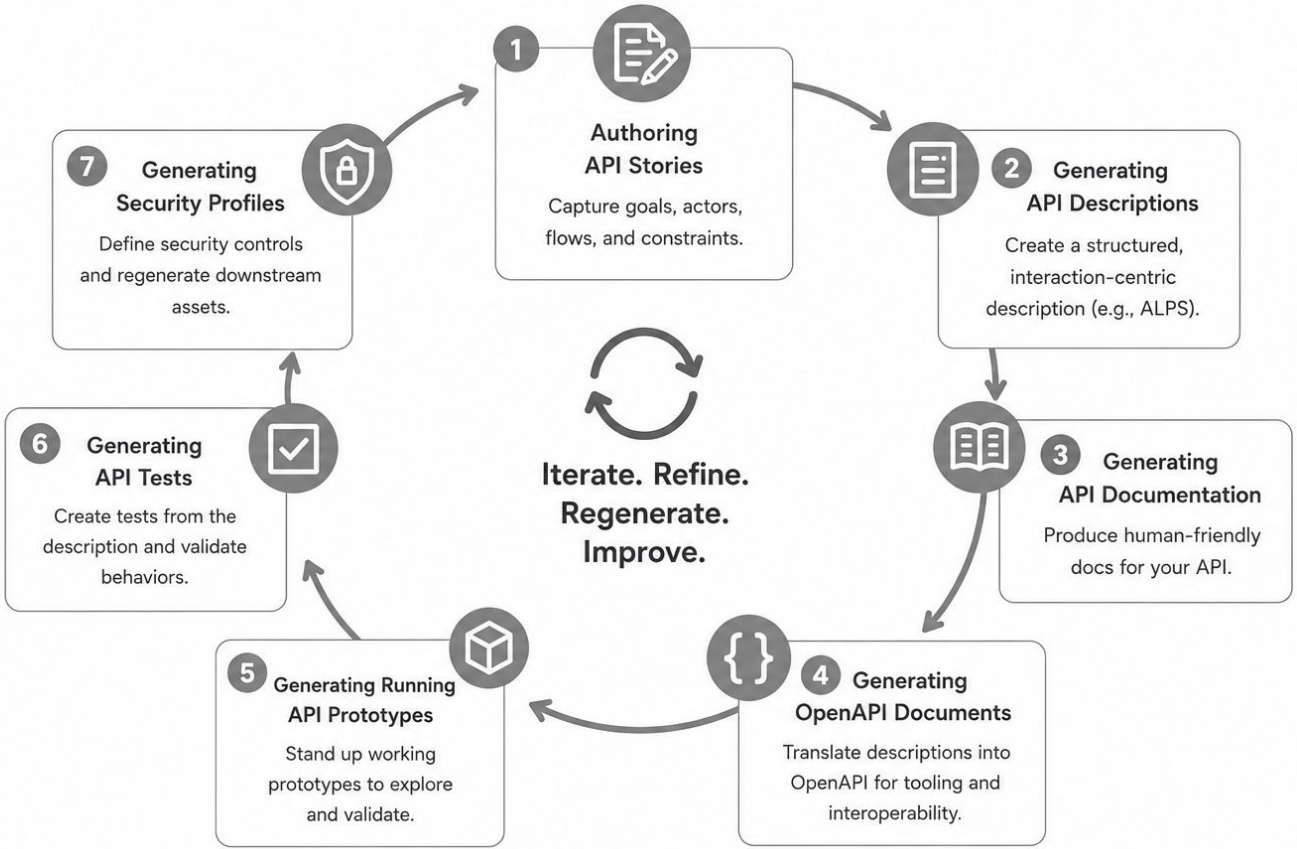
MAY 11, 2026

5 Share

A recent paper makes a simple but unsettling claim: **AI assistance improves performance in the moment but reduces persistence and weakens independent thinking almost immediately.**

The AI-Driven API Design Loop

Iterate from ideas to secure, testable, APIs—and back again.

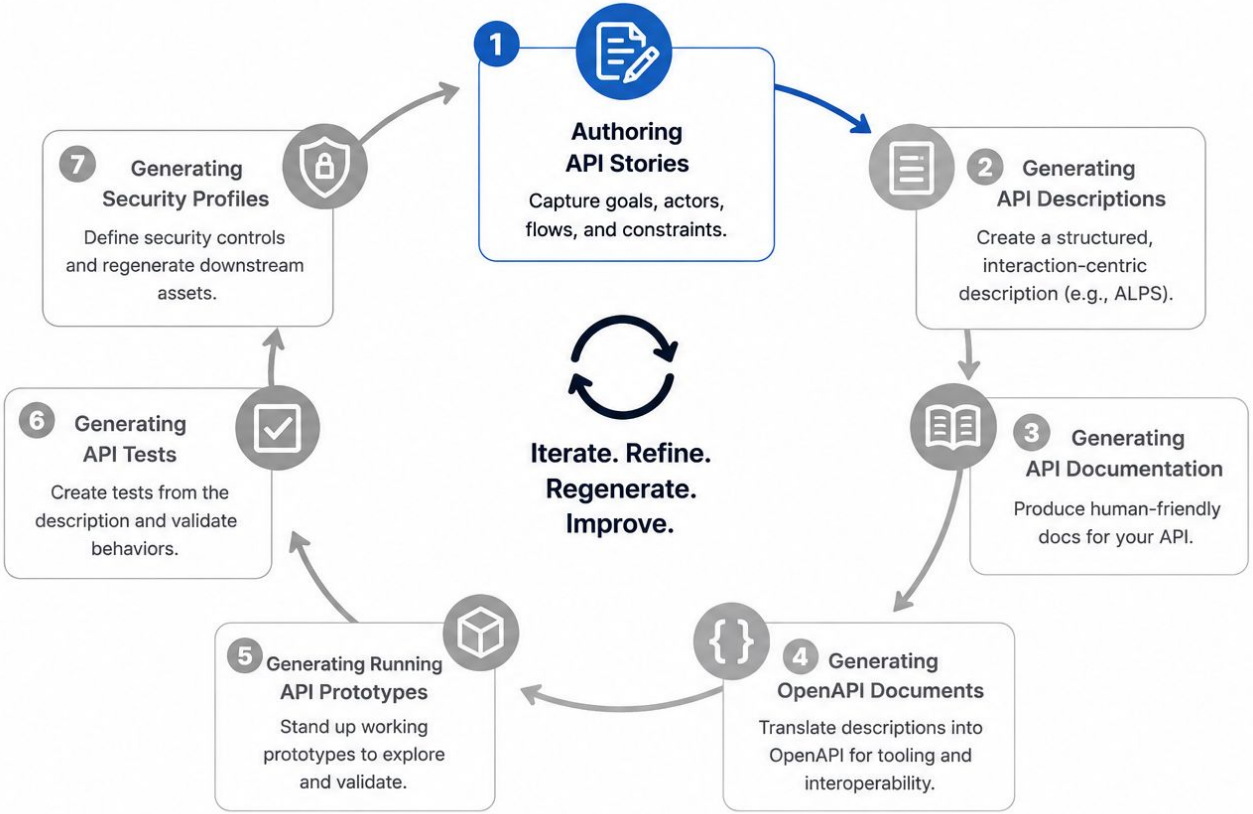


Let's get started …


Authoring
API Stories

The AI-Driven API Design Loop

Iterate from ideas to secure, testable, APIs—and back again.



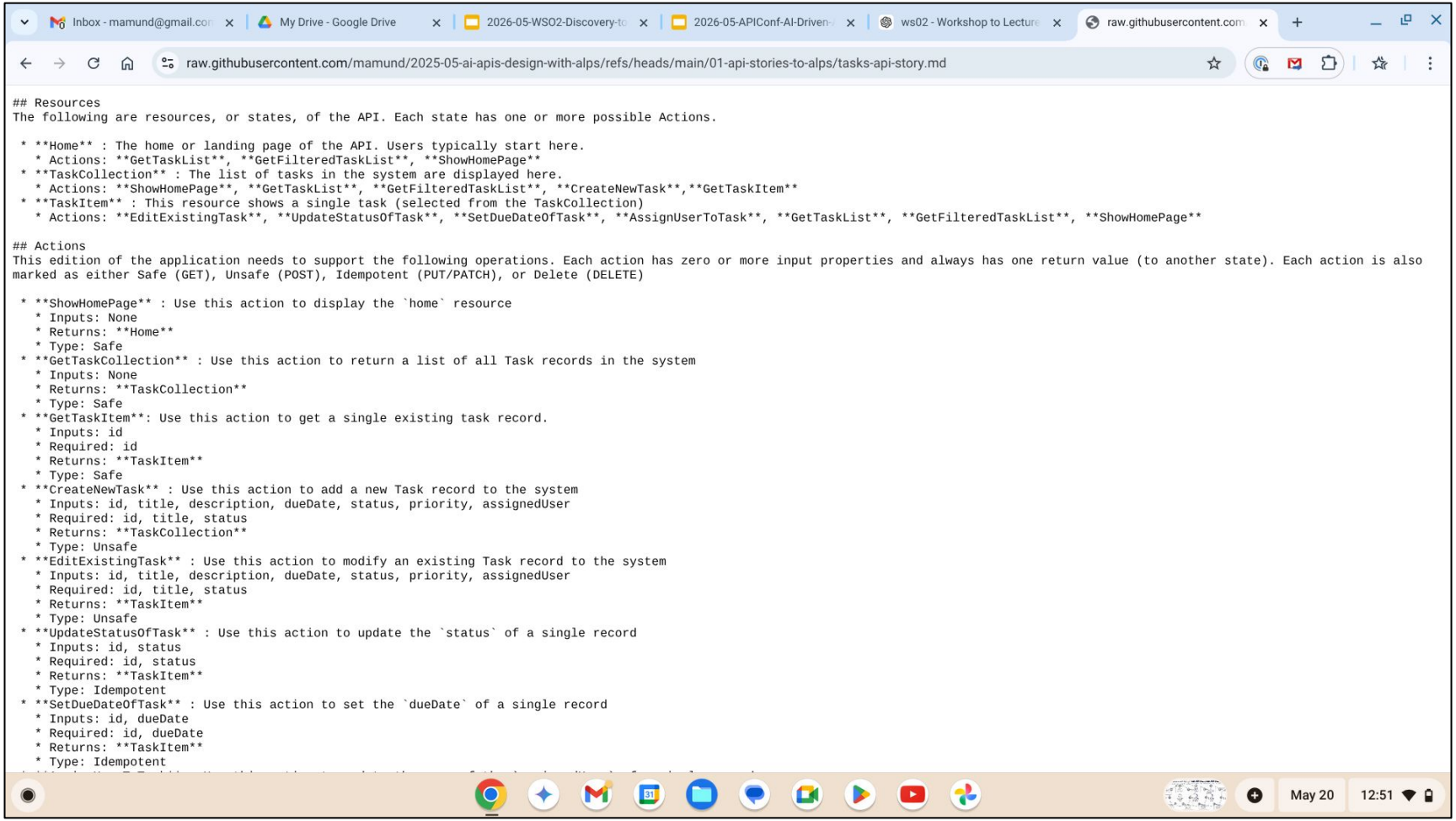
Authoring API Stories

- APIs start with a story
  - "We need…"
  - "Our customers requested…"
  - "I have an idea…"
- Stories are shared understanding
  - Our brains are wired for stories, not data
  - Stories are accessible
  - Stories are repeatable

