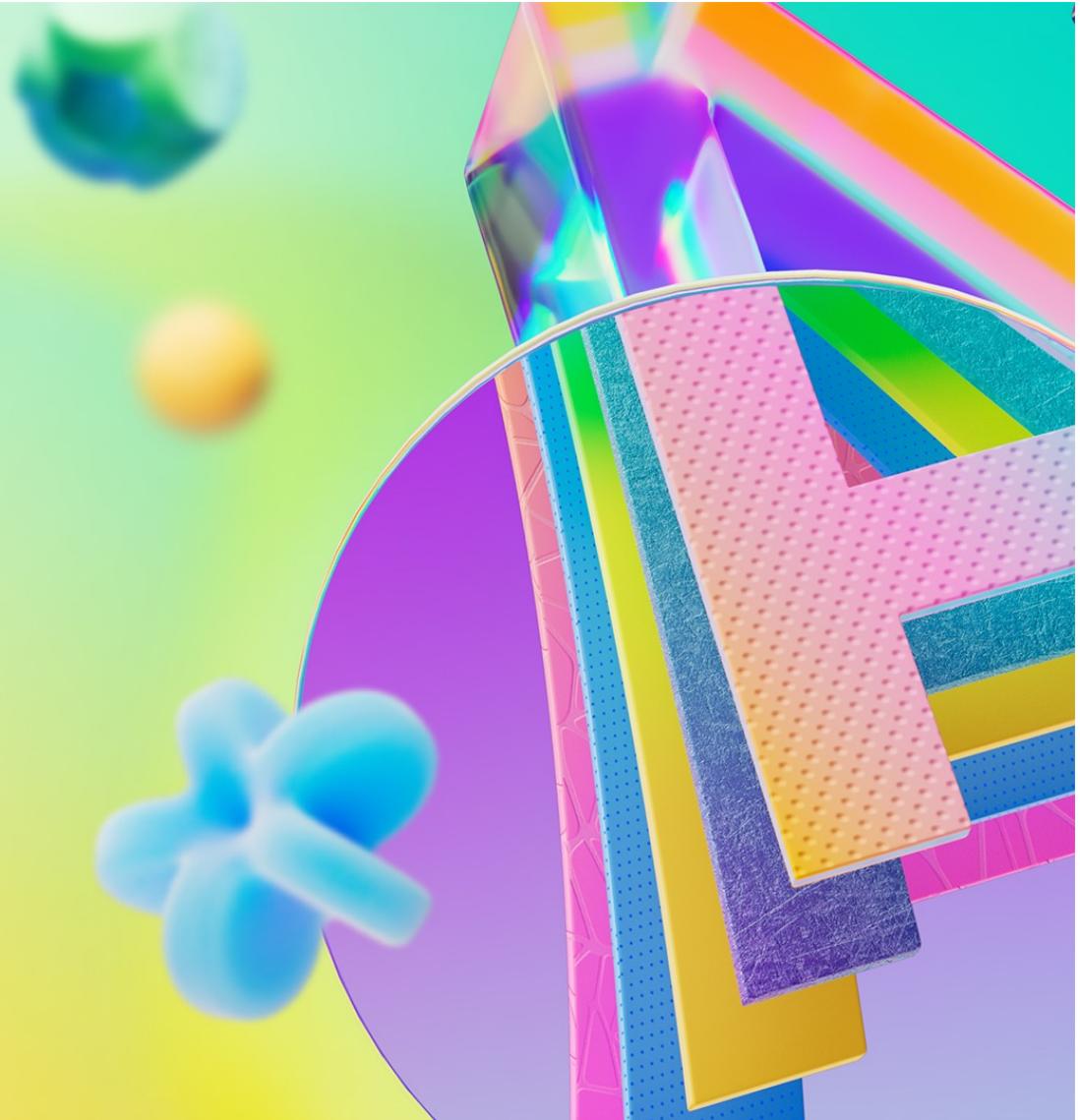




Microsoft AI .NET Day





CODE; WITHOUT BARRIERS



<https://aka.ms/codewithoutbarriers>

CODE; WITHOUT BARRIERS

시간	제목	발표자
13:00	오프닝 키노트	유저스틴
13:35	나만의 면접 코치 만든 썰 풀어드립니다 (feat. Semantic Kernel + MCP)	이지호
14:10	AI 도입 여정, 실무에서 마주한 문제와 해결의 길	장아린/최영환
14:45	마우스 클릭 몇 번 만으로 AI 챗봇 만들어 볼까요?	김진석
15:30	시맨틱 커널의 모든 것	박구삼
16:15	.NET에서 MCP 활용 가이드	이종인



