Hybrid AI

Smart, Simple, Scalable

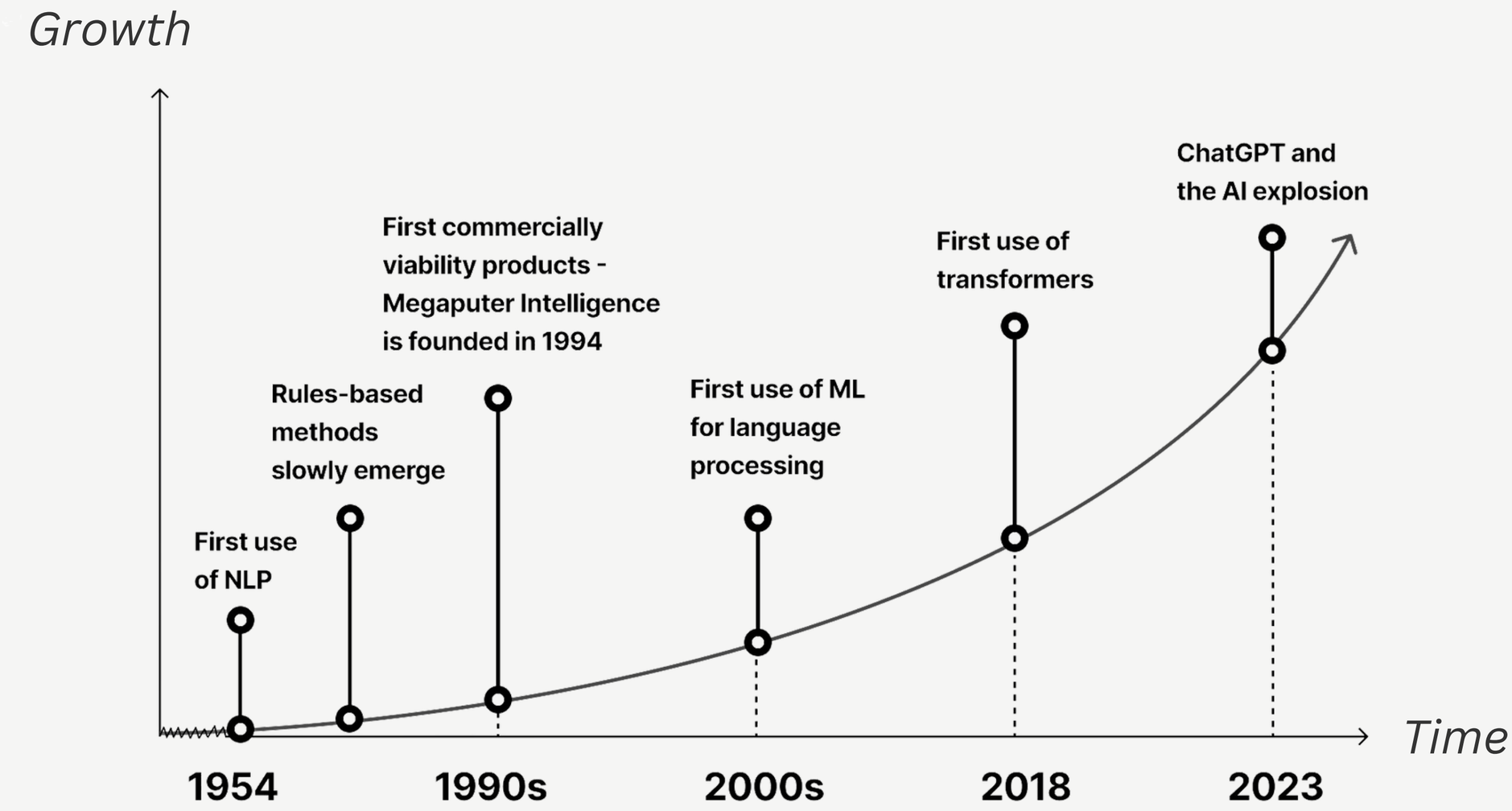
Presented by

Dr. Sergei Ananyan

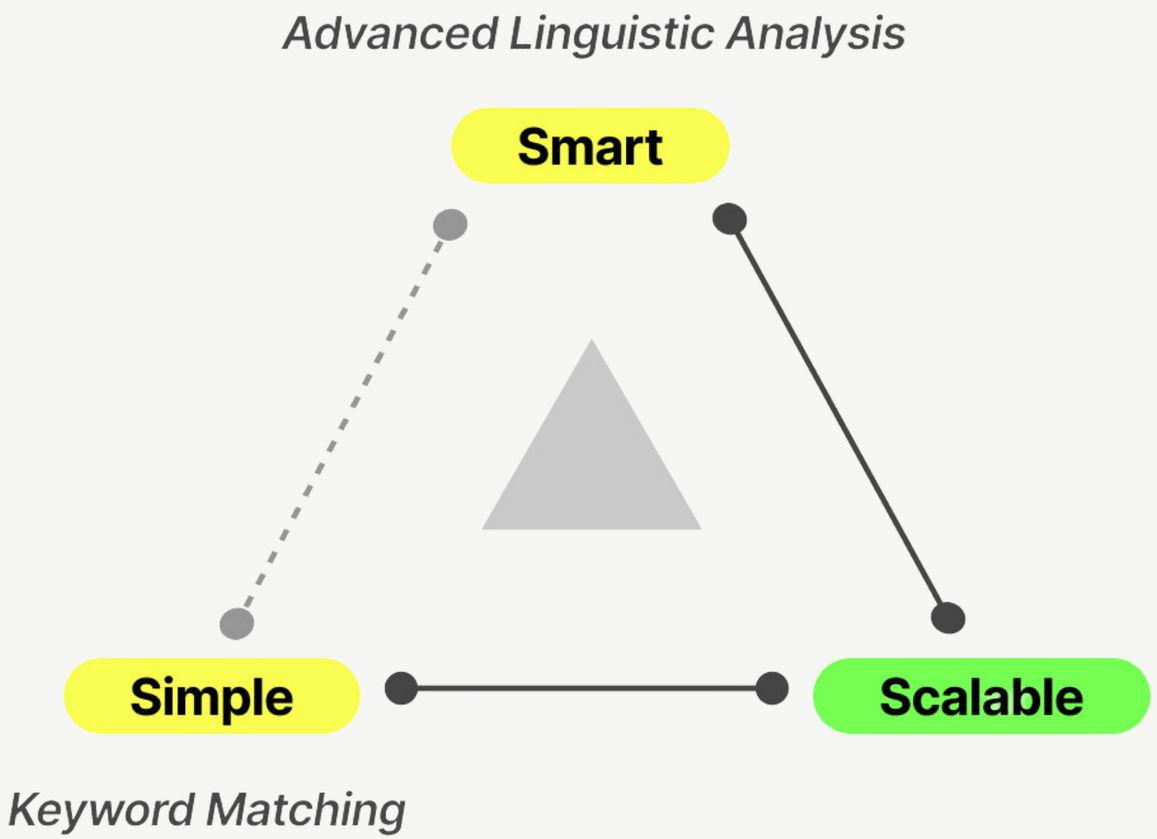
November 2023

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Evolution of NLP



Rules-based NLP



Rules-based NLP

```
rule: CEO

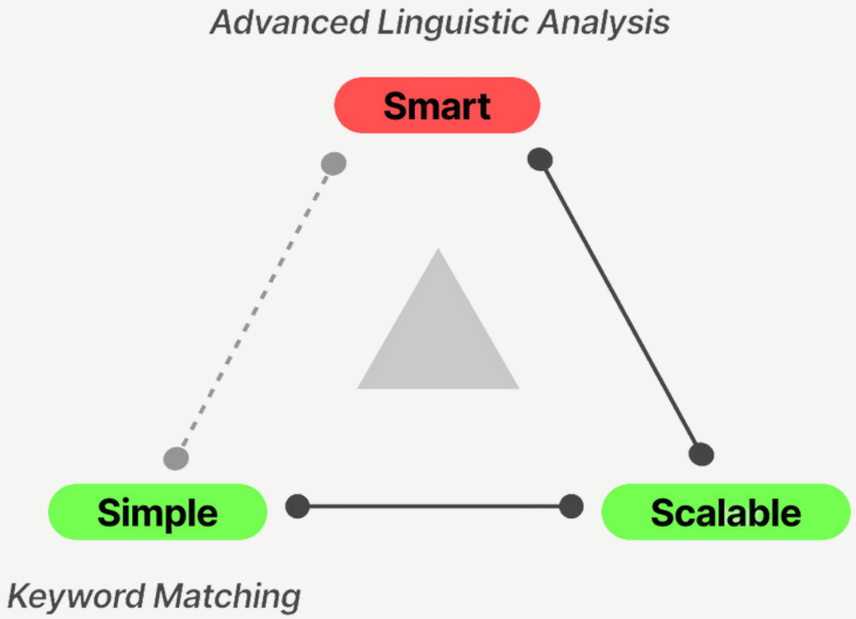
{
    query: {CEO or "Chief Executive Officer"}:CEO

        result: Match = $CEO

        }
```

Keyword matching

Jeff Zients was the chief executive officer of Cranemere (an investment firm), and was on the board of directors of Facebook. Some see that work with the social media company as an issue.