https://www.youtube.com/watch?v=DZIG9U4AmEE

Authoring API Stories : Story Parts

- Purpose
  - Sentence or two
- Data Properties
  - All data fields (`id, givenName`, etc,)
- Resources
  - All "resting states" (`home, list, item`)
- Actions
  - All actions (`save, share, filter`, etc.)
- Rules
  - Constraints (id must be unique, etc.)


Inbox - mamund@gmail.com
My Drive - Google Drive
2026-05-WSO2-Discovery-to
2026-05-APIConf-AI-Driven-
ws02 - Workshop to Lecture
raw.githubusercontent.com
raw.githubusercontent.com/mamund/2025-05-ai-apis-design-with-alps/refs/heads/main/01-api-stories-to-alps/tasks-api-story.md
Resources
The following are resources, or states, of the API. Each state has one or more possible Actions.
* **Home** : The home or landing page of the API. Users typically start here.
* Actions: **GetTaskList**, **GetFilteredTaskList**, **ShowHomePage**
* **TaskCollection** : The list of tasks in the system are displayed here.
* Actions: **ShowHomePage**, **GetTaskList**, **GetFilteredTaskList**, **CreateNewTask**,**GetTaskItem**
* **TaskItem** : This resource shows a single task (selected from the TaskCollection)
* Actions: **EditExistingTask**, **UpdateStatusOfTask**, **SetDueDateOfTask**, **AssignUserToTask**, **GetTaskList**, **GetFilteredTaskList**, **ShowHomePage**
Actions
This edition of the application needs to support the following operations. Each action has zero or more input properties and always has one return value (to another state). Each action is also marked as either Safe (GET), Unsafe (POST), Idempotent (PUT/PATCH), or Delete (DELETE)
* **ShowHomePage** : Use this action to display the `home` resource
* Inputs: None
* Returns: **Home**
* Type: Safe
* **GetTaskCollection** : Use this action to return a list of all Task records in the system
* Inputs: None
* Returns: **TaskCollection**
* Type: Safe
* **GetTaskItem**: Use this action to get a single existing task record.
* Inputs: id
* Required: id
* Returns: **TaskItem**
* Type: Safe
* **CreateNewTask** : Use this action to add a new Task record to the system
* Inputs: id, title, description, dueDate, status, priority, assignedUser
* Required: id, title, status
* Returns: **TaskCollection**
* Type: Unsafe
* **EditExistingTask** : Use this action to modify an existing Task record to the system
* Inputs: id, title, description, dueDate, status, priority, assignedUser
* Required: id, title, status
* Returns: **TaskItem**
* Type: Unsafe
* **UpdateStatusOfTask** : Use this action to update the `status` of a single record
* Inputs: id, status
* Required: id, status
* Returns: **TaskItem**
* Type: Idempotent
* **SetDueDateOfTask** : Use this action to set the `dueDate` of a single record
* Inputs: id, dueDate
* Required: id, dueDate
* Returns: **TaskItem**
* Type: Idempotent
May 20
12:51

Authoring API Stories : Iterating

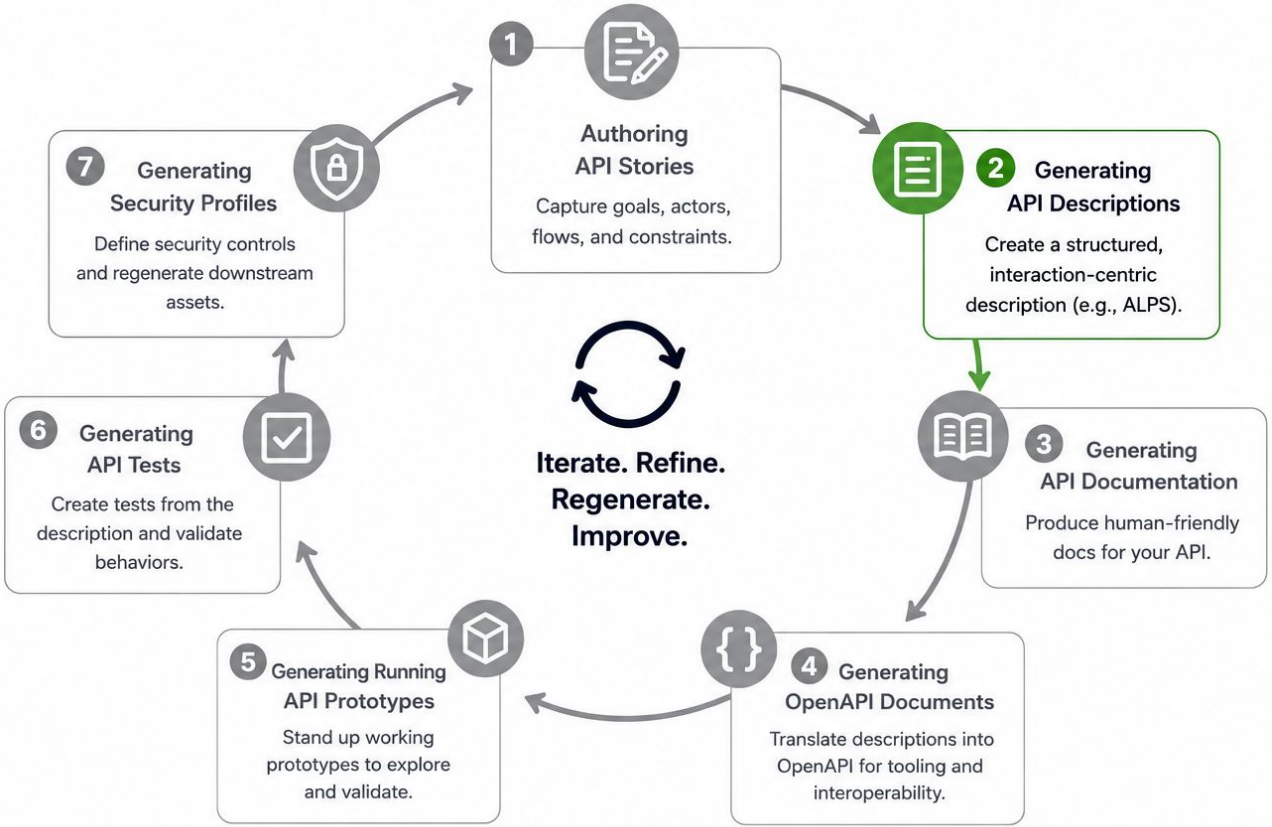
- This is a multi-pass loop
- Get something now, improve later
- Know when to stop

AI-Driven API Design Stack

Generating API Descriptions

The AI-Driven API Design Loop

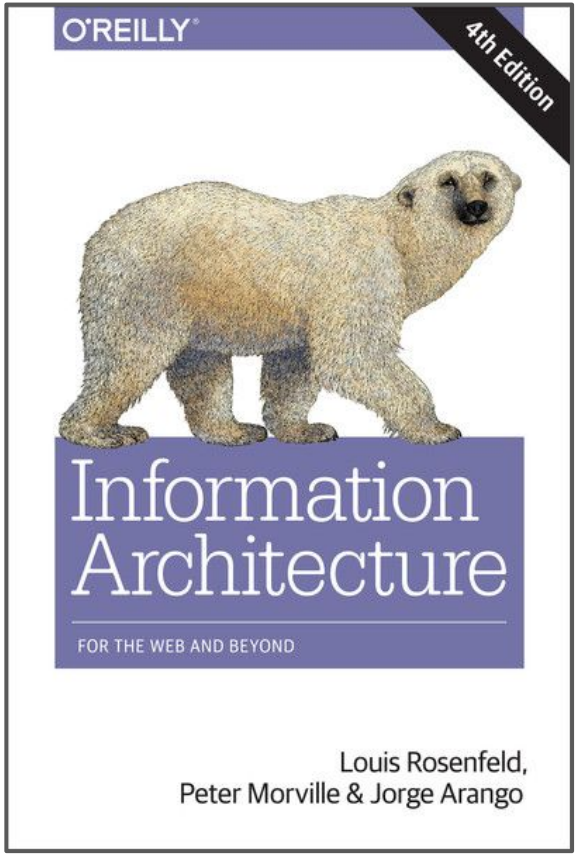
Iterate from ideas to secure, testable, APIs—and back again.



