



# **Cyberon DSpotter v2**

## **Introduction**

# Agenda

- **Features of DSpotter v2**
- **DSpotter API**
- **DSpotter Modeling Tool (DSMT)**

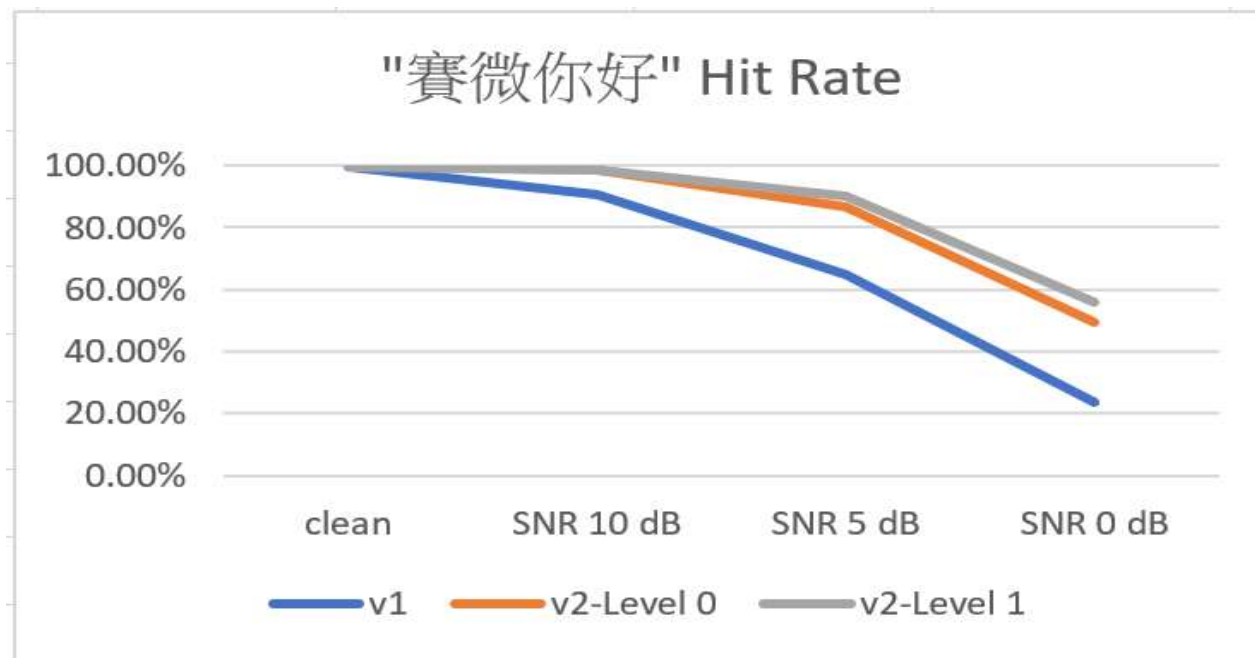
# DSpotter v2

- **Local voice trigger and command recognition solution**
- **DNN-based modeling: higher noise robustness**
- **Almost constant computing resource consumption**
- **Fixed-point calculations, no floating-point**
- **Two choices of resource spec.: Level 0 and Level 1**

	Level 0	Level 1
Code size	30 KB	
Data size	$105\text{KB} + 108\text{B} * N$	$170\text{KB} + 108\text{B} * N$
RAM	$60\text{KB} + 108\text{B} * N$	$70\text{KB} + 108\text{B} * N$
CPU	45 MIPS	60 MIPS