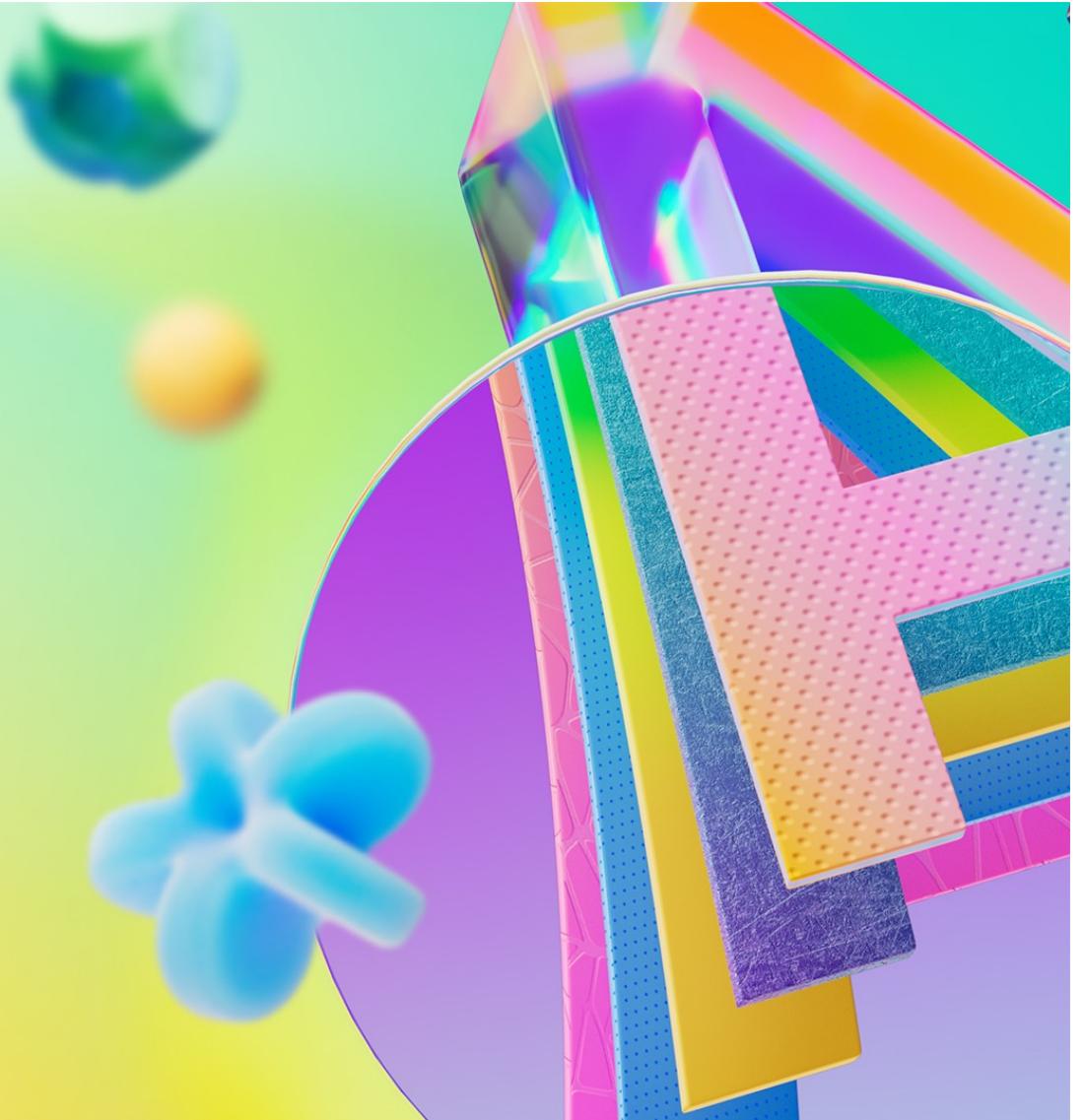
.NET으로 AI 앱을 만들 수 있는 여러 가지 방법

유저스틴

수석 디벨로퍼 아드보캣
Microsoft

Docker Captain

@justinyoo @justinyoo



빌드 컨퍼런스 잘 보셨나요?

