

GEMINI NANO

ONE SMALL MODEL FOR CHROME, ONE GIANT LEAP FOR BUILT-IN AI



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September 12, 1962 - Rice University Stadium - President John F. Kennedy



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Extravehicular Activity (EVA)

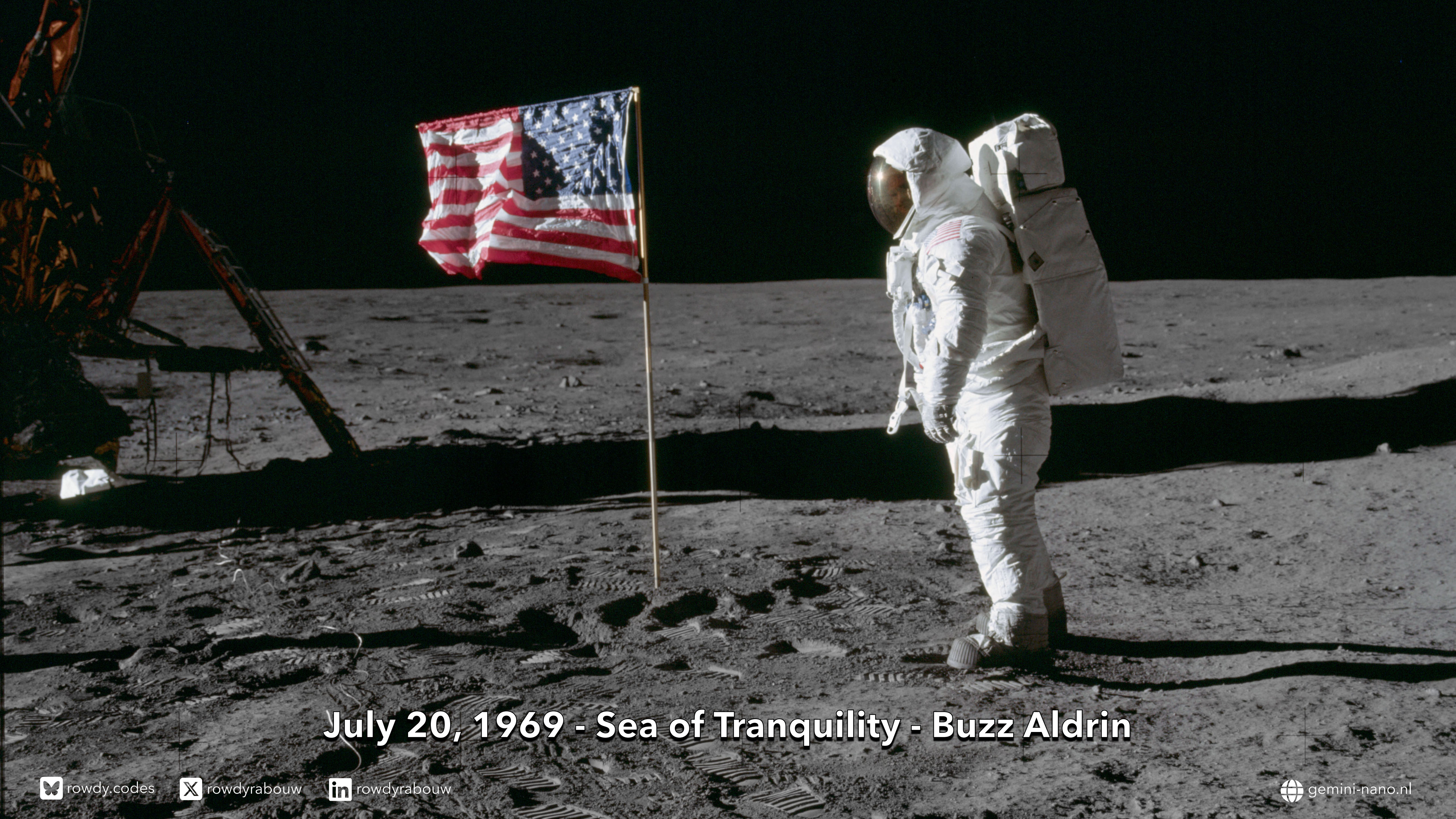
Long-Duration Spaceflight



Rendezvous and Docking

Life Support Systems





July 20, 1969 - Sea of Tranquility - Buzz Aldrin



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A full-page background image showing an astronaut in a white spacesuit walking on the lunar surface. To the left, an American flag is planted in the ground. The scene is set against the dark, starry sky of space. The ground is covered in lunar dust and rocks, with footprints visible.