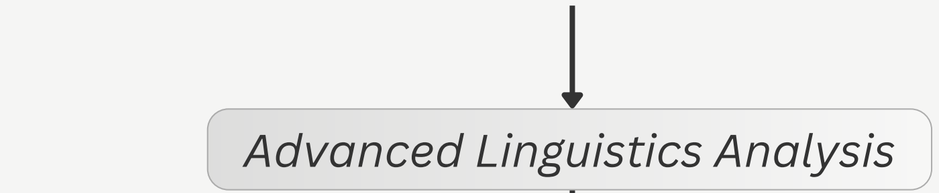


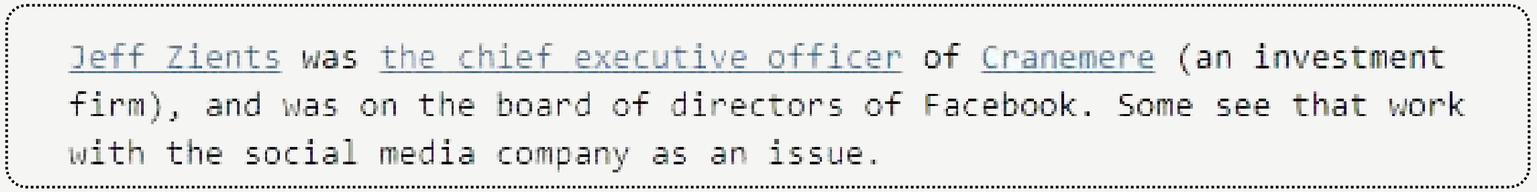
Rules-based NLP

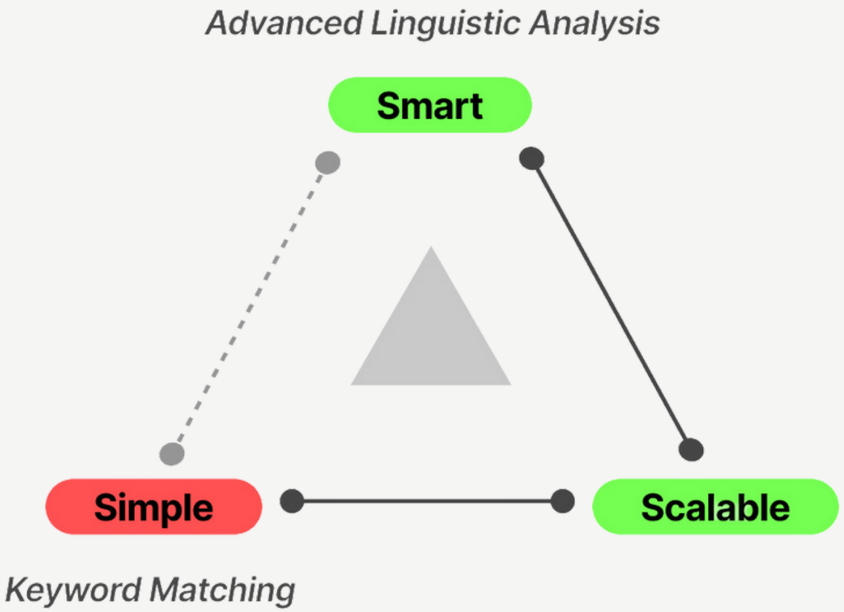
```
rule:  CEO - rule based
{
    query:
            { /* snippet 1: "Apple CEO Tim Cook"*/
                phrase(
                        {macro(company)}:company, /* e.g., Anheuser-Busch, New York Times */
                        optional(phrase(orn(founder, co-founder, president, chair, chairman, "executive chairman"), optional("and"))),
                        {optional(orn(current, former, retired, new))}:status,
                        {CEO or Chief Executive Officer or "President/CEO"}:type,
                        {macro(humanname)}:CEO
                        )
                        or /* snippet 2: "Tim Cook, the CEO of Apple // Tim Cook, Apple CEO" */
                        phrase(2,
                                {macro(humanname)}:CEO,
                                optional(orn(founder, co-founder, president, chair, chairman, "executive chairman")),
                                snear(max_gap:=2,
                                        optional(the),
                                {CEO or Chief Executive Officer}:type,
                                {macro(company)}:company
                                )
                        )
                        or /* snippet 3: Led by CEO Chris Stott, Lonestar Data ...*/
                        phrase({CEO or Chief Executive Officer}:type,
                        {macro(humanname)}:CEO,
                        {macro(company)}:company)

            }:match

    result: Match = $match
```







AI-based NLP

SA

Hi ChatGPT! Read this document to extract the CEOs and their companies.

*** Begin Document ***

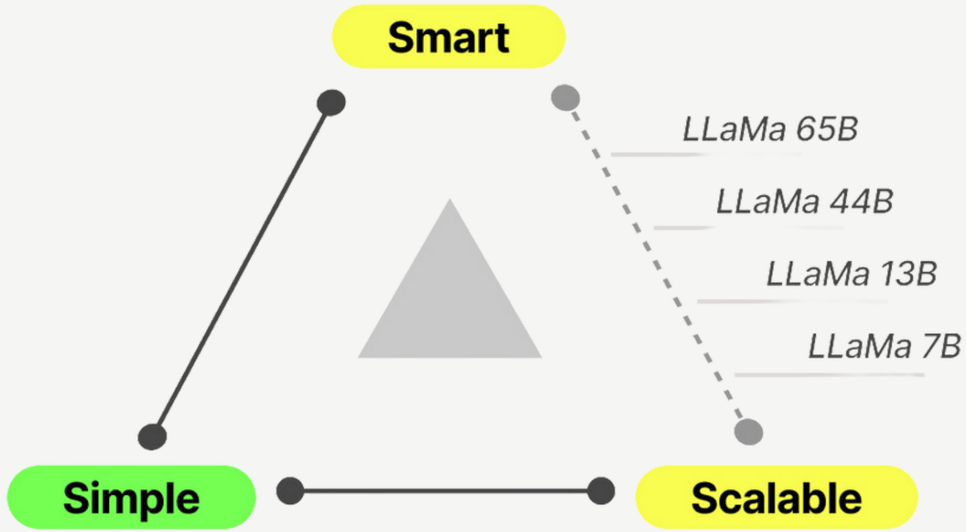
Zients previously was chief executive officer of an investment firm, Cranemere, and was on the board of directors of Facebook. Some see that work with the social media company as an issue.