Generating API Descriptions

Information Architecture

- Content, structure, and intent
- Richard Saul Wurman, Peter Morville, Lou Rosenfeld, and Don Norman
- Used in library science and web UI design
- Ontology, Taxonomy, Choreography



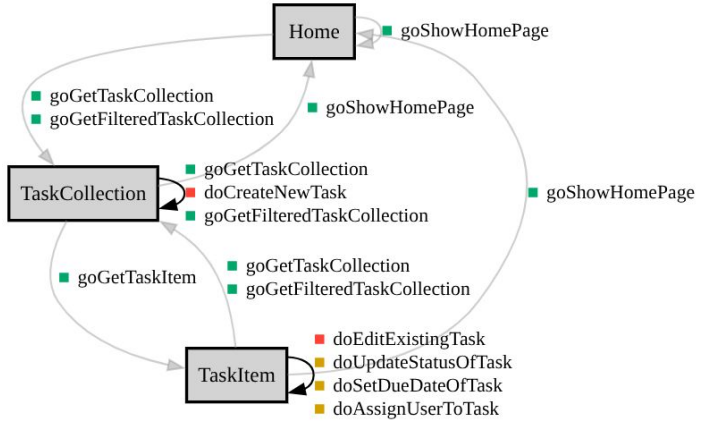
editor.app-state-diagram.com

ALPS Online Editor

JSON | Document | Download

```
{
  "$schema": "https://alps-io.github.io/schemas/alps.json",
  "alps": {
    "version": "1.0",
    "descriptor": [
      {
        "id": "id",
        "type": "semantic",
        "title": "Identifier",
        "doc": {
          "value": "A globally unique identifier for each task record."
        },
        "tag": "task-management"
      },
      {
        "id": "title",
        "type": "semantic",
        "title": "Title",
        "doc": {
          "value": "Short title or name of the task."
        },
        "tag": "task-management"
      },
      {
        "id": "description",
        "type": "semantic",
        "title": "Description",
        "doc": {
          "value": "Detailed description of the task."
        },
        "tag": "task-management"
      },
      {
        "id": "dueDate",
        "type": "semantic",
        "title": "Due Date",
        "doc": {
          "value": "Deadline by which the task should be completed."
        },
        "tag": "task-management"
      },
      {
        "id": "status",
        "type": "semantic",
        "title": "Status",
        "doc": {
          "value": "Current state of the task (active or completed)."
        },
        "tag": "task-management"
```

ALPS Profile



Label: ◉ ID ○ Title

Size: ◉ Original ○ Fit to width

Tags: ☐ navigation ☐ task-management

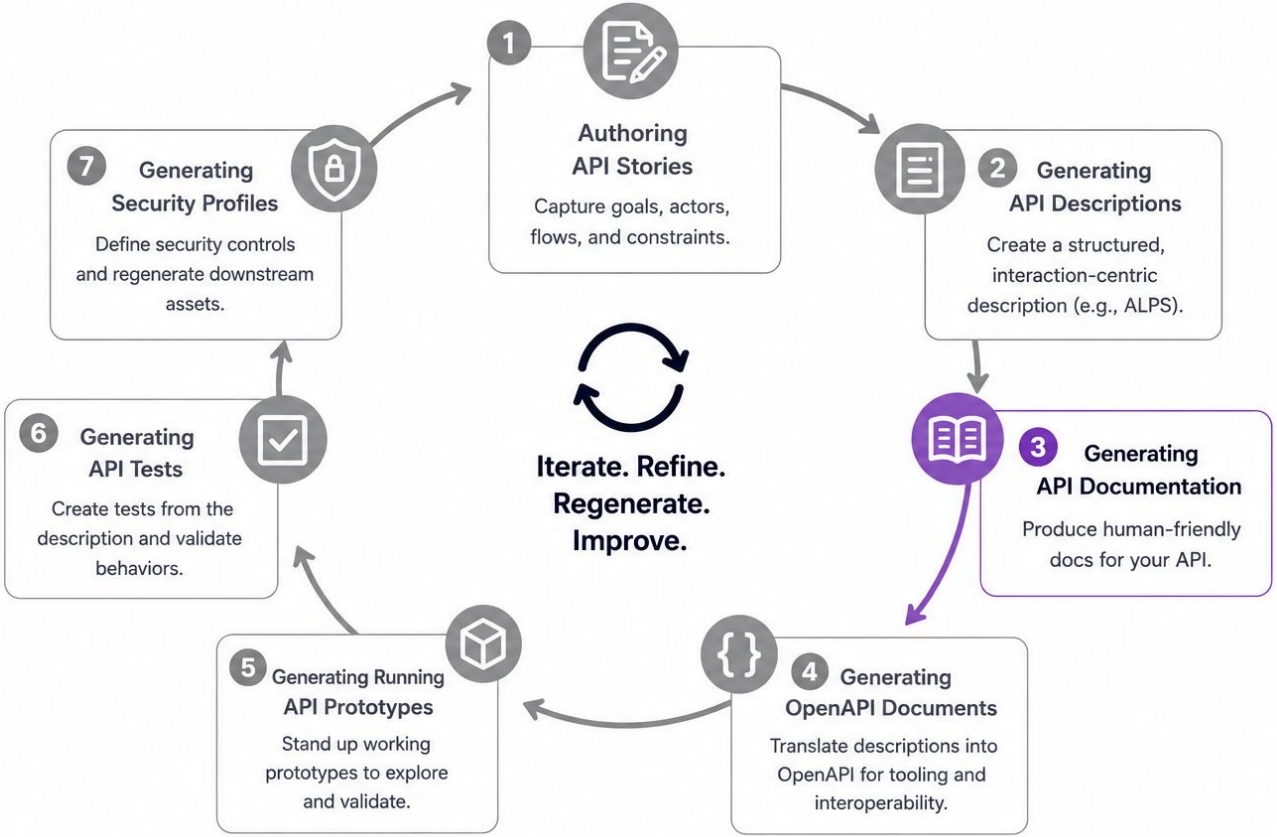
May 20 12:58

AI-Driven API Design Stack

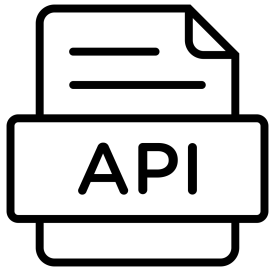
Generating API Documentation

The AI-Driven API Design Loop

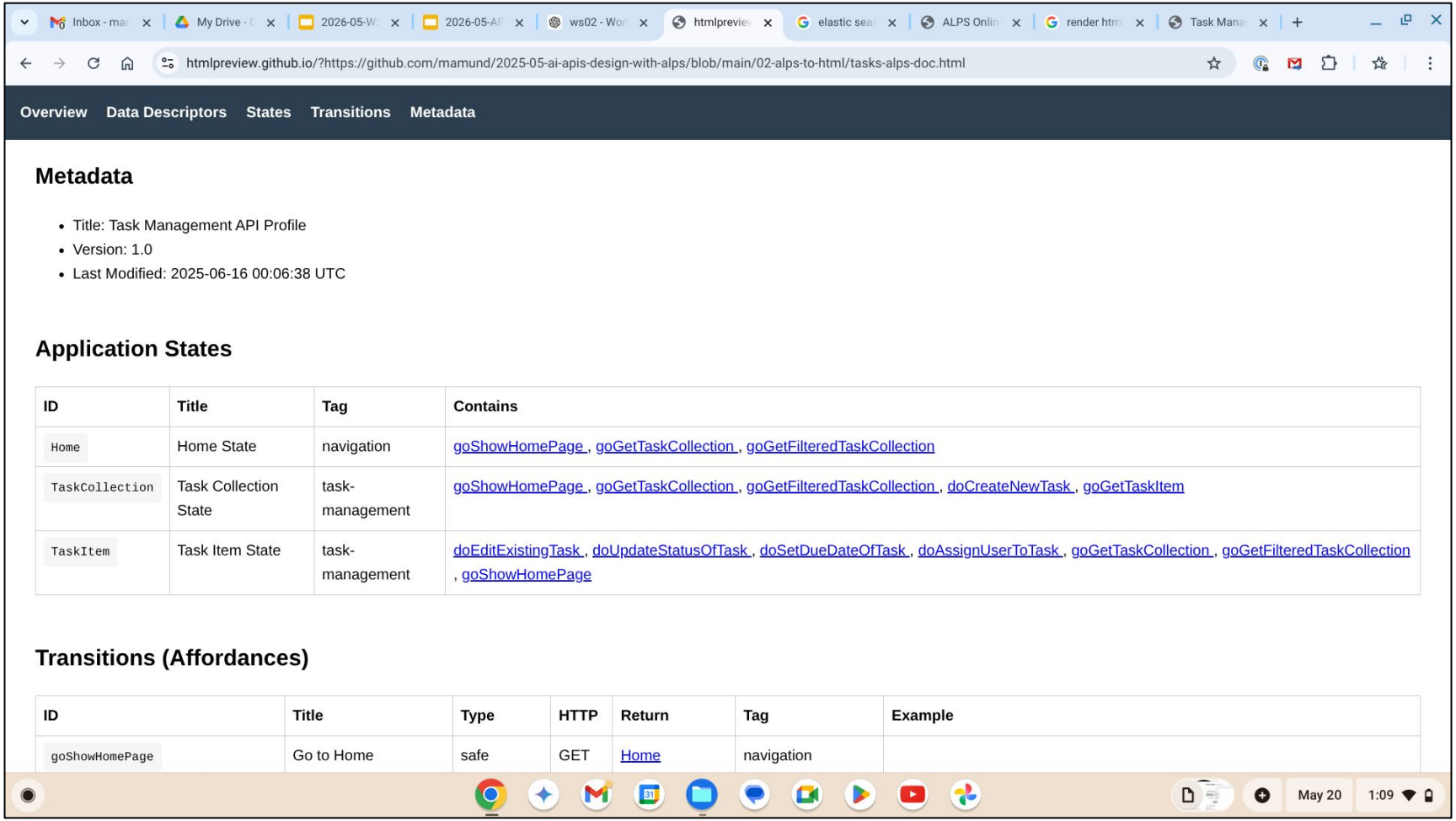
Iterate from ideas to secure, testable, APIs—and back again.



