Your first MCP Server

Karim Lalani
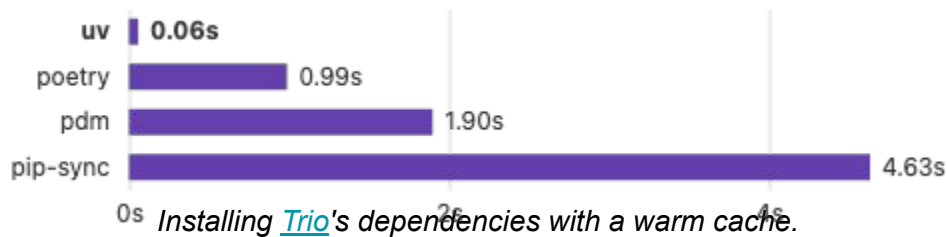
About Me - Karim Lalani

- **Home**: Leander, TX
- **Work**: Software Engineer @ Office the Governor
- **Background**: Full Stack Engineer, Gen AI
- **FOSS**: Docker / Kubernetes, C#, Python, PHP, Rust
- **Using LangChain**: Experimentation, learning
- **Socials**:
  - Linkedin https://www.linkedin.com/in/-karim-lalani/
  - Github https://github.com/lalanikarim/
  - Medium https://medium.com/@klcoder

Install uv from astral.sh

An extremely fast Python package and project manager, written in Rust.

Installing [Trio](#)'s dependencies with a warm cache.

pip install uv

curl -LsSf https://astral.sh/uv/install.sh | sh

powershell -ExecutionPolicy ByPass -c "irm https://astral.sh/uv/install.ps1 | iex"

https://docs.astral.sh/uv/getting-started/installation/

Let's Make an MCP Server

Simple MCP Server - Greeter

```python
# mcp-greeter.py
from mcp.server.fastmcp import FastMCP

# Create an MCP server
mcp = FastMCP("Greeter")

# Add an addition tool
@mcp.tool()
def texas_greeting(name: str) -> str:
    """Give a Texan welcome to someone"""
    return f"Howdy, {name}!"

# Add a dynamic greeting resource
@mcp.resource("greet://{name}")
def greet(name: str) -> str:
    """Get a personalized greeting"""
    return f"Hello, {name}!"
```
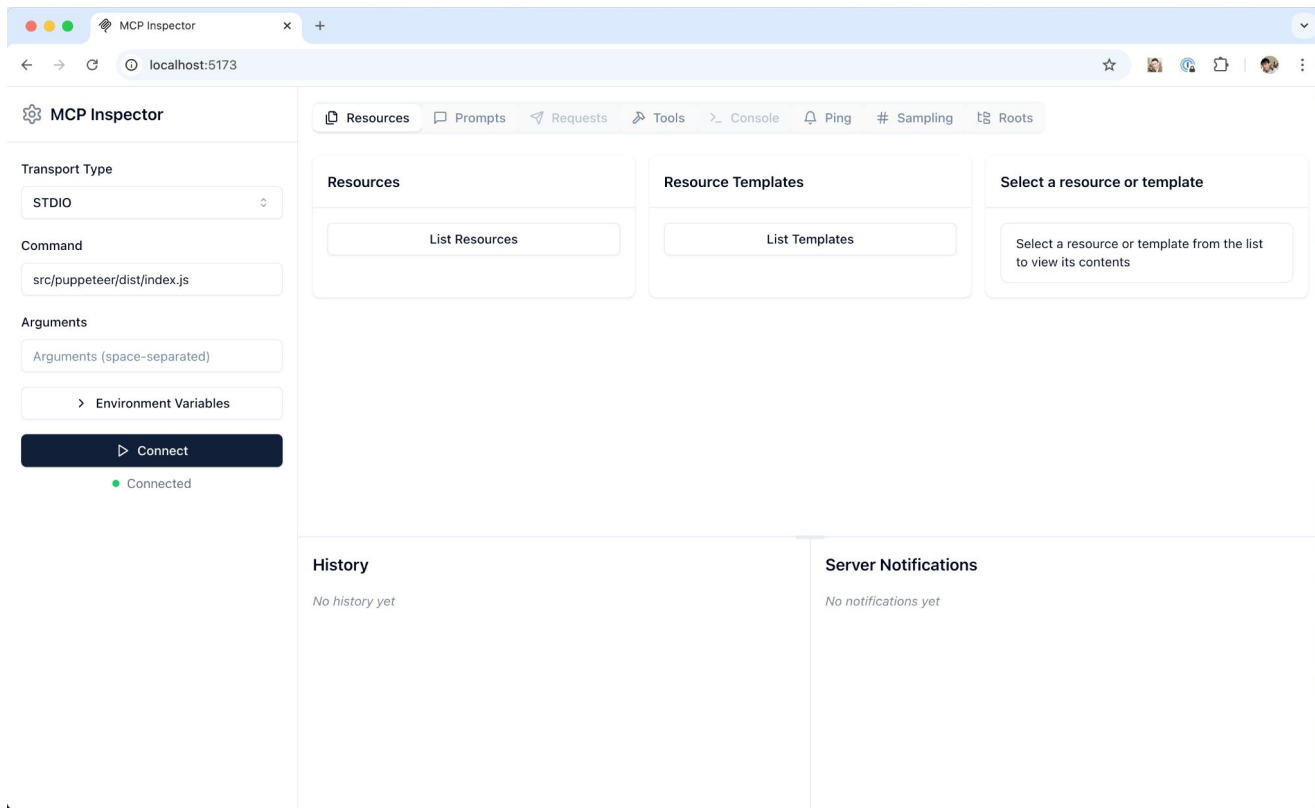
Setup