Prompting

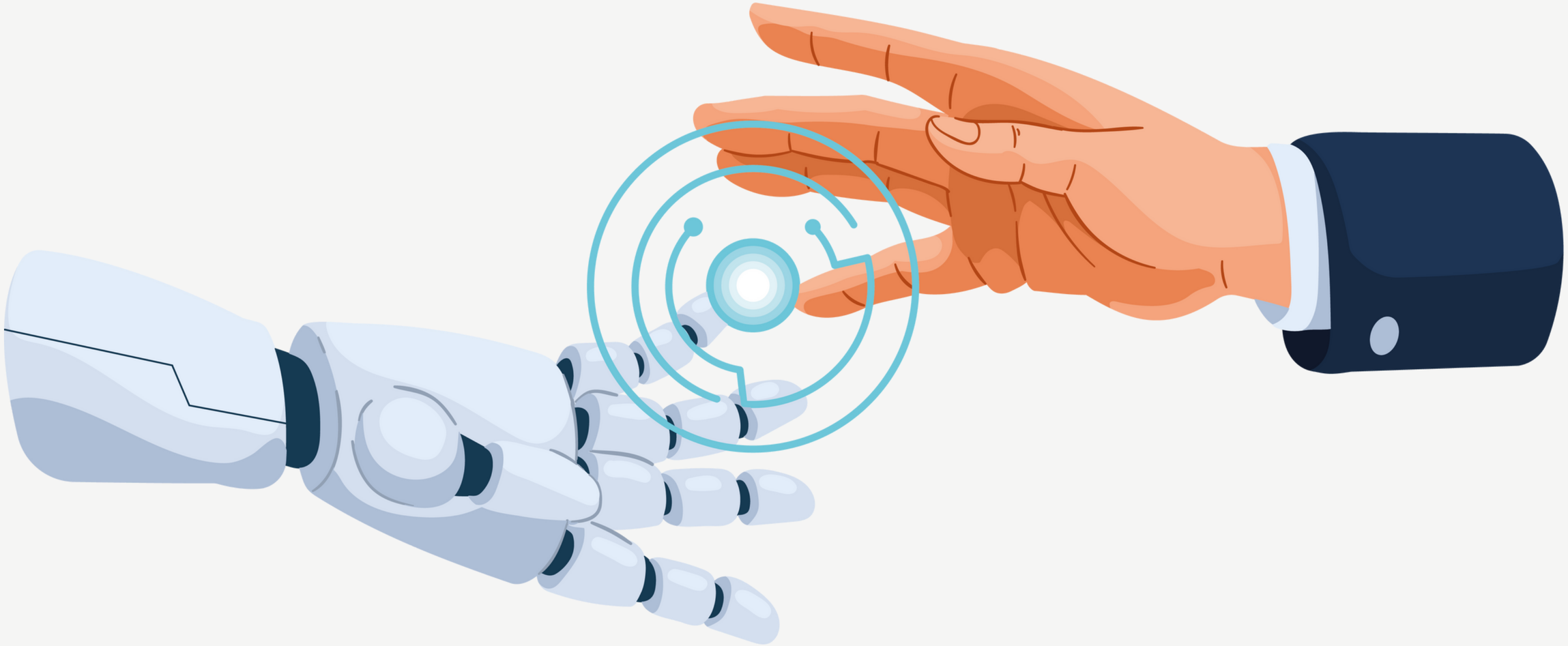
Thank you for providing the document for review.