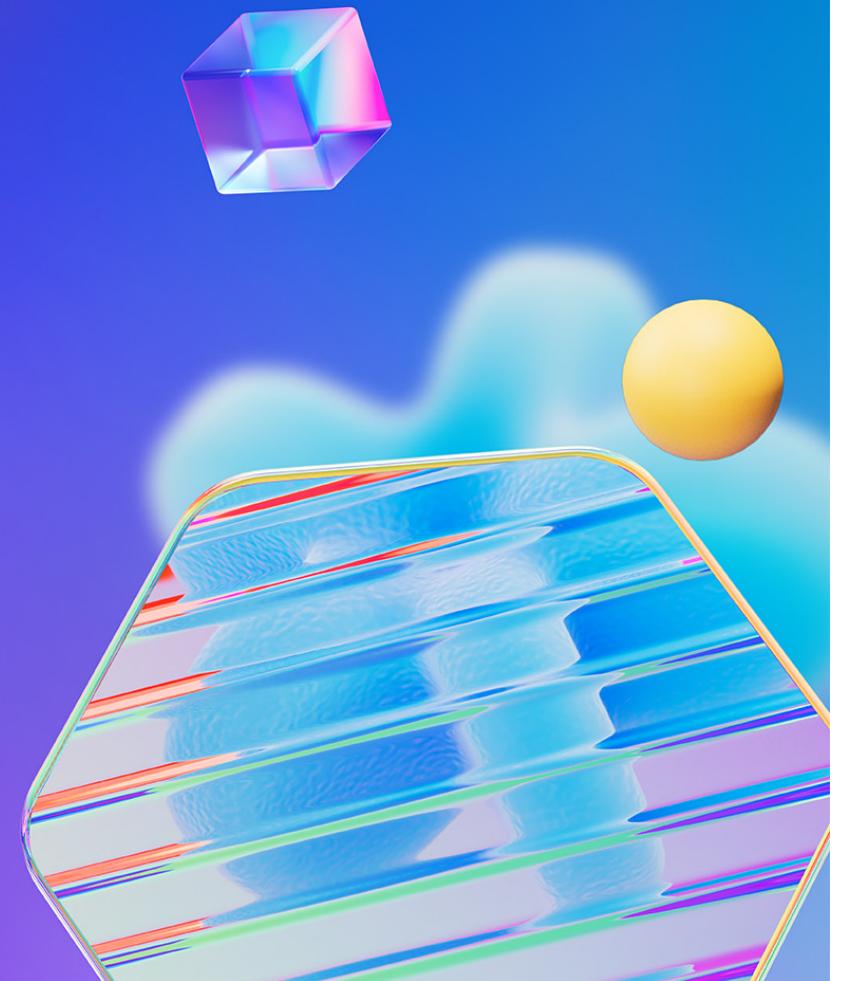
엄청나게 많은 얘기들이 쏟아졌습니다

.NET 얘기
AI 얘기
.NET으로 AI 하는 얘기

그 중에서 오늘은...

Microsoft.Extensions.AI
Azure AI Foundry
MCP + Agent

Microsoft.Extensions.AI



```
// OpenAI
ChatClient client = new(model, apiKey);
var result = await client.CompleteChatAsync("...");
```

```
// OpenAI
ChatClient client = new(model, apiKey);
var result = await client.CompleteChatAsync(...);

// Anthropic
AnthropicClient client = new();
var messages = new List<Message>() { ... };
var parameters = new MessageParameters(){Messages = messages, ...};
var result = await client.Messages
    .GetClaudeMessageAsync(parameters);
```

```
// OpenAI
ChatClient client = new(model, apiKey);
var result = await client.CompleteChatAsync(...);

// Anthropic
AnthropicClient client = new();
var messages = new List<Message>() { ... };
var parameters = new MessageParameters(){Messages = messages, ...};
var result = await client.Messages
    .GetClaudeMessageAsync(parameters);

// Google
GoogleAI client = new(apiKey);
var model = client.CreateGenerativeModel(model);
var session = model.StartChat();
var result = await session.GenerateContentAsync(...);
```

사용하는 방법이 다 달라요!

LLM은 손쉽게 갈아끼울 수 있어야 합니다

Semantic Kernel에서 진화

모든 LLM을 같은 인터페이스로!

IChatClient

```
dotnet add package Microsoft.Extensions.AI
```

```
// OpenAI
IChatClient client = new OpenAIClient(model, apiKey)
    .GetChatClient()
    .AsIChatClient();
var result = await client.GetResponseAsync ("...");
```

```
// OpenAI
IChatClient client = new OpenAIClient(model, apiKey)
    .GetChatClient()
    .AsIChatClient();
var result = await client.GetResponseAsync ("...");
```

```
// Anthropic
IChatClient client = new AnthropicClient().Messages;
ChatOptions options = new() { ... };
var result = await client.GetResponseAsync ("...", options);
```