Tool

Resource

Test and debug MCP with Inspector

Launching MCP Inspector

uv run --with mcp[cli] mcp dev mcp-greeter.py

Starting MCP inspector...
Proxy server listening on port 3000
🔍 MCP Inspector is up and running at http://localhost:5173 🚀

Inspecting Greeter

MCP Inspector v0.7.0

Transport Type

STDIO

Command

uv

Arguments

run --with mcp mcp run mcp-gree

> Environment Variables

▷ Connect

● Disconnected

📄 Resources 💬 Prompts 🔧 Tools 🔔 Ping # Sampling ⛁ Roots

Resources

List Resources

Clear

Resource Templates

List Templates

Clear

📄 Resources 💬 Prompts 🔧 Tools 🔔 Ping # Sampling ⛁ Roo

Tools

List Tools

Clear

Greeter - Resources

Resource Templates

List Templates

Clear

📄 greet >

greet

Get a personalized greeting

name

Enter name ⇕

Read Resource

Resource Templates

List Templates

Clear

📄 greet >

greet://Karim ⟳ Refresh

```
{
  "contents": [
    {
      "uri": "greet://Karim",
      "mimeType": "text/plain",
      "text": "Hello, Karim!"
    }
  ]
}
```

Greeter - Tools

Tools

List Tools

Clear

texas_greeting   Give a Texan welcome to someone

Select a tool

Select a tool from the list to view its details and run it

---

texas_greeting

Give a Texan welcome to someone

name

Karim

⏵ Run Tool

Tool Result: Success

Howdy, Karim!

MCP Inspector - History

History

6. `tools/call`	▶
5. `tools/list`	▶
4. `resources/read`	▶
3. `completion/complete`	▶
2. `resources/templates/list`	▶
1. `resources/list`	▶