CEO: Zients

Company: Cranemere



Hybrid AI: The Best of Both Worlds



The Hybrid Method: Rules + AI



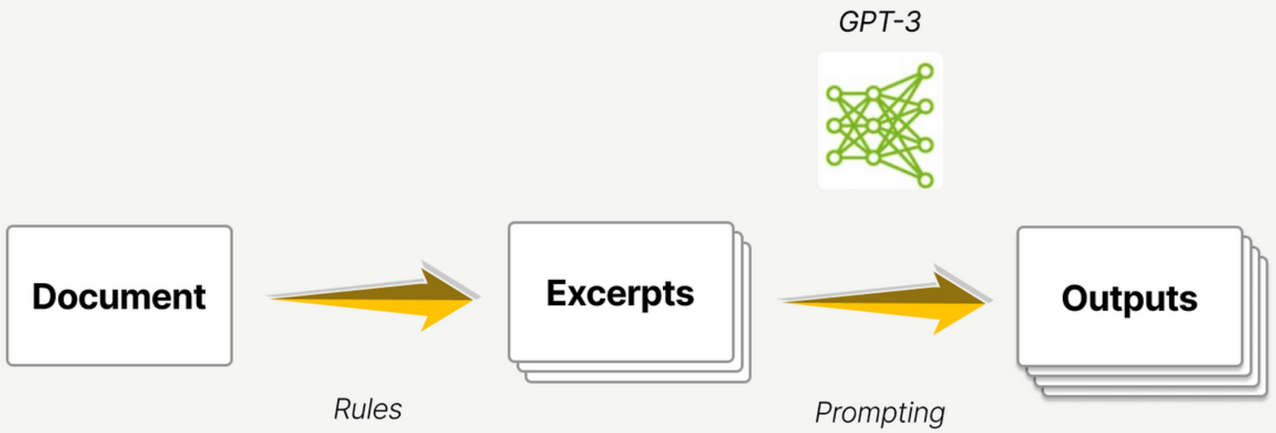
The Hybrid Method: Rules + AI



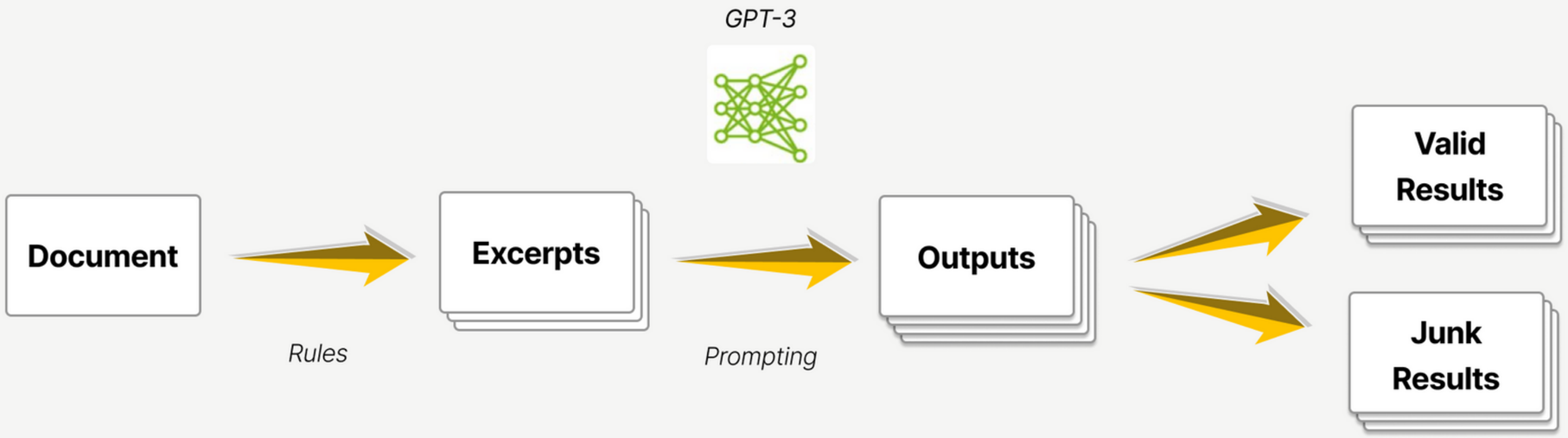
The Hybrid Method: Rules + AI



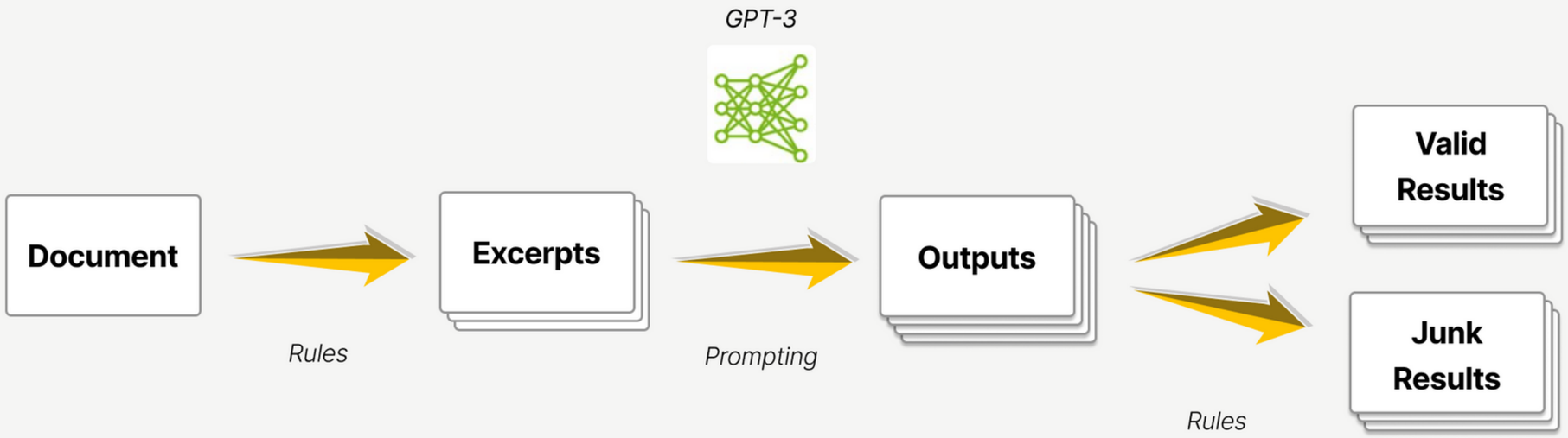