REDEFINE THE BOUNDARIES OF HUMAN POTENTIAL



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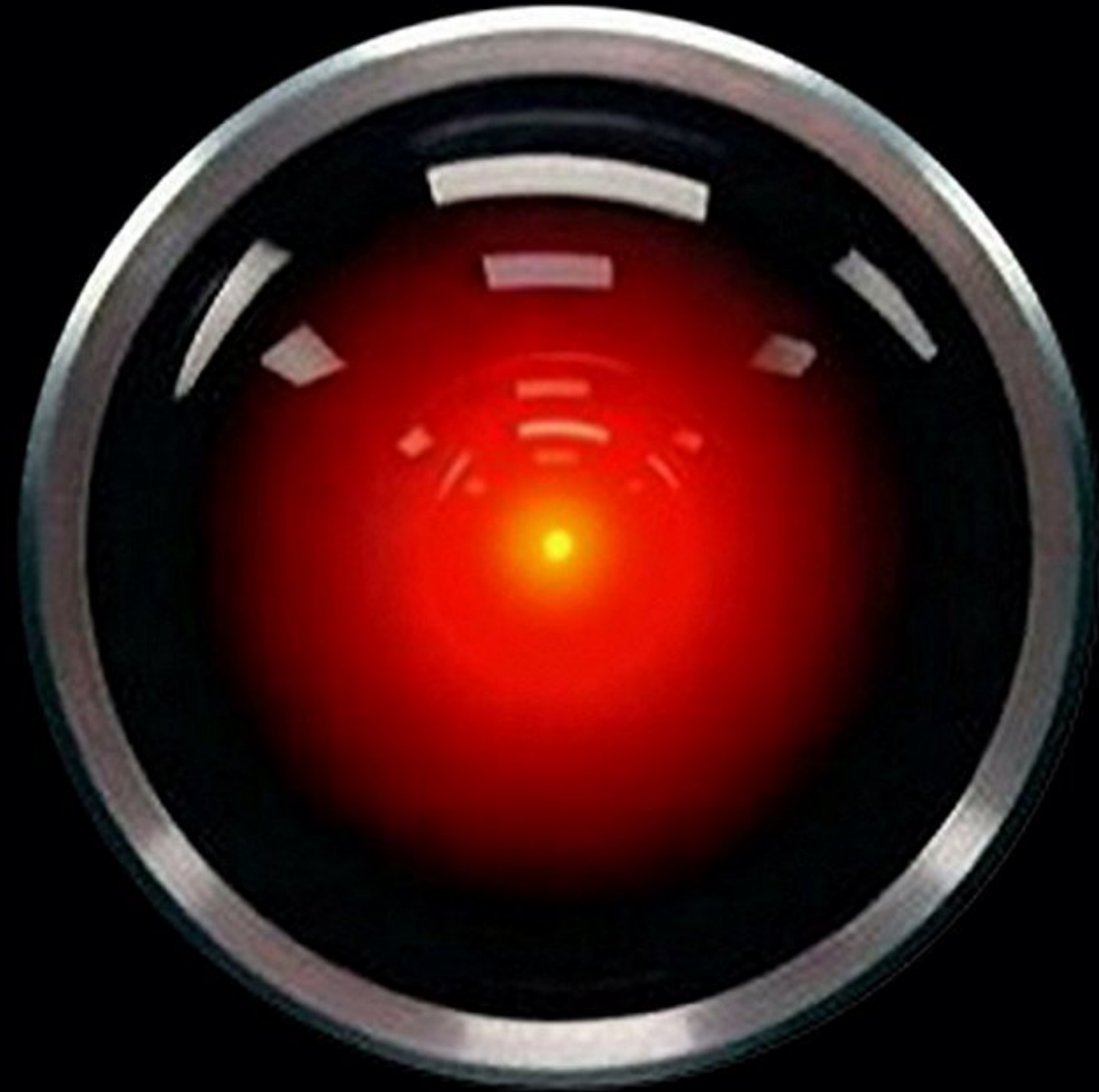
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REDEFINE THE BOUNDARIES OF HUMAN POTENTIAL

HAL9000 - 2001: A Space Odyssey (1968)



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ROWDY RABOUW

Front-End Focused Senior DevOps Engineer
with special attention to usability and accessibility