6. `tools/call` ▼

Request:

```
{
  "method": "tools/call",
  "params": {
    "name": "texas_greeting",
    "arguments": {
      "name": "Karim"
    },
    "_meta": {
      "progressToken": 0
    }
  }
}
```
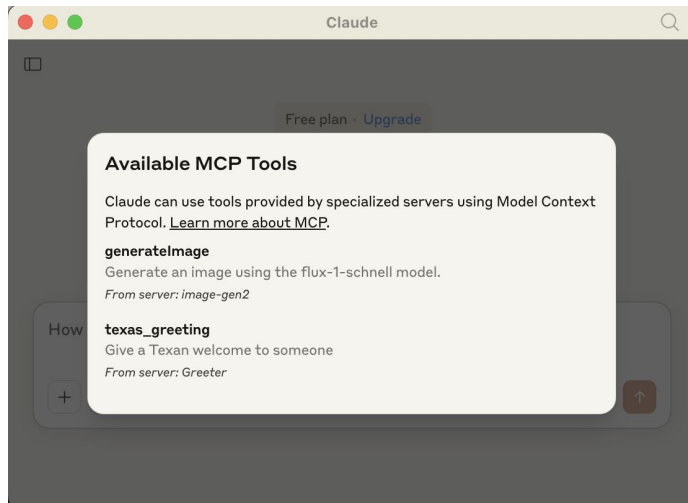
Response:

```
{
  "content": [
    {
      "type": "text",
      "text": "Howdy, Karim!"
    }
  ],
  "isError": false
}
```
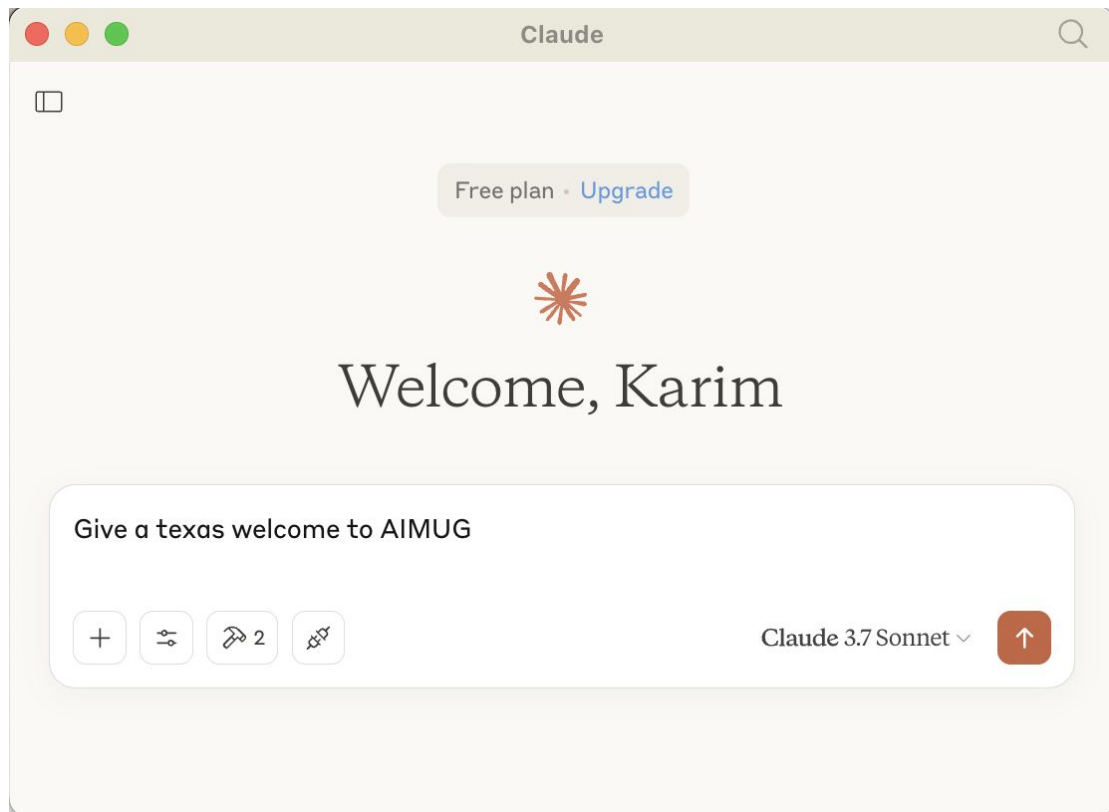
Install Greeter MCP Server in Claude Desktop