The Hybrid Method: Rules + AI



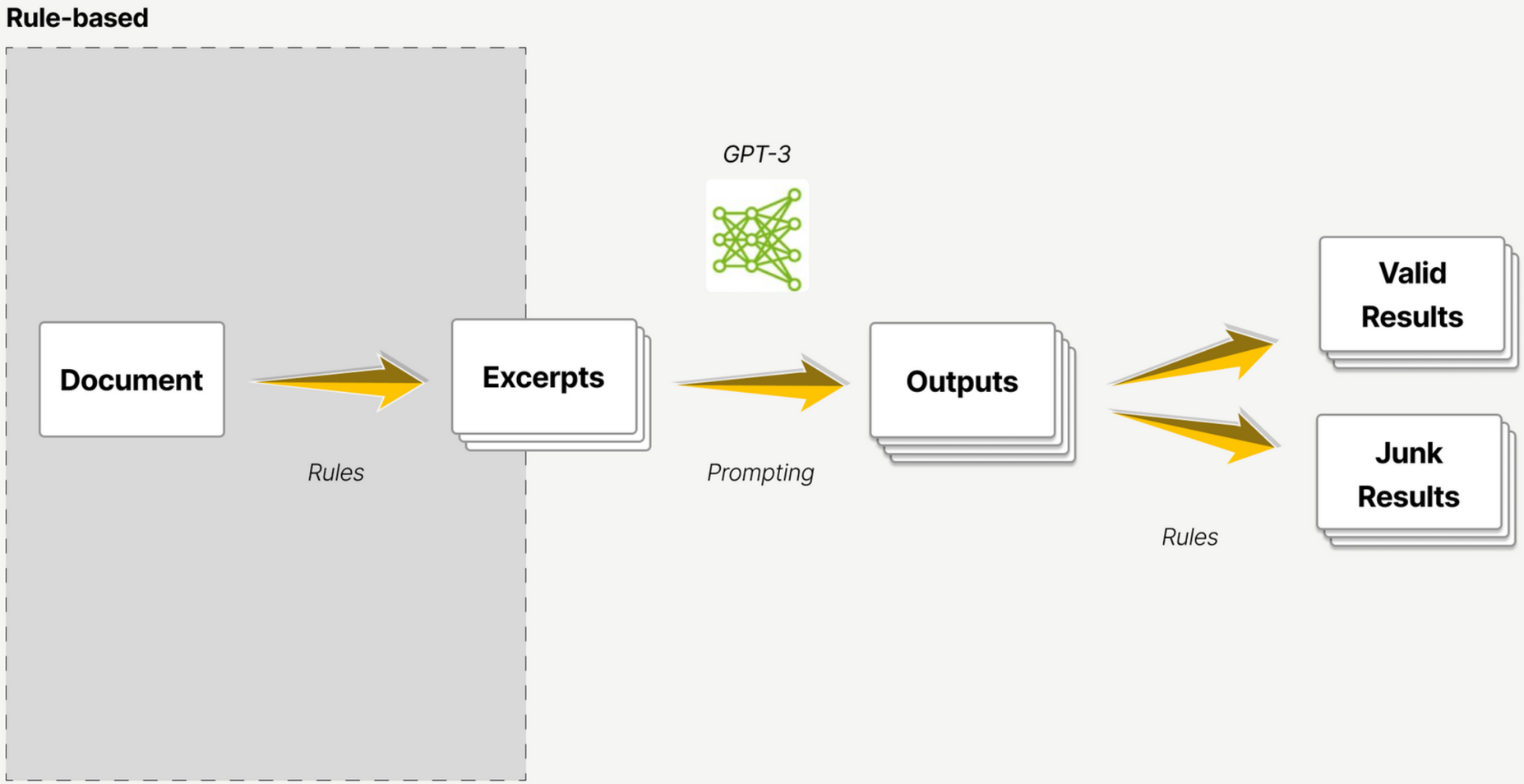
The Hybrid Method: Rules + AI



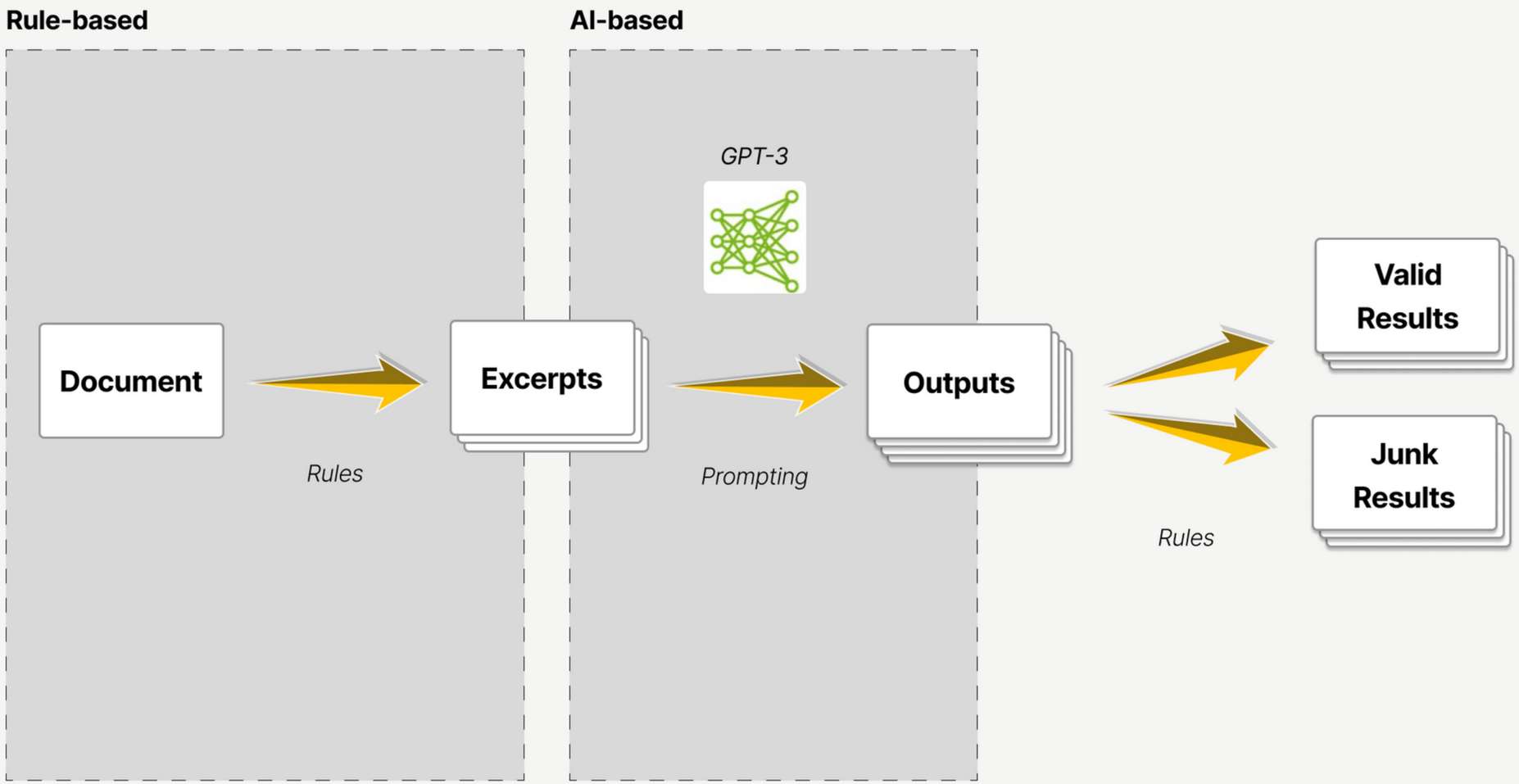
The Hybrid Method: Rules + AI



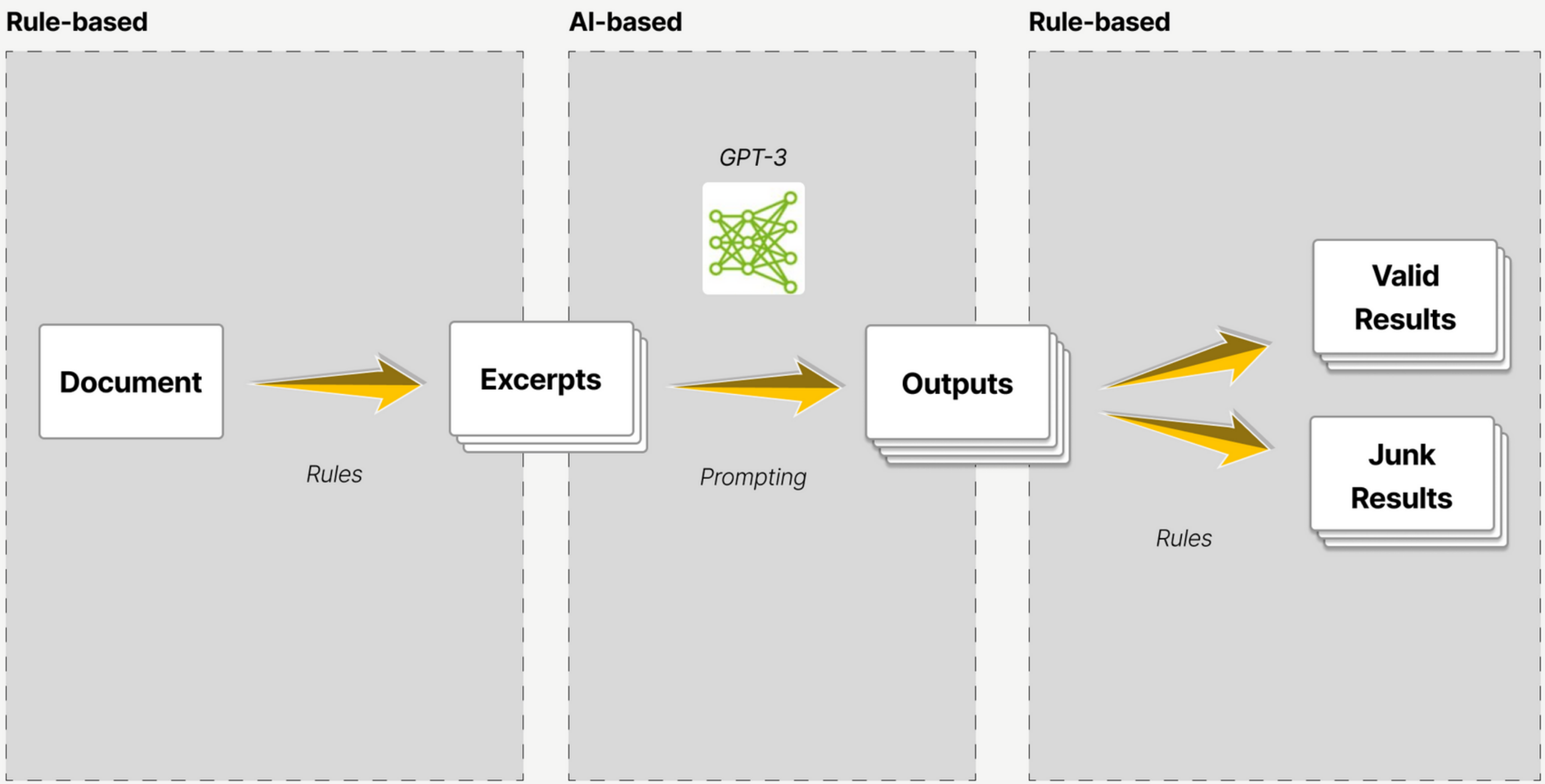
The Hybrid Method: Rules + AI