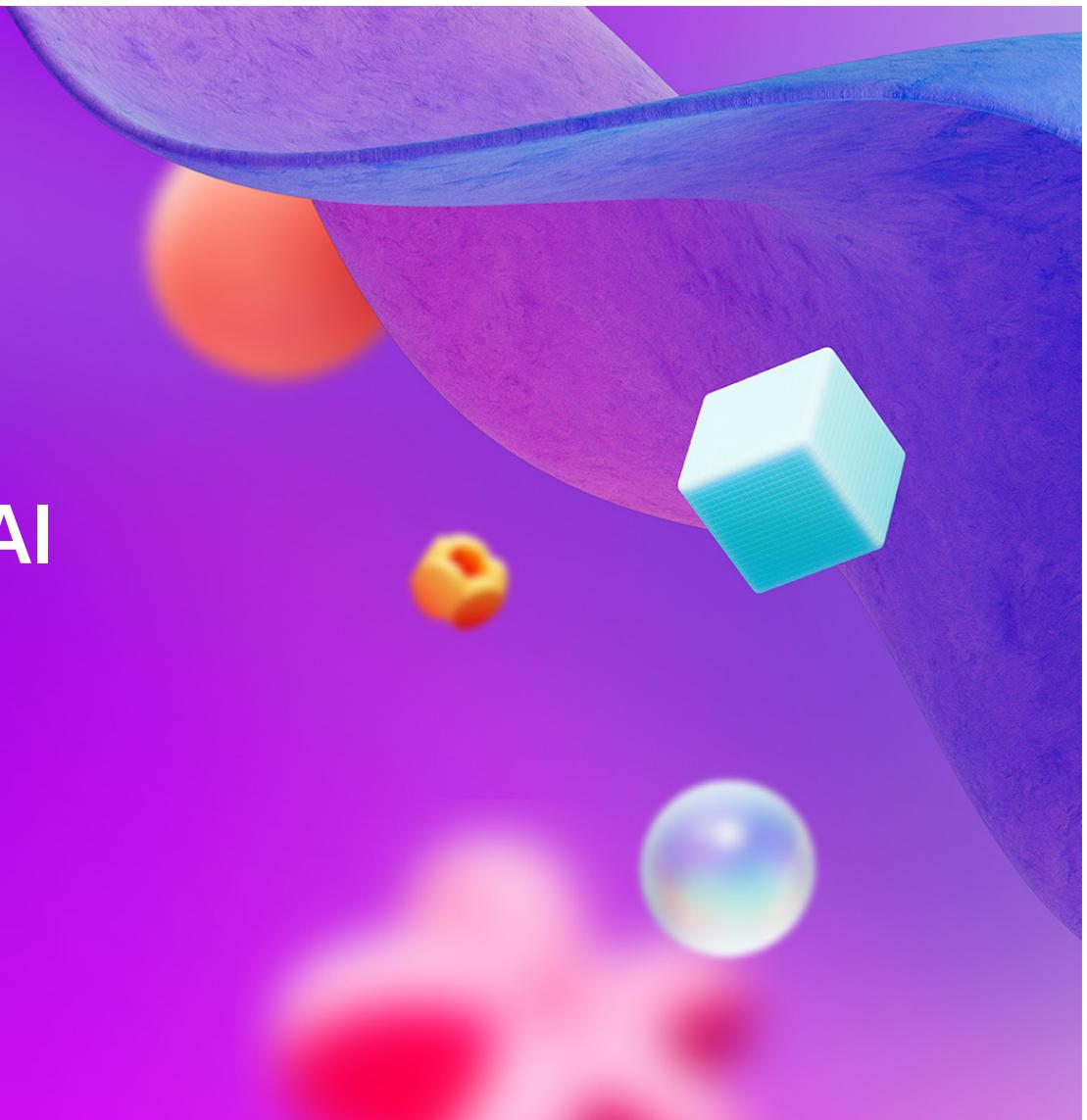
```
// OpenAI
IChatClient client = new OpenAIClient(model, apiKey)
    .GetChatClient()
    .AsIChatClient();
var result = await client.GetResponseAsync ("...");
```

```
// Anthropic
IChatClient client = new AnthropicClient().Messages;
ChatOptions options = new() { ... };
var result = await client.GetResponseAsync ("...", options);
```

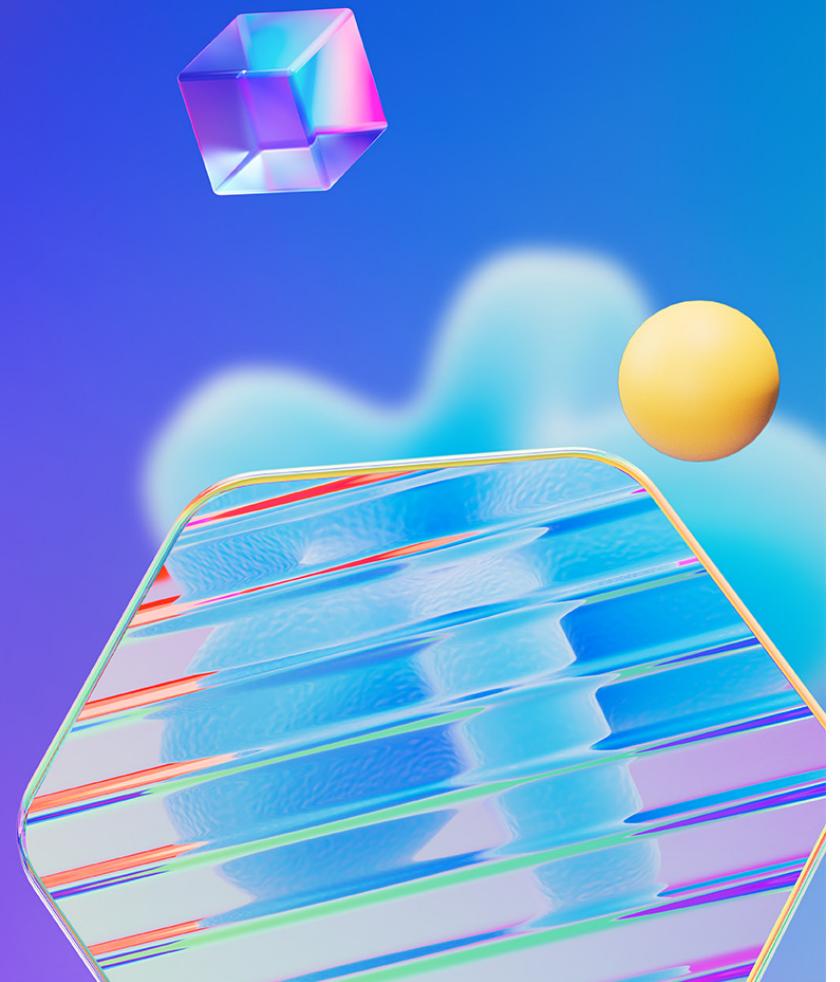
```
// Google
IChatClient client = new GeminiChatClient(apiKey, model);
var result = await client.GetResponseAsync ("...");
```