uv run --with mcp[cli] mcp install mcp-greeter.py
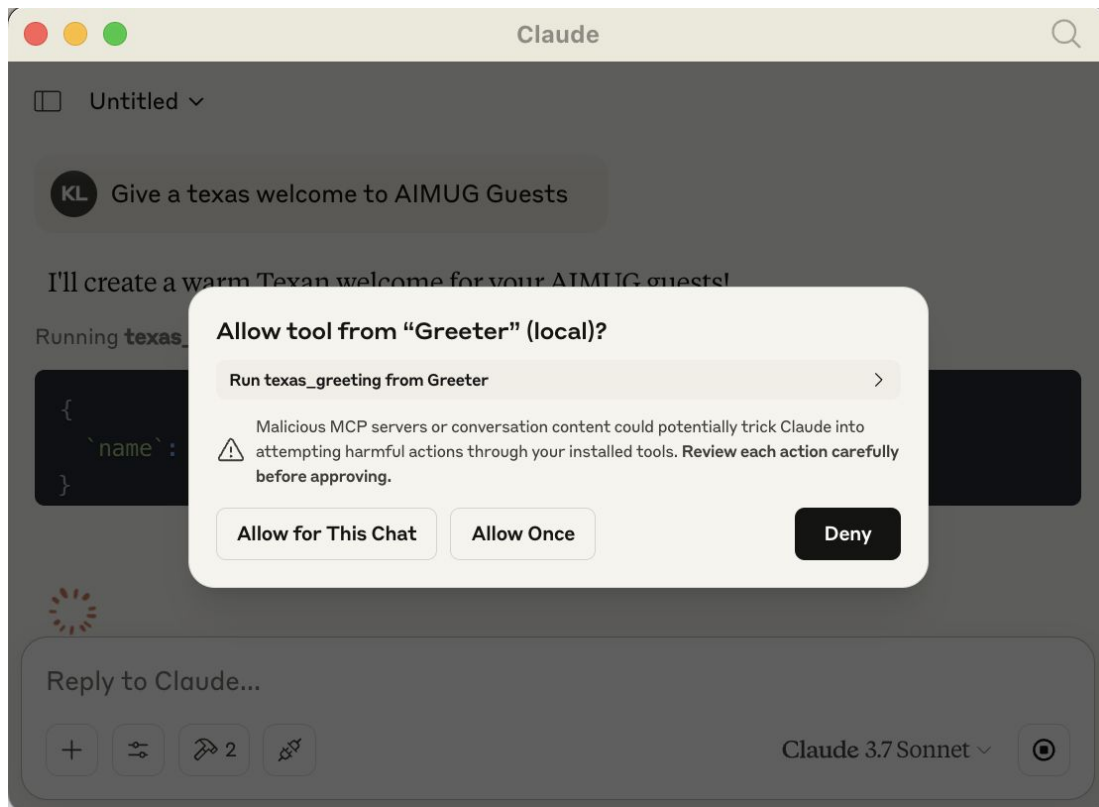
INFO   Added server 'Greeter' to Claude config
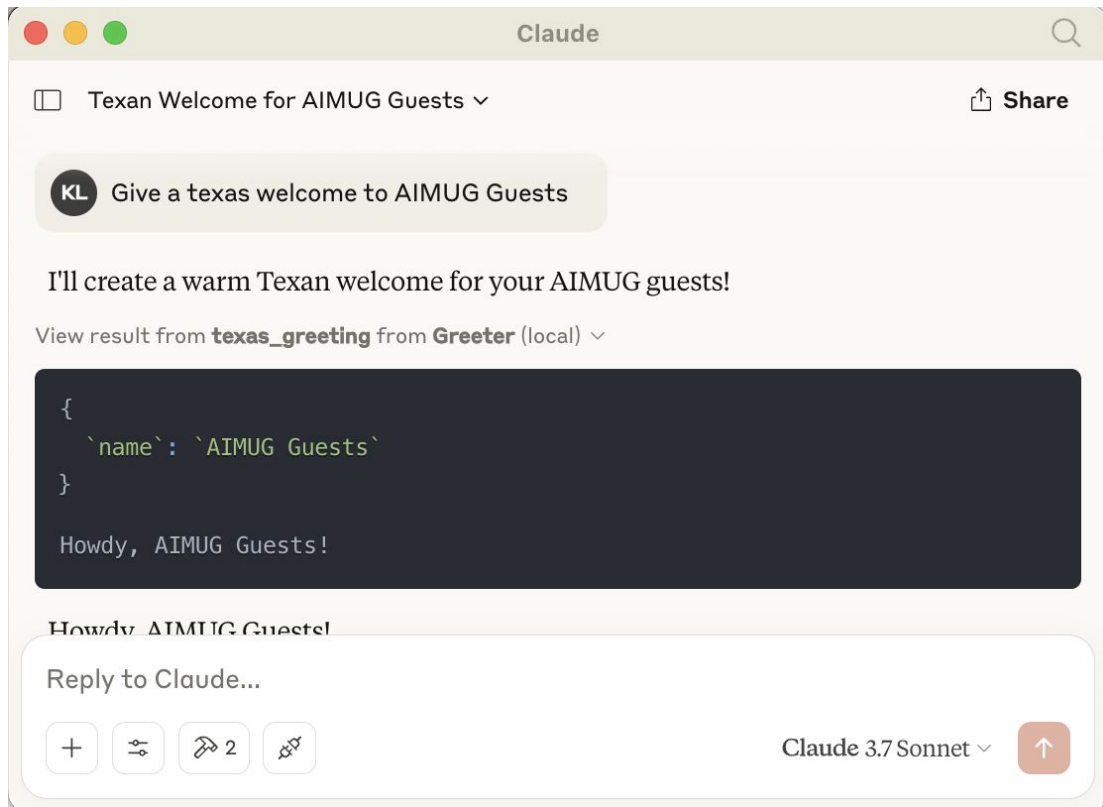
INFO   Successfully installed Greeter in Claude app