- N: number of commands

# Performance - trigger

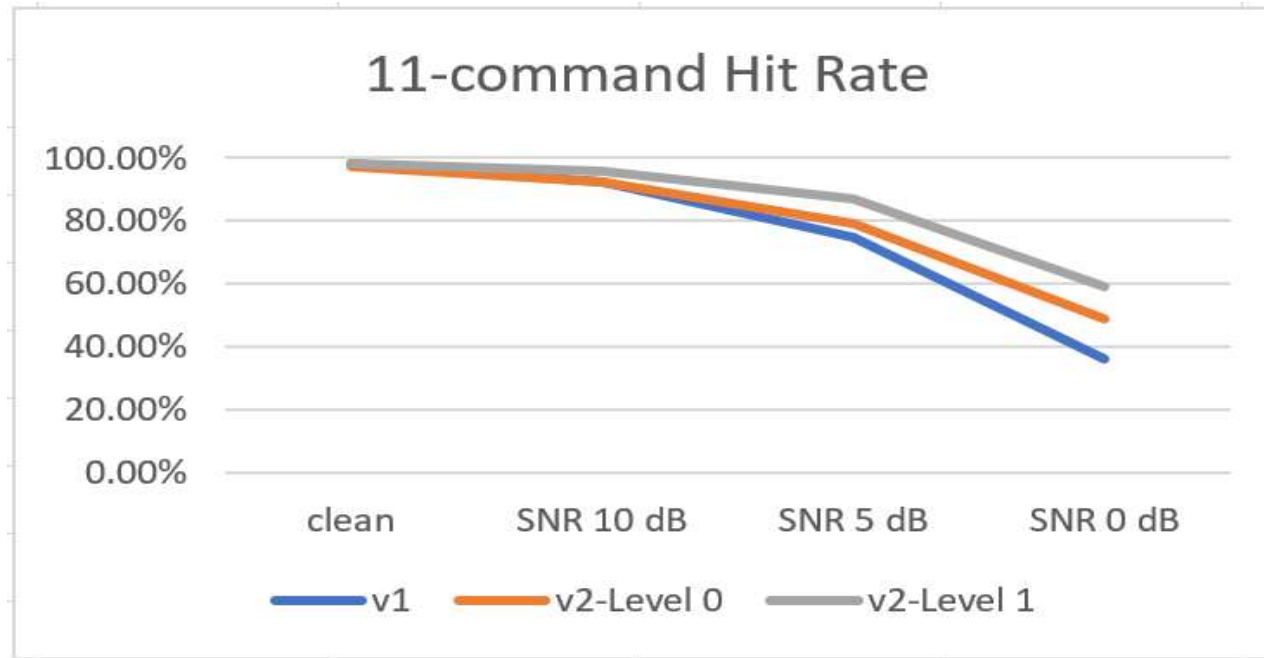


Note:

1. Before model optimization.
2. Noise type: office.

	v1	v2-Level 0	v2-Level 1
clean	99.40%	100.00%	99.80%
SNR 10 dB	90.68%	98.40%	98.60%
SNR 5 dB	64.83%	86.47%	90.38%
SNR 0 dB	23.45%	49.60%	56.01%

# Performance - command



Note:

1. Before model optimization.

2. Noise type: office.

- **Language support**

More than 30 worldwide languages will be available

- Mandarin, Worldwide English: ready (2019 Nov.)
- Japanese, Korean, Turkish, Vietnamese, German, Spanish, French: 2019/E
- Others: 4 languages/month.