- <https://www.nuget.org/packages/AWSSDK.Extensions.Bedrock.MEAI>
- <https://www.nuget.org/packages/OllamaSharp>
- <https://www.nuget.org/packages/LLamaSharp>
- <https://www.nuget.org/packages/Anthropic/>
- <https://www.nuget.org/packages/Anthropic.SDK/>
- <https://www.nuget.org/packages/Mistral>
- <https://www.nuget.org/packages/Mistral.SDK>
- <https://www.nuget.org/packages/HuggingFace>
- <https://www.nuget.org/packages/Betalgo.Ranul.OpenAI>
- https://www.nuget.org/packages/Google_GenerativeAI
- <https://www.nuget.org/packages/Mscg.GenerativeAI>
- <https://www.nuget.org/packages/DeepSeek.NET>

DEMO:
Microsoft.Extensions.AI



Azure AI Foundry



Azure에서 제공하는 모든 AI 서비스의 집합체

Speech
Vision
Language
Translator
Document Intelligence
AI Search

Foundry Model

Model as a Service

Azure AI Foundry / canet-models / Model catalog

All resources 5 Project canet-models JV

Find the right model to build your custom AI solution

Collections Industry Capabilities Deployment options Inference tasks

Fine-tuning tasks Licenses

Search

Compare models

11210개 Models 11210

Overview Model catalog Playgrounds AI Services Build and customize Agents PREVIEW Templates Fine-tuning Content Understanding PREVIEW Prompt flow Observe and optimize Tracing PREVIEW Monitoring Protect and govern Evaluation Guardrails + controls Risks + alerts Governance PREVIEW

My assets Models + endpoints Data + indexes Web apps ... More

Models help

How to use the model catalog

Search by name, filter, or browse to find the right model for your use case. Click to see model details and specifications from the publisher and to deploy a model.

Relevant resources

Note that non-Microsoft models are subject to their own terms. Please read documentation carefully before deploying.

Launch Get Started tutorial

grok-3 Chat completion

grok-3-mini Chat completion

model-router Chat completion

o3 Chat completion

o4-mini Chat completion

MAI-DS-R1 Chat completion

gpt-image-1 Text to image

gpt-4.1 Chat completion

gpt-4.1-mini Chat completion

gpt-4.1-nano Chat completion

mistral-medium-2505 Chat completion, Conversational,...

EvoDiff protein-sequence-generation

Phi-4-reasoning Chat completion

Phi-4-mini-reasoning Chat completion

Llama-4-Scout-17B-16E-I... Chat completion

Llama-4-Maverick-17B-1... Chat completion

cohere-command-a Chat completion

embed-v-4-0 Embeddings, Summarization

gpt-4.5-preview Chat completion

o3-mini Chat completion

DeepSeek-V3-0324 Chat completion

Llama-4-Scout-17B-16E Chat completion

gpt-4o-mini-tts Text to speech

gpt-4o-transcribe Speech to text

gpt-4o-mini-transcribe Speech to text

DeepSeek-V3 Chat completion

DeepSeek-R1 Chat completion

computer-use-preview Responses

Phi-4-mini-instruct Chat completion

Phi-4-multimodal-instruct Chat completion

Phi-4 Chat completion

mistral-small-2503 Chat completion, Conversational,...