Webdeveloper since 1996

Google Developer Expert in Web Technologies



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CHROME'S AI MISSION

MAKE CHROME AND THE WEB SMARTER FOR **ALL DEVELOPERS** AND **ALL USERS**



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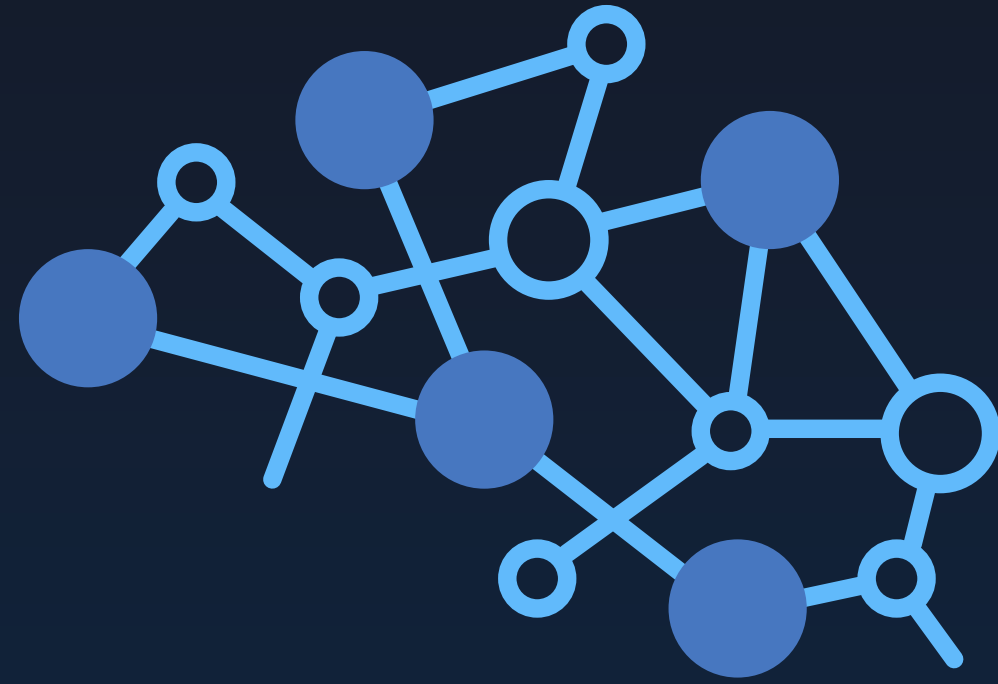
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web

machinelearning

W3C Web Machine Learning Working Group standardizes Web APIs for in-device machine learning inference



Low Latency



Privacy Preserving



High Availability



Low Cost



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GEMINI NANO BUILT-IN

MAKE CHROME AND THE WEB SMARTER FOR **ALL DEVELOPERS** AND **ALL USERS**



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REQUIREMENTS

- Windows 10 or macOS 13 or Linux
- 22GB of free disk space *
- 4GB of GPU VRAM

* *Gemini Nano is currently about 4GB*
Language models are about 80MB each
Free disk space < 10 GB, models will be removed



AVAILABLE APIS

Enabled by default

Summarizer API

Translator API

Language Detector API

Origin trials

Prompt API

Writer API

Rewriter API

Early preview

Proofreader API



AVAILABLE APIS

AI-enhanced
content consumption

Summarizer API

Translator API

Language Detector API

AI-supported
content creation

Prompt API

Proofreader API

Writer API

Rewriter API



SUMMARIZER API

sharedContext

extra context or information

type

key-points, tldr, teaser, or headline

format

markdown or plain-text

length

short, medium, or long



TRANSLATOR API

sourceLanguage

current language

targetLanguage

language to be translated into

*IETF BCP 47 language tags, like **es** for Spanish or **nl** for Dutch*



LANGUAGE DETECTOR API

does not require any parameters

returns an array of objects: { **detectedLanguage** , **confidence** }



PROMPT API

defaultTopK

default: 3

maxTopK

default: 8

defaultTemperature

default: 1.0

maxTemperature

max: 2.0

controls the coherency, randomness and hallucinations of the LLM

expectedInputs

{ type: 'text' }, { type: 'image' }, and/or { type: 'audio' }



WRITER API

tone

formal, neutral, or casual

format

markdown or plain-text

length

short, medium, or long

sharedContext

extra context or information



REWRITER API

tone

more-formal, as-is, or more-casual

format

as-is, markdown, or plain-text

length

shorter, as-is, or longer

sharedContext

extra context or information



PROOFREADER API

includeCorrectionTypes *

true or false

includeCorrectionExplanations

true or false

expectedInputLanguages

array of IETF BCP 47 language tags

correctionExplanationLanguage

IETF BCP 47 language tag

** spelling, punctuation, capitalization, preposition, missing-words, grammar*



FEATURE DETECTION

```
if ("Summarizer" in self) { }  
if ("Translator" in self) { }  
if ("LanguageDetector" in self) { }  
if ("LanguageModel" in self) { }  
if ("Writer" in self) {}  
if ("Rewriter" in self) {}  
if ("Proofreader" in self) { }
```



CHECK AVAILABILITY

```
Summarizer.availability();
```

```
Translator.availability({ sourceLanguage: "en", targetLanguage: "nl" });
```

```
LanguageDetector.availability();
```

```
LanguageModel.availability();
```

```
Writer.availability();
```

```
Rewriter.availability();
```

```
Proofreader.availability();
```