The Hybrid Method: Rules + AI



The Hybrid Method: Rules + AI



Let’s see the live demo of our project now.

Please keep it interactive with your active participation!



Benefits of Hybrid Approach

Smarter

Achieved a 97% true positive rate

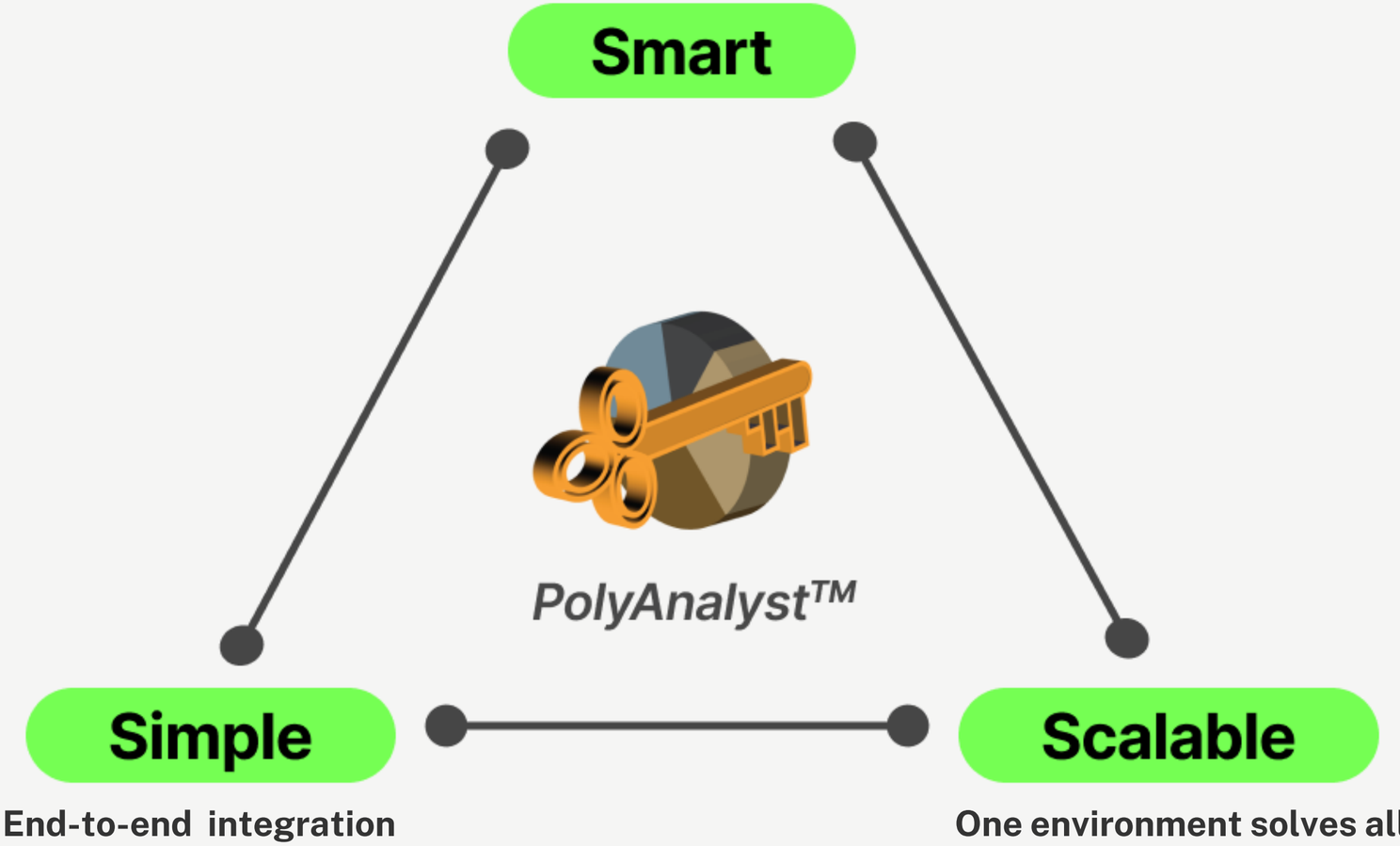
Simpler

Avoided complexity with 96% shorter rule

Scalable

Reduced cost of API queries by 149x

3 decades in the making



PolyAnalyst: A low-code platform for hybrid AI



1600 W Bloomfield Rd. Ste E
Bloomington, Indiana 47403

Tel: (812) 330-0110
Email: marketing@megaputer.com