Foundry Local

로컬 컴퓨터에서도 동일한 개발 경험

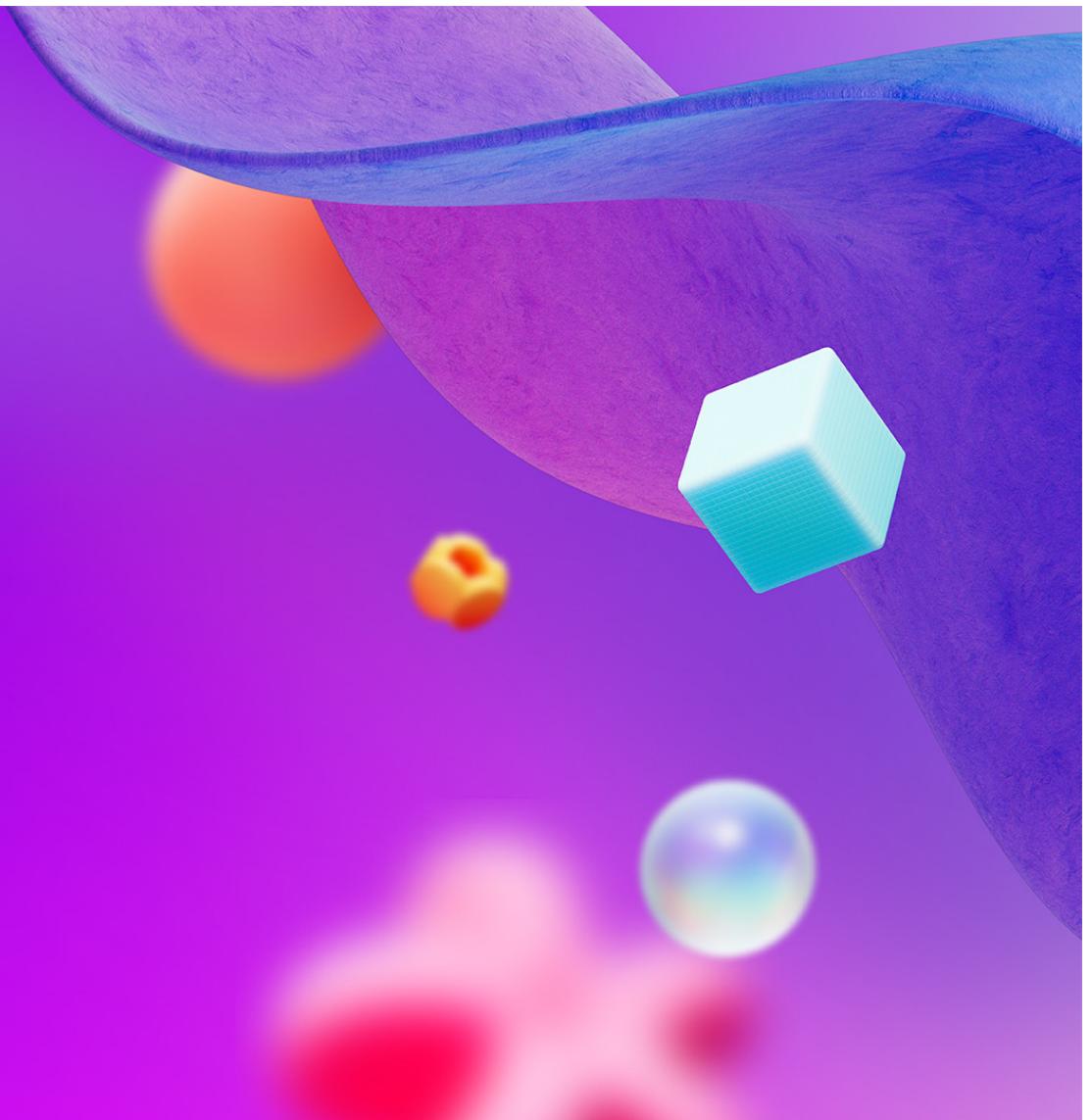
```
var credential = new ApiKeyCredential(apiKey);
var options = new OpenAIClientOptions()
{
    Endpoint = endpoint
};
var foundryClient = new OpenAIClient(credential, options);
var chatClient = foundryClient.GetChatClient("gpt-4o")
    .AsIChatClient();
```

```
var alias = "qwen2.5-0.5b";
var manager = await FoundryManager.StartModelAsync(alias);
var model = await manager.GetModelInfoAsync(alias);

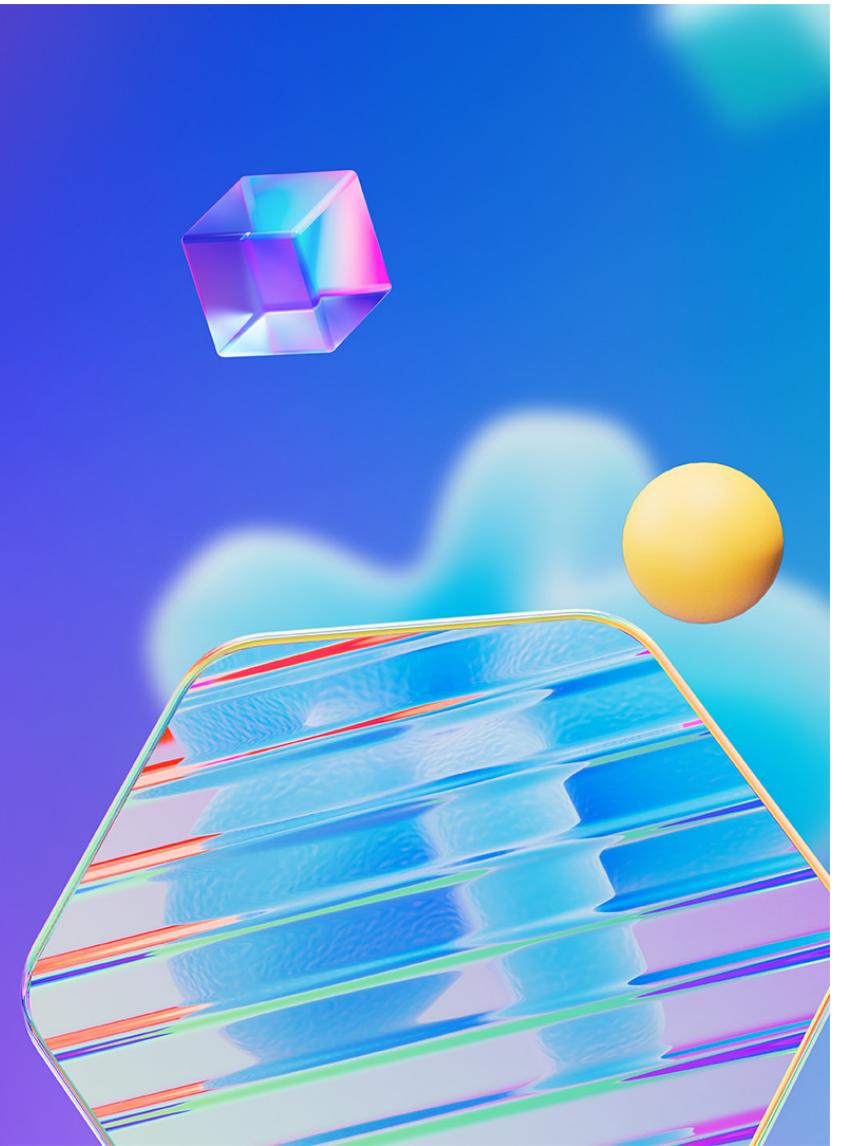
var credential = new ApiKeyCredential(manager.ApiKey);
var options = new OpenAIClientOptions()
{
    Endpoint = manager.Endpoint
};
var foundryClient = new OpenAIClient(credential, options);
var chatClient = foundryClient.GetChatClient(model?.ModelId)
    .AsIChatClient();
```