- *unavailable*
- *available*
- *downloadable*
- *downloading*



INITIATE API OBJECT

```
Summarizer.create(options);  
Translator.create(options);  
LanguageDetector.create();  
LanguageModel.create(options);  
Writer.create(options);  
Rewriter.create(options);  
Proofreader.create();
```



RUN THE API

```
const text = document.querySelector("article").innerText;

const summary = await summarizer.summarize(text);
console.log(summary);

const stream = summarizer.summarizeStreaming(text);
for await (const chunk of stream) {
  console.log(chunk);
}

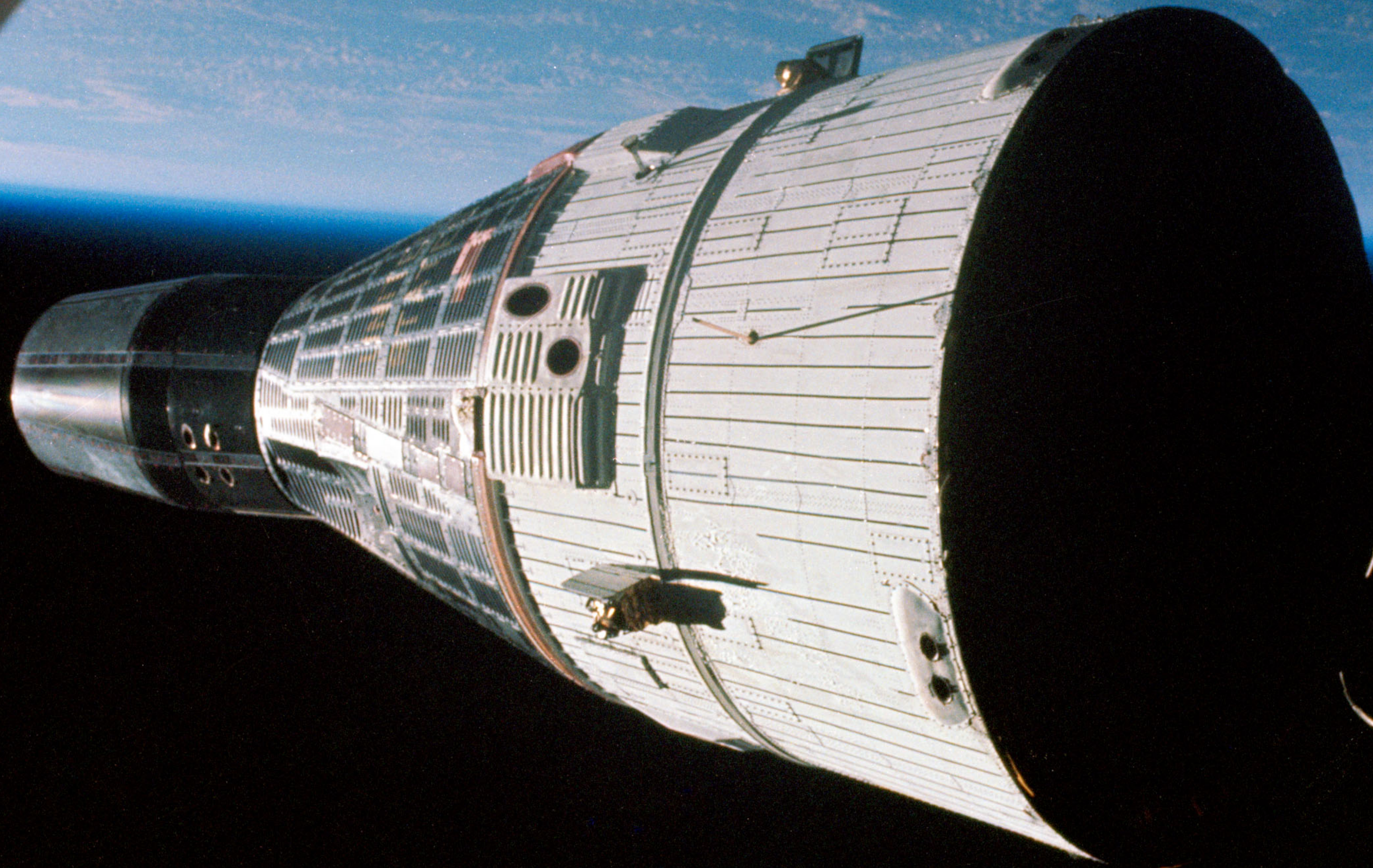
const languages = await languageDetector.detect(text);
languages.forEach((item) => {
  console.log(item.detectedLanguage, item.confidence);
});
```

not available (yet) for Proofreader





GO RAIBH MAITH AGAT



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