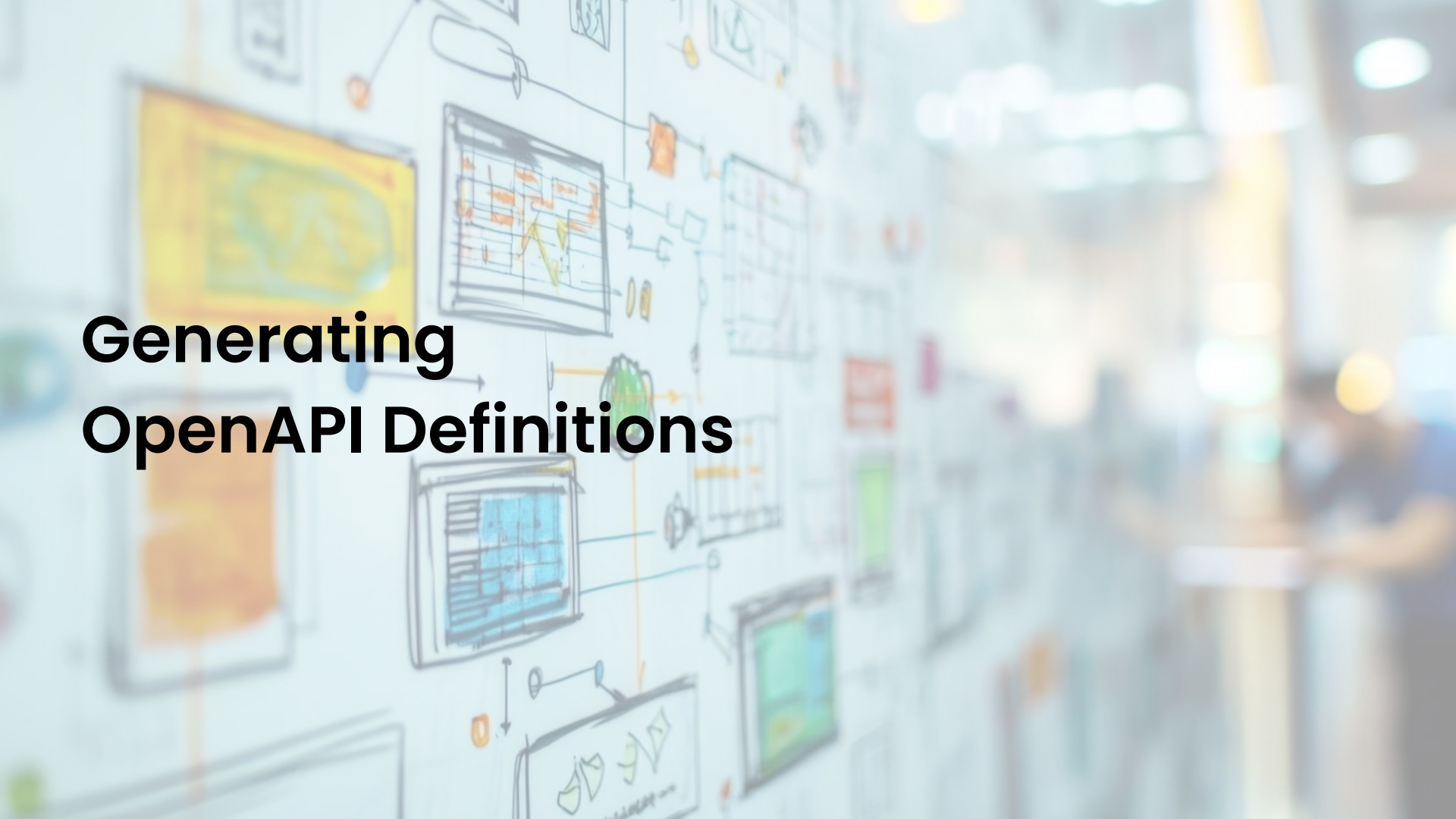
Generating API Documentation : Summary



- What are Docs?
  - Design, implementation, operation
- Who uses them?
  - Developers, customers, operators
- Basic Elements of API Docs
  - Purpose, properties, resources, actions

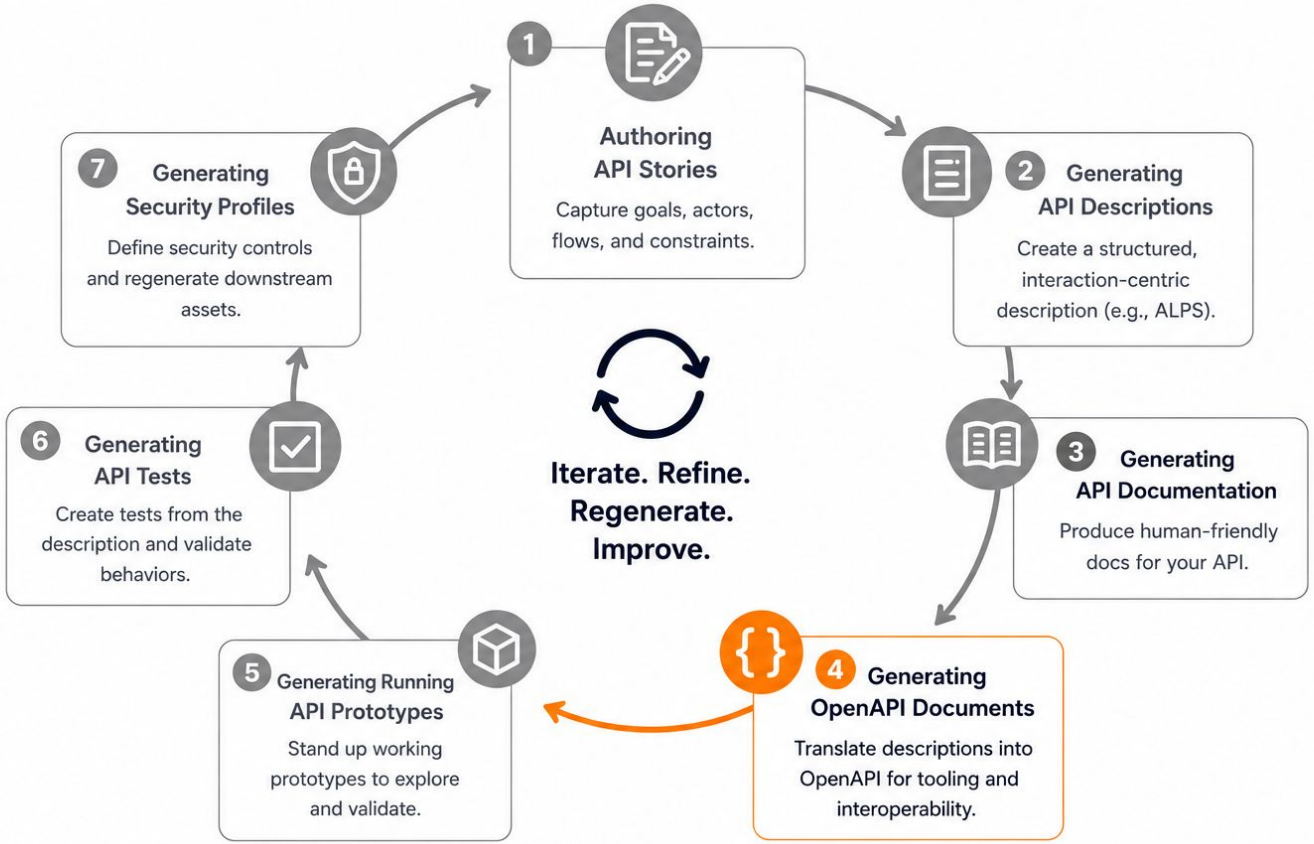

htmlpreview.github.io/?https://github.com/mamund/2025-05-ai-apis-design-with-alps/blob/main/02-alps-to-html/tasks-alps-doc.html
Overview Data Descriptors States Transitions Metadata
Metadata
Title: Task Management API Profile
Version: 1.0
Last Modified: 2025-06-16 00:06:38 UTC
Application States
ID Title Tag Contains
Home Home State navigation goShowHomePage , goGetTaskCollection , goGetFilteredTaskCollection
TaskCollection Task Collection State task-management goShowHomePage , goGetTaskCollection , goGetFilteredTaskCollection , doCreateNewTask , goGetTaskItem
TaskItem Task Item State task-management doEditExistingTask , doUpdateStatusOfTask , doSetDueDateOfTask , doAssignUserToTask , goGetTaskCollection , goGetFilteredTaskCollection , goShowHomePage
Transitions (Affordances)
ID Title Type HTTP Return Tag Example
goShowHomePage Go to Home safe GET Home navigation
May 20
1:09

AI-Driven API Design Stack


Generating
OpenAPI Definitions

The AI-Driven API Design Loop

Iterate from ideas to secure, testable, APIs—and back again.