DEMO:

Azure AI Foundry



MCP + Agent



MCP에 대한 자세한 설명은 다음 세션에서...

에이전트를 더욱 똑똑하게!

MCP 서버/클라이언트를 아주 쉽게!

```
// MCP Server  
var builder = WebApplication.CreateBuilder(args);
```

```
// MCP Server
var builder = WebApplication.CreateBuilder(args);

builder.Services.AddMcpServer()
```

```
// MCP Server
var builder = WebApplication.CreateBuilder(args);

builder.Services.AddMcpServer()
    .WithHttpTransport()
```

```
// MCP Server
var builder = WebApplication.CreateBuilder(args);

builder.Services.AddMcpServer()
    .WithHttpTransport()
    .WithToolsFromAssembly();
```

```
// MCP Server
var builder = WebApplication.CreateBuilder(args);

builder.Services.AddMcpServer()
    .WithHttpTransport()
    .WithToolsFromAssembly();

var app = builder.Build();
```

```
// MCP Server
var builder = WebApplication.CreateBuilder(args);

builder.Services.AddMcpServer()
    .WithHttpTransport()
    .WithToolsFromAssembly();

var app = builder.Build();

app.MapMcp();
```

```
// MCP Server
var builder = WebApplication.CreateBuilder(args);

builder.Services.AddMcpServer()
    .WithHttpTransport()
    .WithToolsFromAssembly();

var app = builder.Build();

app.MapMcp();

app.Run();
```

```
// Tool

public class EchoTool
{
    public string Echo(
        string message
    )
    {
        return "hello " + message;
    }
}
```

```
// Tool
[McpServerToolType]
public class EchoTool
{
    [McpServerTool]
    [Description("Echoes the input back.")]
    public string Echo(
        [Description("User input.")] string message
    )
    {
        return "hello " + message;
    }
}
```

```
// MCP Client  
var builder = WebApplication.CreateBuilder(args);
```

```
// MCP Client
var builder = WebApplication.CreateBuilder(args);
builder.Services.AddSingleton<IMcpClient>(sp =>
{
    var mcpClient = McpClientFactory.CreateAsync(
        clientTransport,
        clientOptions).GetAwaiter().GetResult();
    return mcpClient;
});
```

```
// MCP Client
var builder = WebApplication.CreateBuilder(args);
builder.Services.AddSingleton<IMcpClient>(sp =>
{
    var mcpClient = McpClientFactory.CreateAsync(
        clientTransport,
        clientOptions).GetAwaiter().GetResult();
    return mcpClient;
});
```

```
// MCP Client
var builder = WebApplication.CreateBuilder(args);
builder.Services.AddSingleton<IMcpClient>(sp =>
{
    McpClientOptions clientOptions = new()
    { ClientInfo = new() { Name = "AspNetCoreSseClient", Version = "1.0.0" } };

    SseClientTransportOptions clientTransportOptions = new()
    { Endpoint = new Uri("http://localhost:3001/sse") };
    SseClientTransport clientTransport = new (clientTransportOptions)

    var mcpClient = McpClientFactory.CreateAsync(
        clientTransport,
        clientOptions).GetAwaiter().GetResult();

    return mcpClient;
});
```