Taking it out for a spin
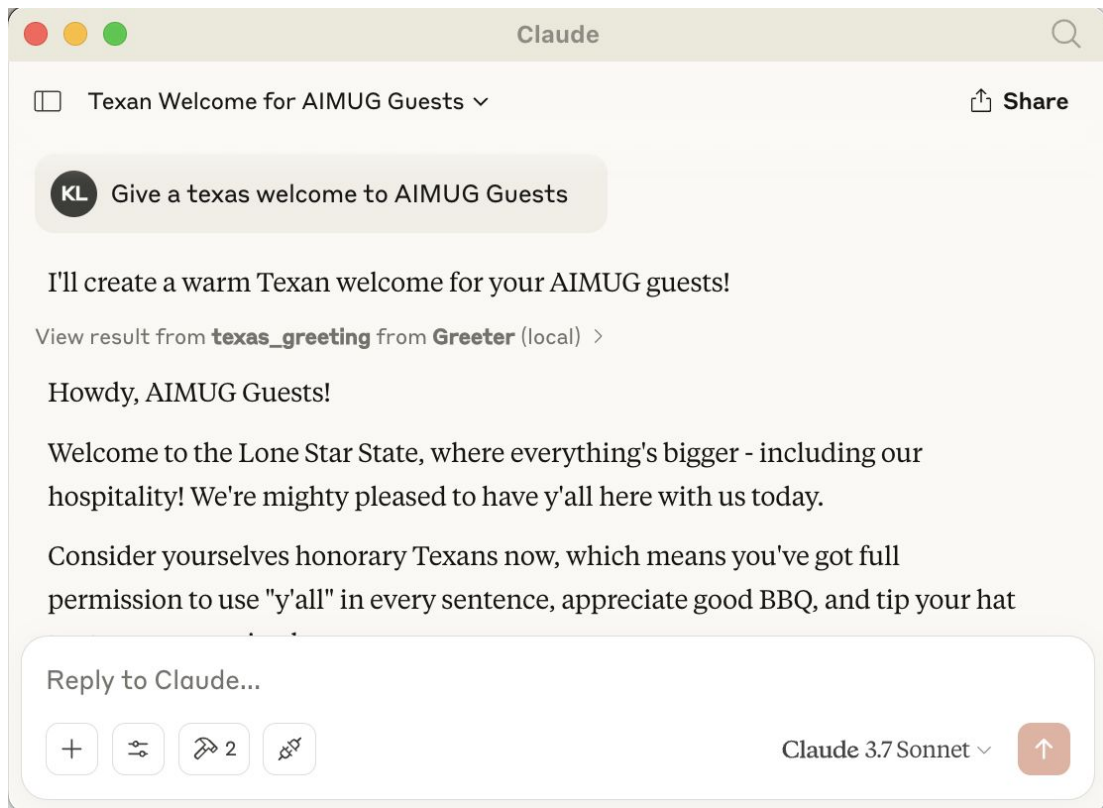
Taking it out for a spin

Taking it out for a spin

Taking it out for a spin

Claude

Texan Welcome for AIMUG Guests ⌄

⬆ Share

KL Give a texas welcome to AIMUG Guests

I'll create a warm Texan welcome for your AIMUG guests!

View result from **texas_greeting** from **Greeter** (local) ›

Howdy, AIMUG Guests!

Welcome to the Lone Star State, where everything's bigger - including our hospitality! We're mighty pleased to have y'all here with us today.

Consider yourselves honorary Texans now, which means you've got full permission to use "y'all" in every sentence, appreciate good BBQ, and tip your hat

Reply to Claude...

Claude 3.7 Sonnet ⌄

Happy MCP Vibing!