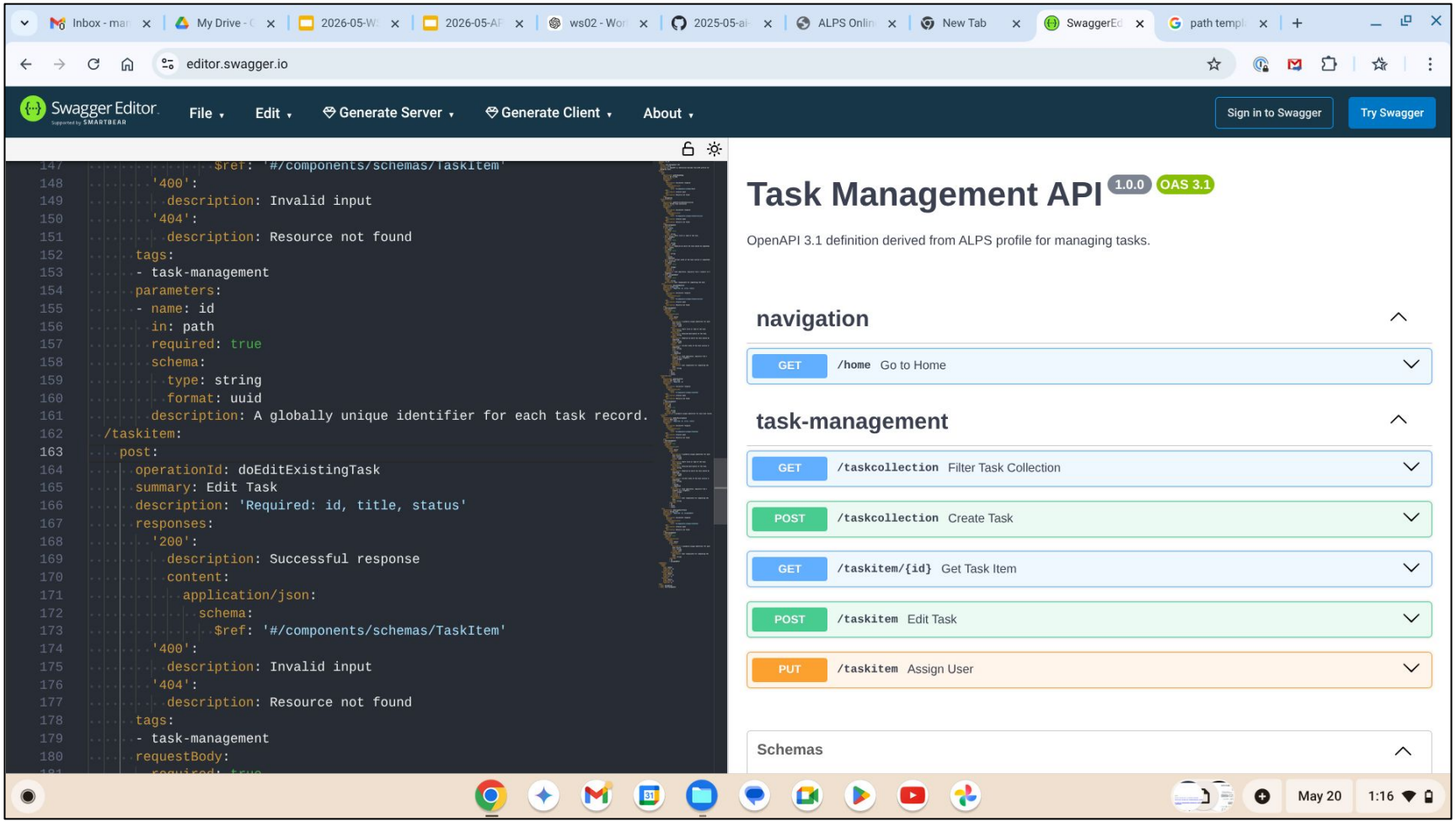


Generating Open API Documents

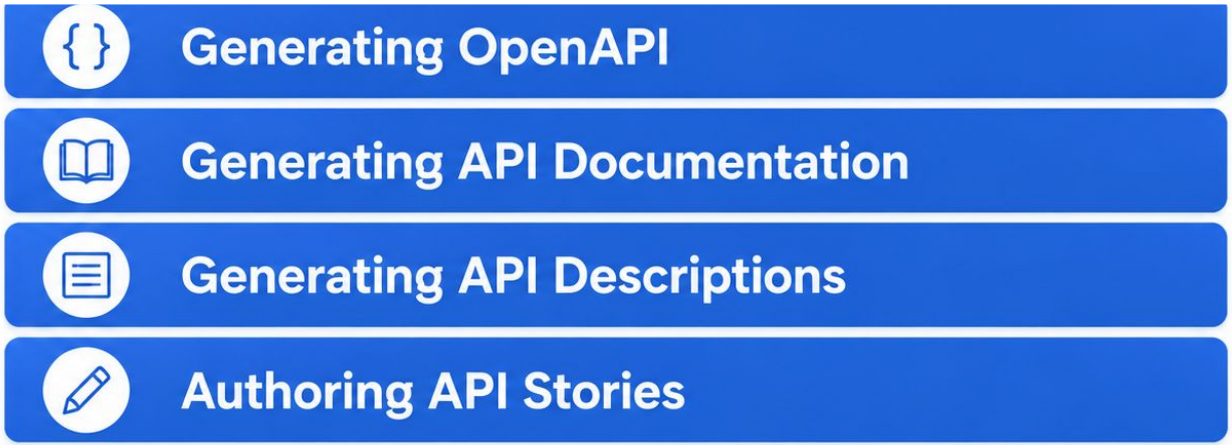
Why Open API

- The OpenAPI Specifications provide a formal standard for describing HTTP APIs.
- Common way to describe implementations
- Common platform for tooling
- Shared practice for building

https://www.openapis.org/what-is-openapi


editor.swagger.io
Swagger Editor
File
Edit
Generate Server
Generate Client
About
Sign in to Swagger
Try Swagger
Task Management API
1.0.0
OAS 3.1
OpenAPI 3.1 definition derived from ALPS profile for managing tasks.
navigation
GET /home Go to Home
task-management
GET /taskcollection Filter Task Collection
POST /taskcollection Create Task
GET /taskitem/{id} Get Task Item
POST /taskitem Edit Task
PUT /taskitem Assign User
Schemas
May 20
1:16

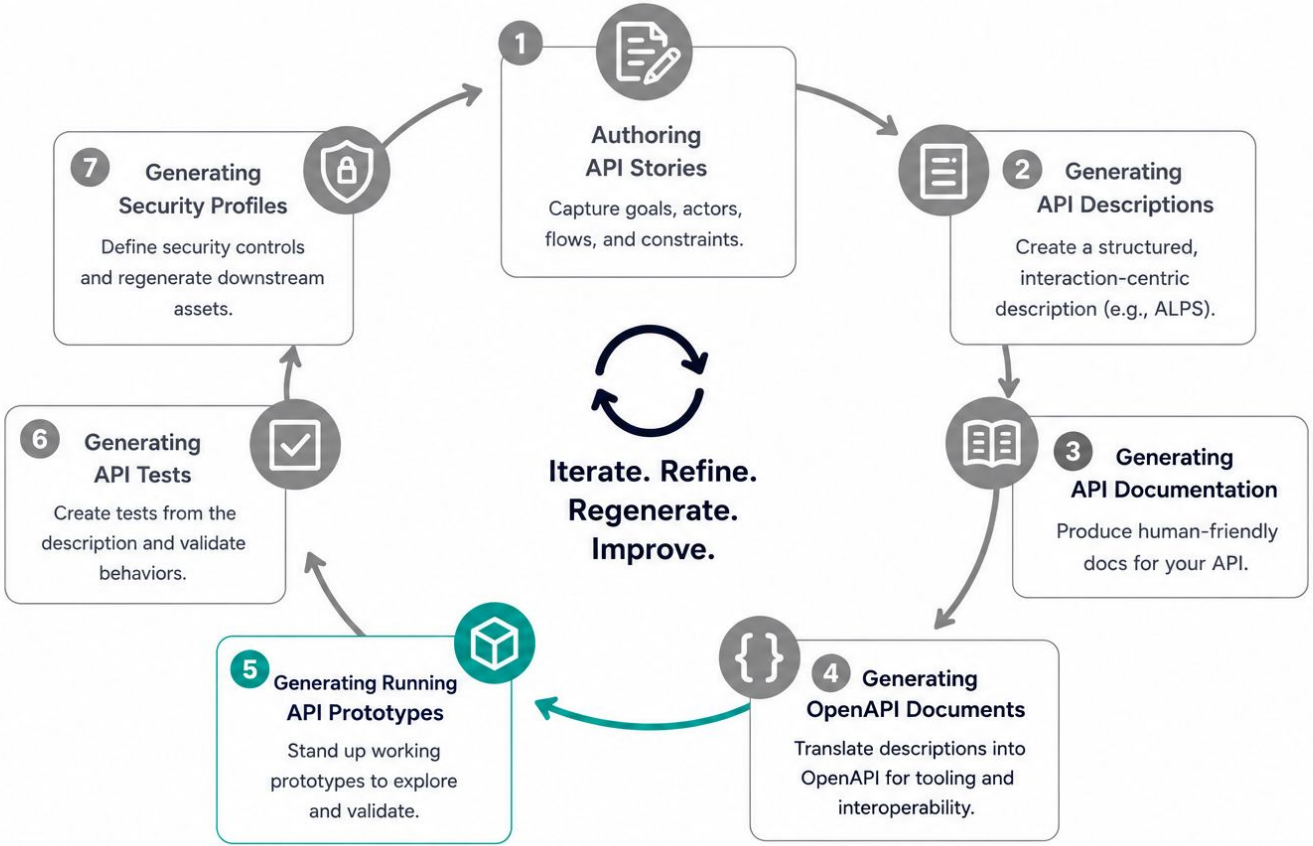
AI-Driven API Design Stack




Generating
Running API
Prototypes

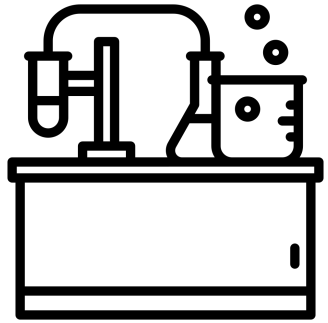
The AI-Driven API Design Loop

Iterate from ideas to secure, testable, APIs—and back again.



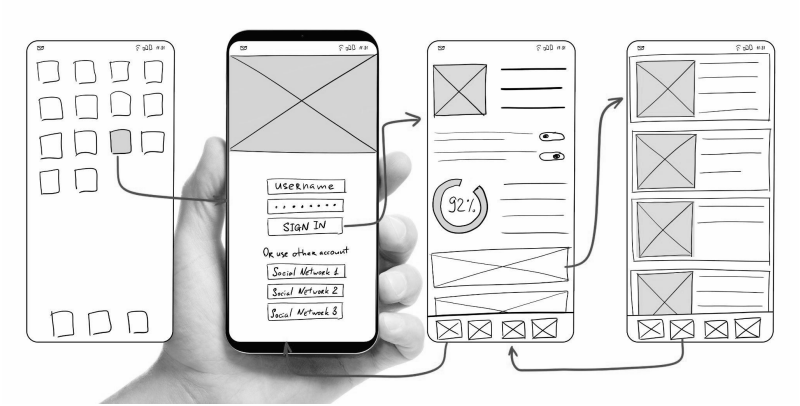
Generating Running Prototypes

What is a prototype?



A first, typical or preliminary model of something, especially a machine, from which other forms are developed or copied.