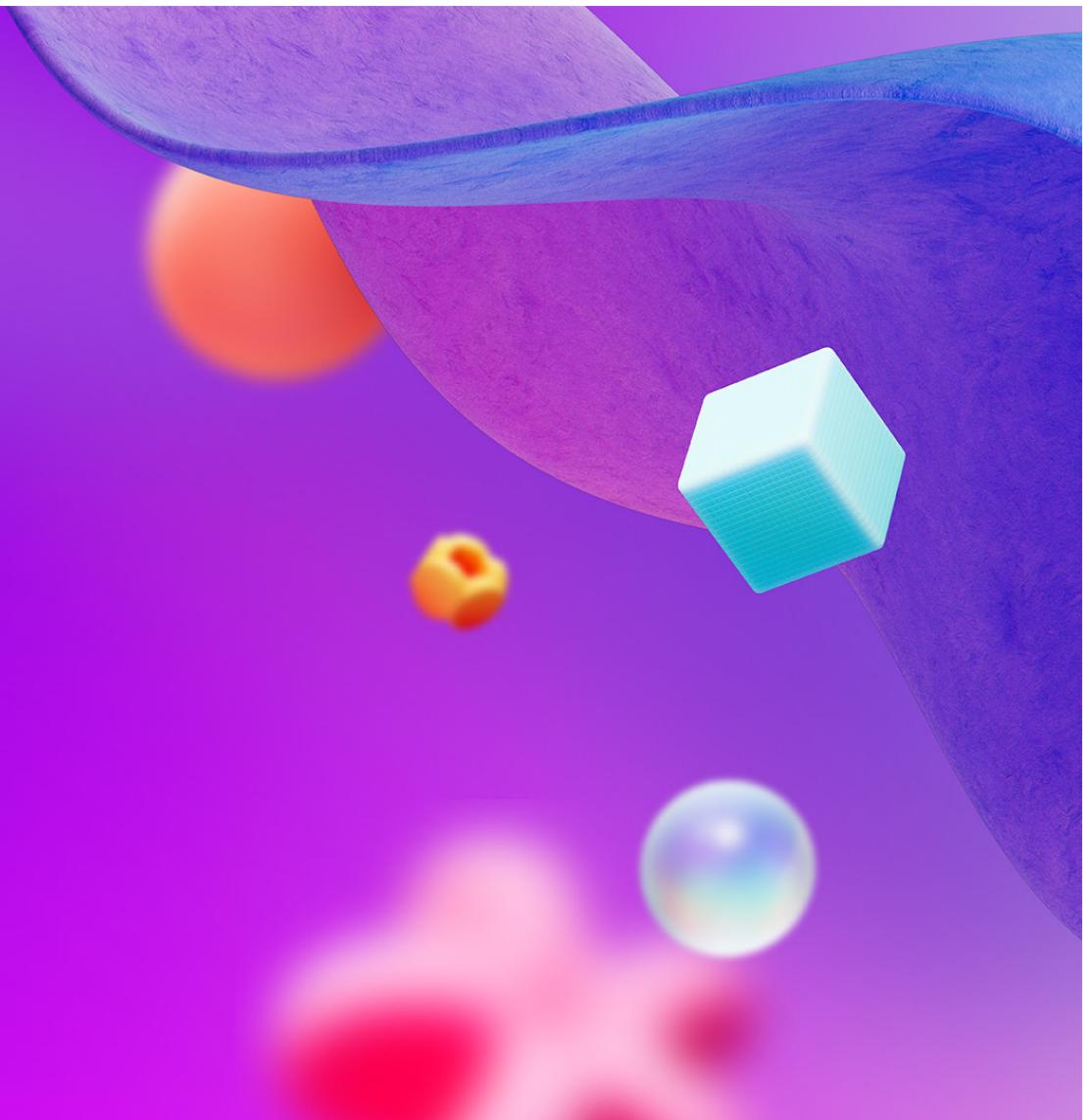
```
// MCP Client
var builder = WebApplication.CreateBuilder(args);
builder.Services.AddSingleton<IMcpClient>(sp =>
{
    McpClientOptions clientOptions = new()
    { ClientInfo = new() { Name = "AspNetCoreSseClient", Version = "1.0.0" } };

    SseClientTransportOptions clientTransportOptions = new()
    { Endpoint = new Uri("http://localhost:3001/sse") };
    SseClientTransport clientTransport = new (clientTransportOptions)

    var mcpClient = McpClientFactory.CreateAsync(
        clientTransport,
        clientOptions).GetAwaiter().GetResult();

    return mcpClient;
});
var app = builder.Build();
app.Run();
```

DEMO: MCP Server/Client



.NET으로 아주 쉽게

.NET으로 아주 쉽게
통합된 개발 경험으로

.NET으로 아주 쉽게
통합된 개발 경험으로
AI 앱을 만들 수 있었습니다

.NET + AI Ecosystem Tools and SDKs

<https://aka.ms/dotnet/ai/ecosystem>

Microsoft.Extensions.AI

<https://aka.ms/dotnet/ai/meai>

Semantic Kernel

<https://aka.ms/dotnet/ai/semantic-kernel>

Azure AI Foundry

<https://aka.ms/dotnet/ai/azure-ai-foundry>

Foundry Local

<https://aka.ms/dotnet/ai/foundry-local>

MCP

<https://aka.ms/dotnet/ai/mcp>

Demo

<https://aka.ms/dotnet/ai/meai-foundry-mcp-sample>



이제
여러분 차례



감사합니다!

.NET으로 AI 앱을 만들 수 있는 여러 가지 방법

유저스틴

⌚ @justinyoo 💬 @justinyoo