-- Oxford Dictionary



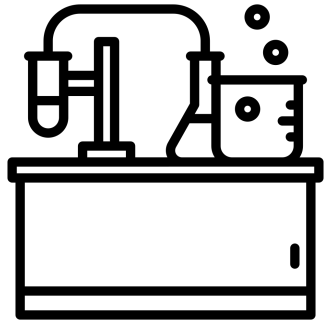
Generating Running API Prototypes

```
43  // Root endpoint
44  app.get('/', (req, res) => {
45    res.json({
46      _links: {
47        tasks: { href: "/tasks", method: "GET", args: [] },
48        create: { href: "/tasks", method: "POST", args: ["id
49      }
50    });
51  });
52
53  // GET all tasks or filter
54  app.get('/tasks', (req, res) => {
55    const filters = req.query;
56    let filtered = tasks.filter(task =>
57      Object.entries(filters).every(([key, value]) =>
58        (task[key] || "").toLowerCase() === value.toLowerCas
59      )
60    );
61    res.json(filtered.map(task => ({ ...task, _links: genera
62  });
63
64  // GET single task
65  app.get('/tasks/:id', (req, res) => {
66    const task = tasks.find(t => t.id === req.params.id);
67    if (!task) return res.status(404).json({ error: "Task no
68    res.json({ ...task, _links: generateLinks(task) });
69  });
70
71  // POST create new task
72  app.post('/tasks', (req, res) => {
73    const input = req.body.task;
```

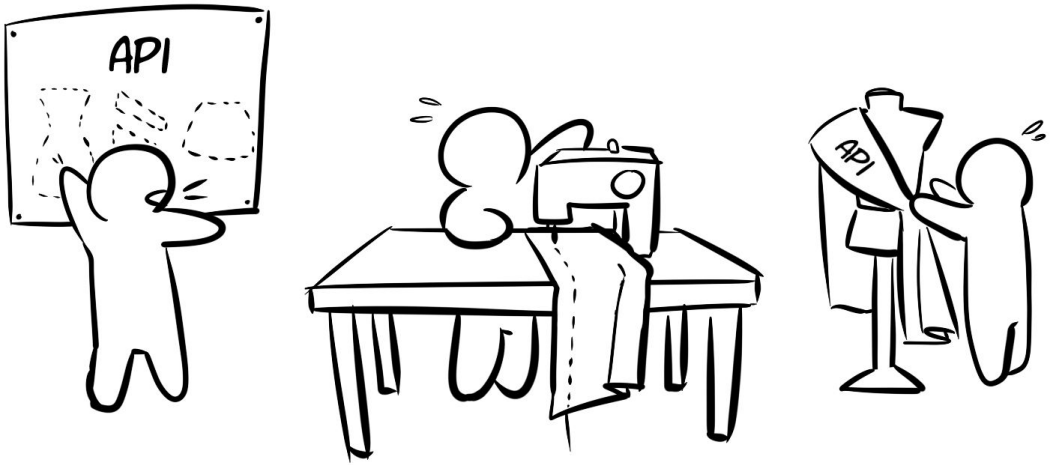
127.0.0.1:3000/tasks/


```
[
  - {
      id: "be99458e-c2a4-4c11-a5a4-960e2fd74d0e",
      title: "Write documentation",
      description: "Create API docs from ALPS",
      dueDate: "2025-06-01",
      status: "active",
      priority: "3",
      assignedUser: "Alice",
    - _links: {
        - self: {
              href: "/tasks/be99458e-c2a4-4c11-a5a4-960e2fd74d0e",
              method: "GET",
              args: [ ]
          },
        - update: {
              href: "/tasks/be99458e-c2a4-4c11-a5a4-960e2fd74d0e/edit",
              method: "POST",
            - args: [
                  "title",
                  "description",
                  "dueDate",
                  "status",
                  "priority",
                  "assignedUser"
              ]
          },
        - setDueDate: {
              href: "/tasks/be99458e-c2a4-4c11-a5a4-960e2fd74d0e/dueDate",
              method: "PUT",
            - args: [
```

Generating Running API Prototypes



- Inexpensive experiments
- Explore the details
- Prototypes are made to be tested

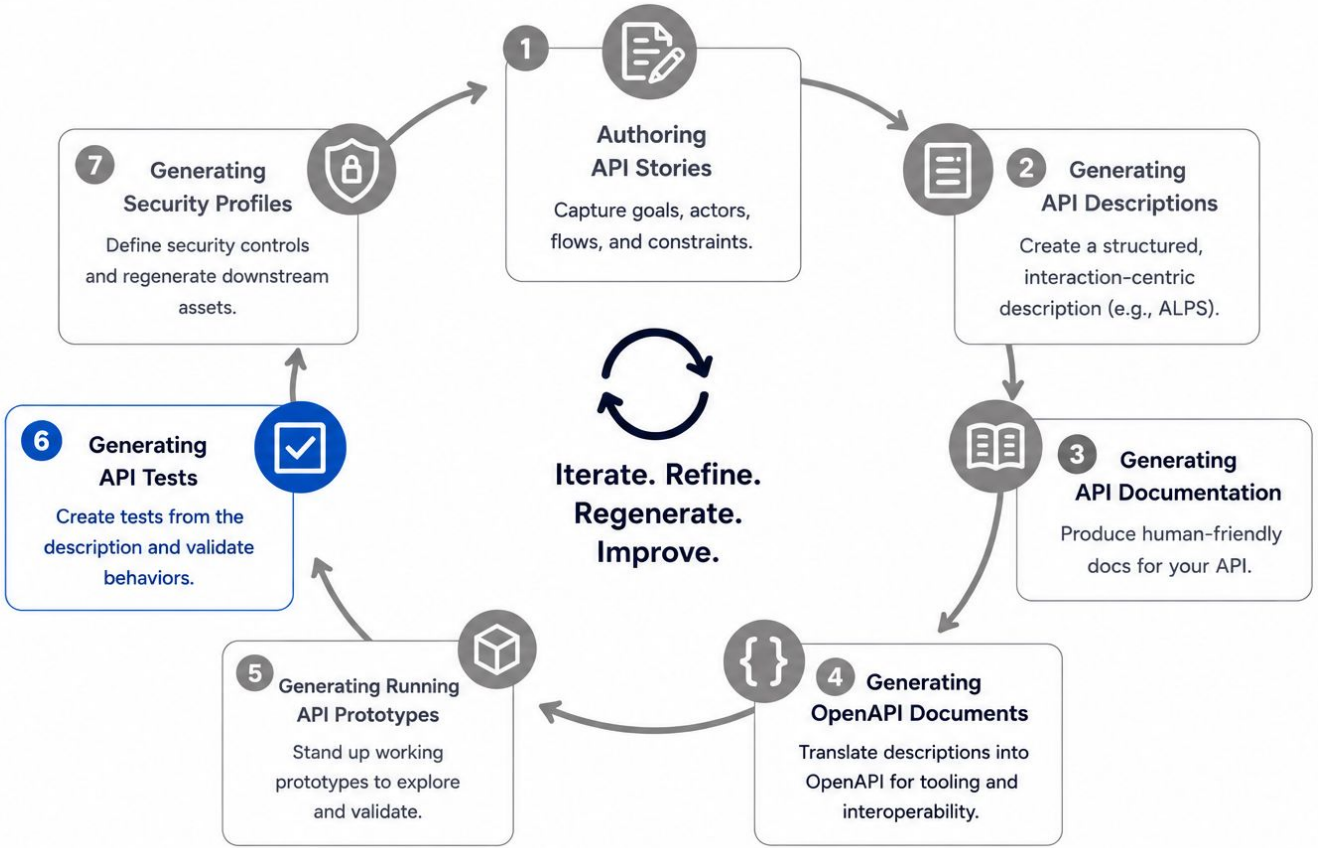


AI-Driven API Design Stack

Generating API Tests

The AI-Driven API Design Loop

Iterate from ideas to secure, testable, APIs—and back again.



Generating API Tests

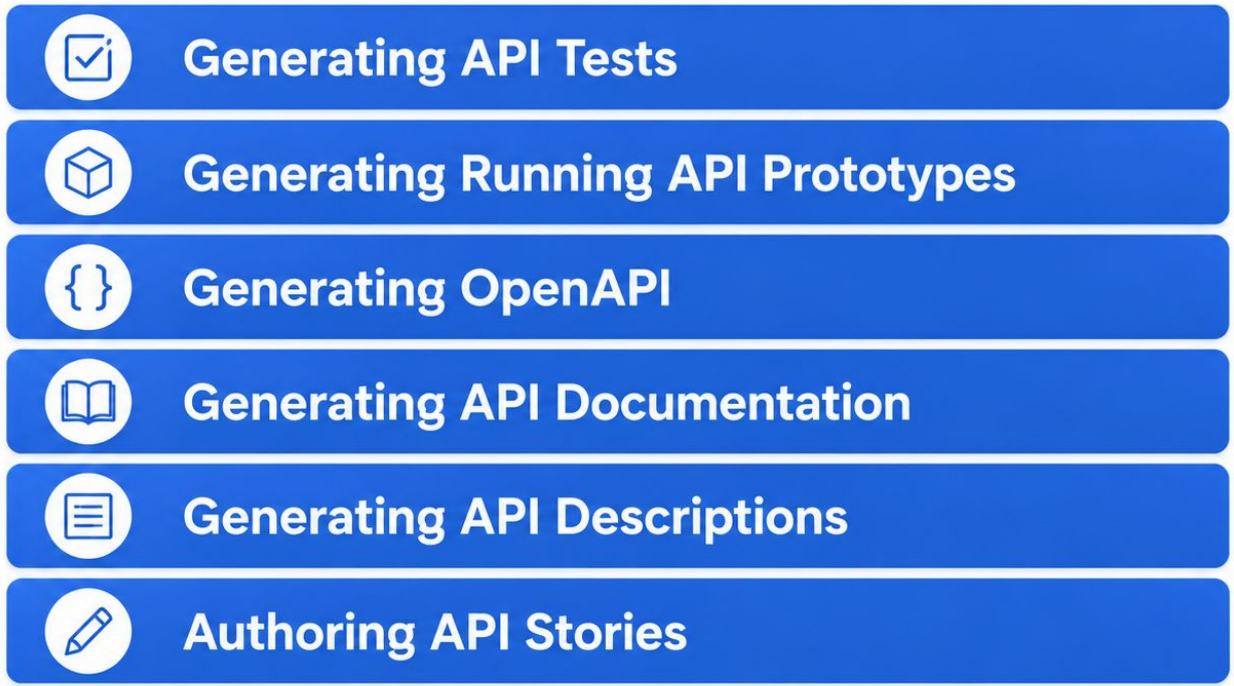
- "Outside-In" testing
  - Test the interface, not the code
- Validating inputs/outputs
  - URLs, methods, inputs, response bodies
- Confirming Interface Behavior
  - Happy path (`200 OK`) & sad path (`400 Bad Request`)

main 2026-05-tram / runner / api-tests.json ↑ Top

Code Blame Raw

```
148             },
149             {
150               "path": "$",
151               "each": {
152                 "path": "$._links",
153                 "eachProperty": {
154                   "hasProperties": ["href", "method"]
155                 }
156               }
157             },
158             {
159               "path": "$",
160               "each": {
161                 "path": "$._links",
162                 "eachProperty": {
163                   "path": "$.method",
164                   "oneOf": ["GET", "POST", "PUT", "PATCH", "DELETE"]
165                 }
166               }
167             },
168             {
169               "path": "$",
170               "each": {
171                 "property": "status",
172                 "oneOf": [
173                   "active",
174                   "pending",
175                   "completed"
176                 ]
177               }
```

AI-Driven API Design Stack



Generating Security Profiles

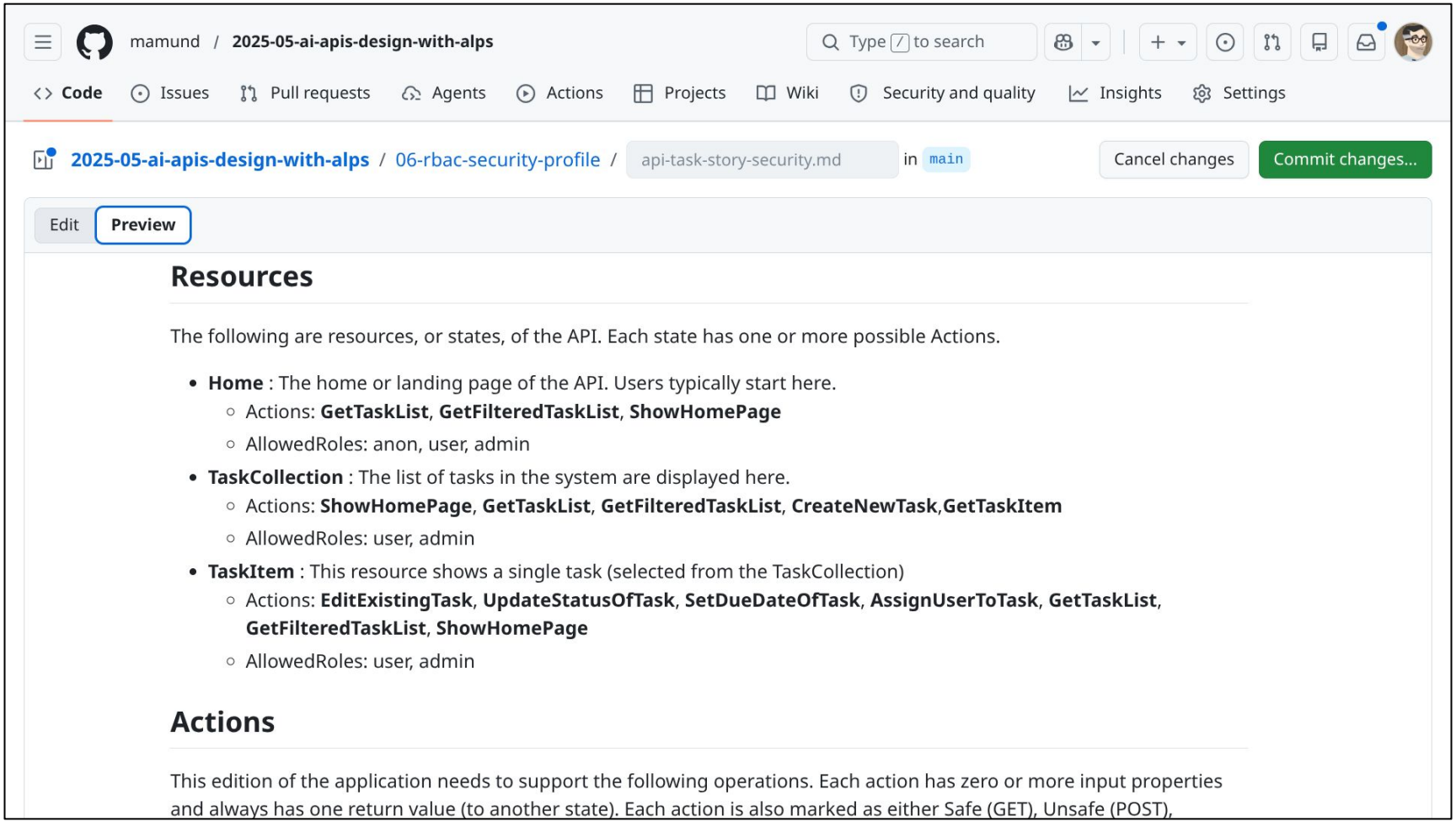
The AI-Driven API Design Loop

Iterate from ideas to secure, testable, APIs—and back again.

Generating Security Profiles

RBAC to the rescue

- Role-Based Access Control
  - RBAC
- Define Roles
  - `anon, user, admin`, etc
- Assign users to one or more roles
  - `user:mike, roles:user, admin`
- Secure API resources and actions
  - `/tasks/, /tasks/:id, addTask, updateStatus, etc.`


mamund / 2025-05-ai-apis-design-with-alps
Type / to search
Code
Issues
Pull requests
Agents
Actions
Projects
Wiki
Security and quality
Insights
Settings
2025-05-ai-apis-design-with-alps / 06-rbac-security-profile / api-task-story-security.md in main
Cancel changes
Commit changes...
Edit
Preview
Resources
The following are resources, or states, of the API. Each state has one or more possible Actions.
Home : The home or landing page of the API. Users typically start here.
Actions: GetTaskList, GetFilteredTaskList, ShowHomePage
AllowedRoles: anon, user, admin
TaskCollection : The list of tasks in the system are displayed here.
Actions: ShowHomePage, GetTaskList, GetFilteredTaskList, CreateNewTask,GetTaskItem
AllowedRoles: user, admin
TaskItem : This resource shows a single task (selected from the TaskCollection)
Actions: EditExistingTask, UpdateStatusOfTask, SetDueDateOfTask, AssignUserToTask, GetTaskList, GetFilteredTaskList, ShowHomePage
AllowedRoles: user, admin
Actions
This edition of the application needs to support the following operations. Each action has zero or more input properties and always has one return value (to another state). Each action is also marked as either Safe (GET), Unsafe (POST),

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Preview Code Blame 40 lines (32 loc) · 1.73 KB Raw

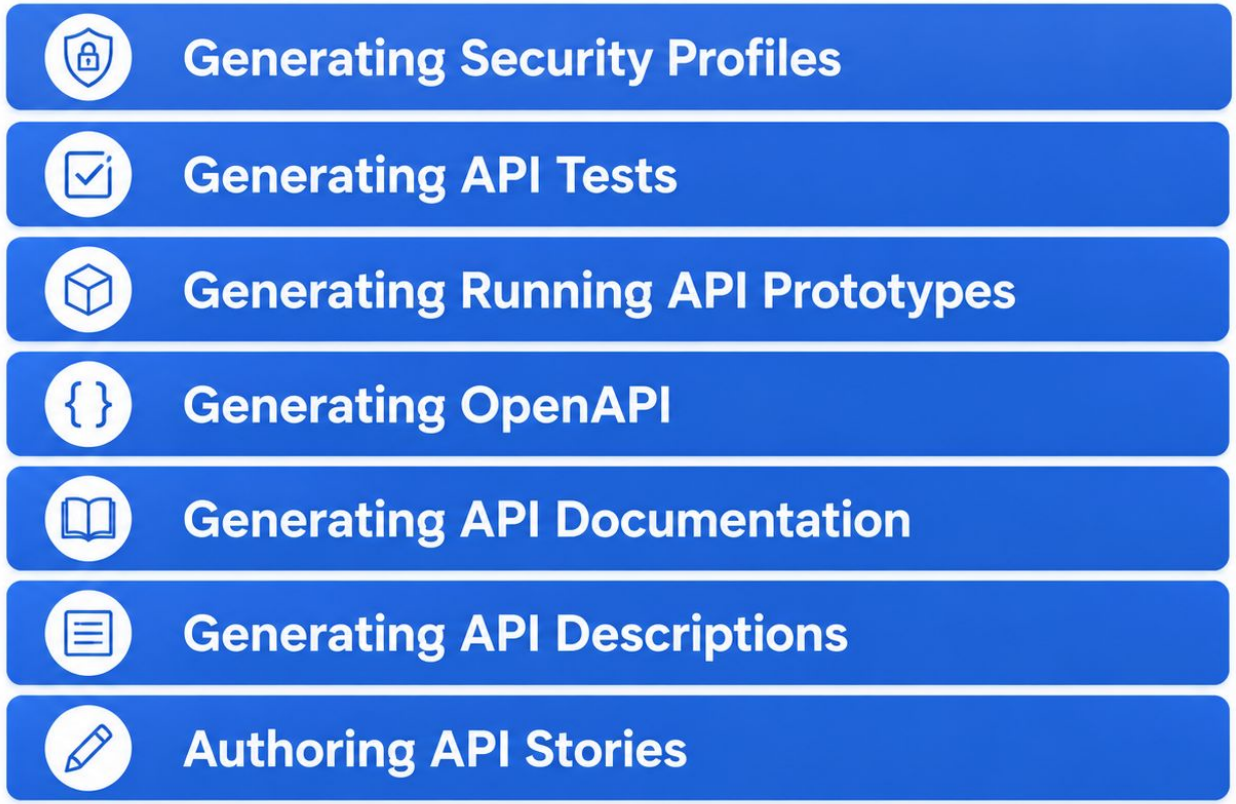
Action Access Matrix

Action	Type	Allowed Roles
AssignUserToTask	Idempotent	admin
CreateNewTask	Unsafe	user, admin
EditExistingTask	Unsafe	user, admin
GetFilteredTaskCollection	Safe	user, admin
GetTaskCollection	Safe	user, admin
GetTaskItem	Safe	user, admin
SetDueDateOfTask	Idempotent	admin
ShowHomePage	Safe	anon, user, admin
UpdateStatusOfTask	Idempotent	user, admin

Verification Summary

- ✅ All roles used in actions and resources are defined.
- ✅ No undefined roles were found in the policy.
- ✅ No orphan roles detected: every role is used in at least one context.
- ✅ All resources specify valid AllowedRoles.
- ✅ All actions specify valid AllowedRoles and valid action types.
- ✅ Markdown sections and format comply with security documentation standards.

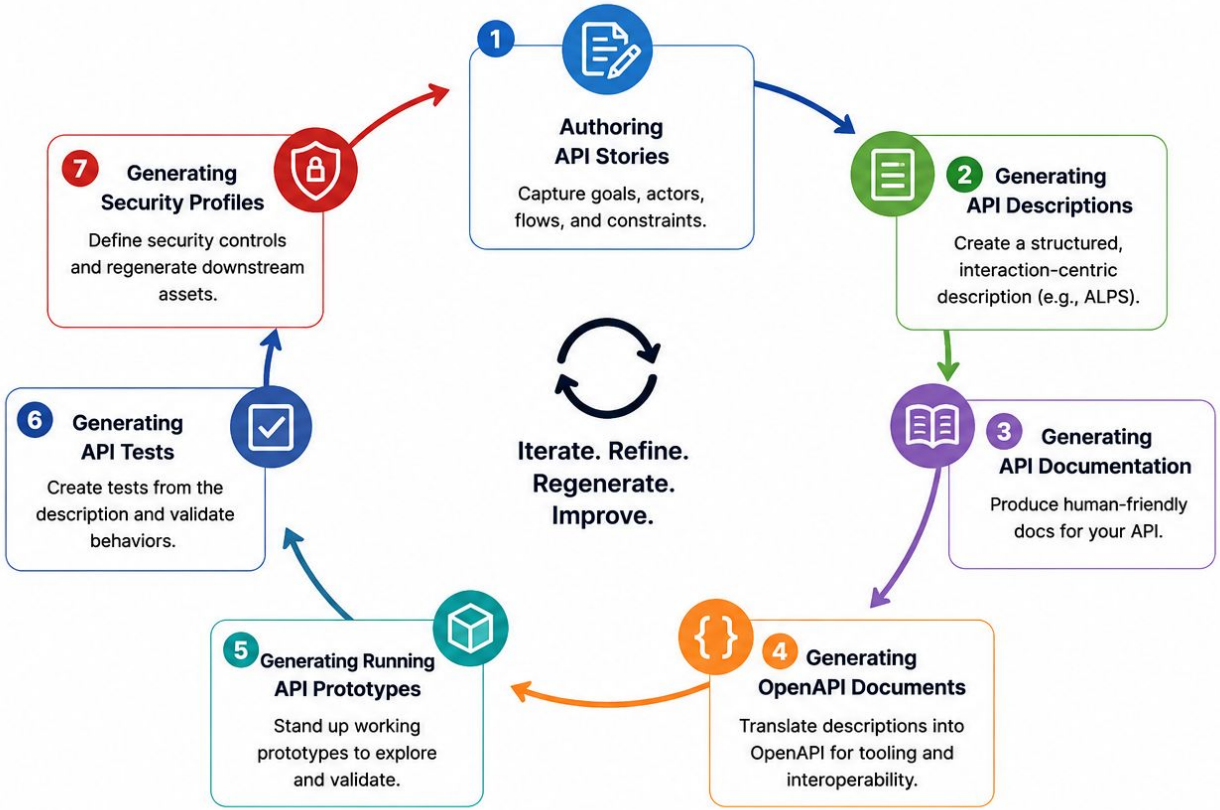
AI-Driven API Design Stack



And So …

The AI-Driven API Design Loop

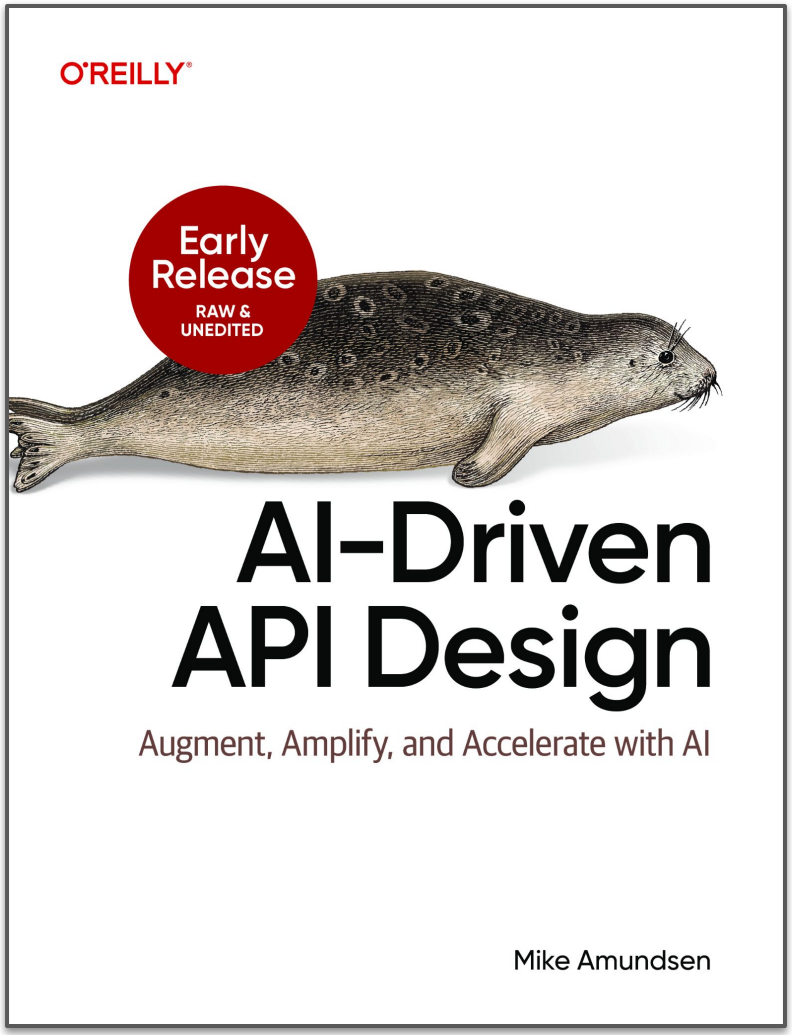
Iterate from ideas to secure, testable, APIs—and back again.



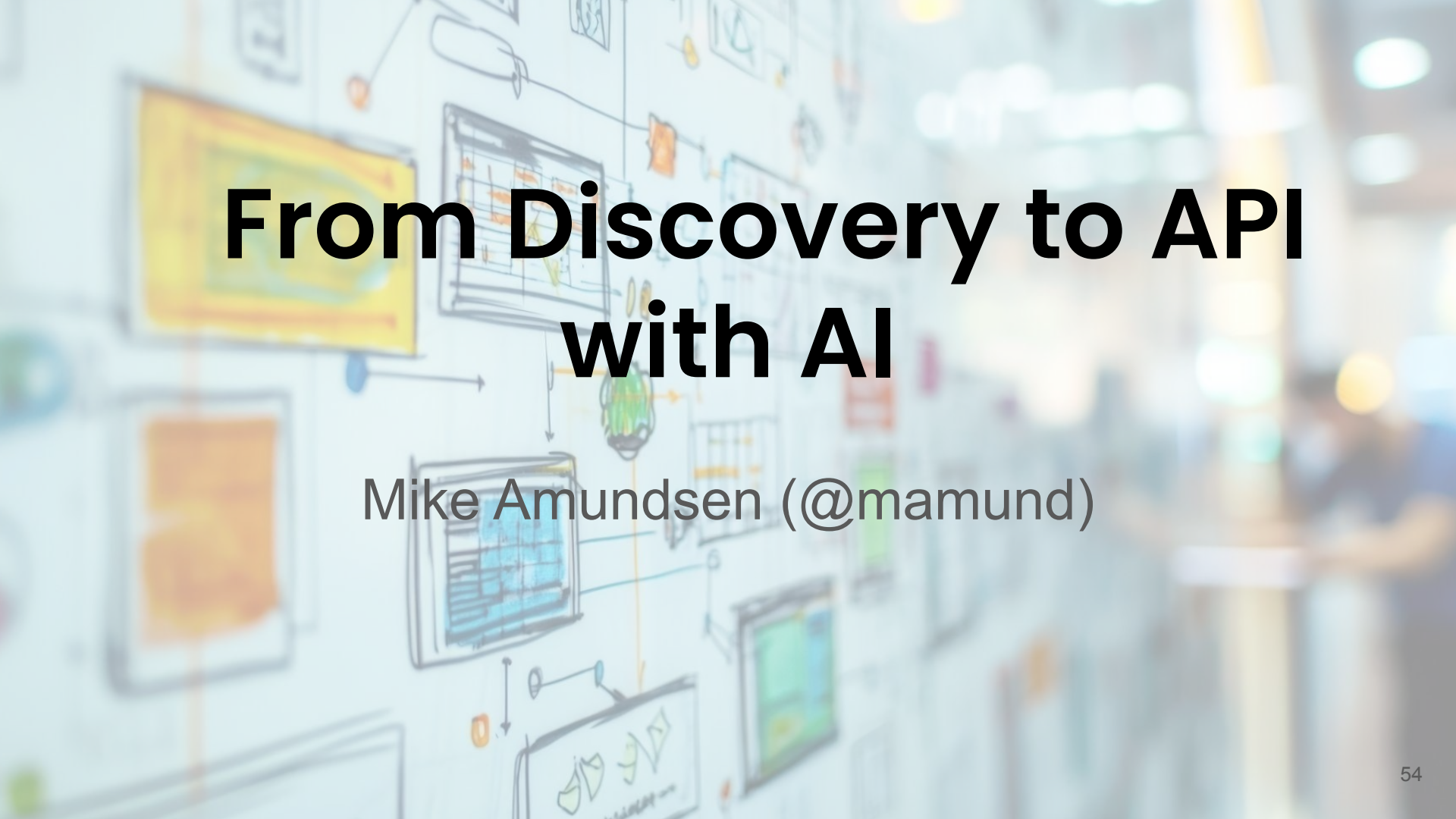
Andrej Karpathy

"Ultimately, vibe coding full web apps today is kind of messy and not a good idea for anything of actual importance."

— Andrej Karpathy (Apr 2025)


O'REILLY
Early Release
RAW & UNEDITED
AI-Driven API Design
Augment, Amplify, and Accelerate with AI
Mike Amundsen


Q&A



From Discovery to API with AI

Mike Amundsen (@mamund)