**American Region**

Northern American English  
Brazilian Portuguese  
Southern American Spanish

**Asian Region**

Traditional Chinese  
Simplified Chinese

*Taigi (Taiwanese)*

Cantonese *Arabic*

Korean *Hindi*

Japanese *Vietnamese*

Thai *Bahasa*

**European Region**

UK English *Polish*

German *Czech*

French *Danish*

Italian *Turkish*

Spanish *Finnish*

Portuguese *Norwegian*

Russian *Swedish*

Dutch *Greek*

*Slovak*

*Hungarian*

*Ukrainian*

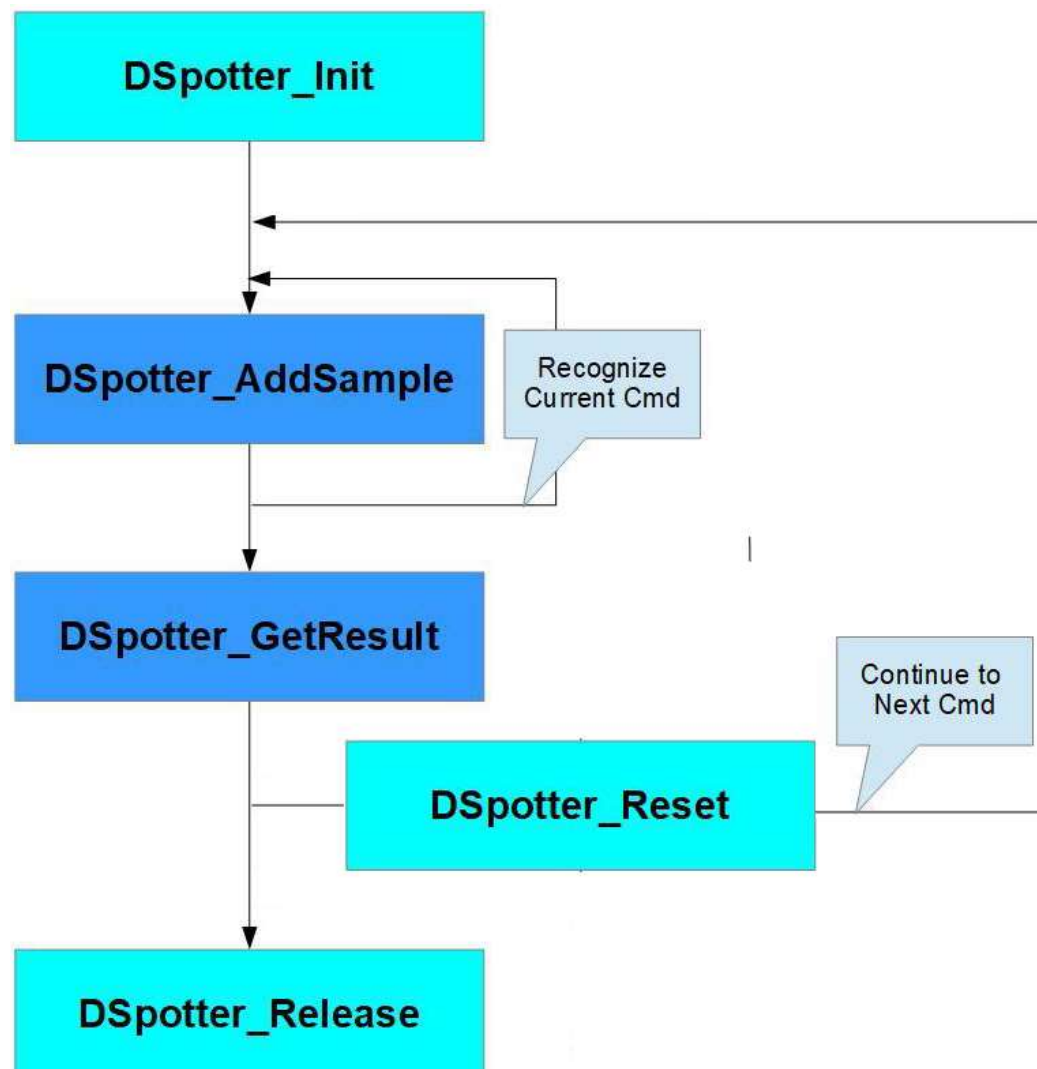
**Australian Region**

Australian English

# DSpotter APIs

- **DSpotter\_Init\_Multi(...)**
- **DSpotter\_Reset (...)**
- **DSpotter\_Release (...)**
- **DSpotter\_GetMemoryUsage\_Multi (...)**
- **DSpotter\_AddSample (...)**
- **DSpotter\_GetResult (...)**
- **DSpotter\_GetResultEPD (...)**
- **DSpotter\_GetResultScore (...)**
- **DSpotter\_GetNumWord (...)**
- **DSpotter\_SetRejectionLevel (...)**
- **DSpotter\_SetSgLevel (...)**
- **DSpotter\_SetFilLevel (...)**
- **DSpotter\_SetResponseTime (...)**

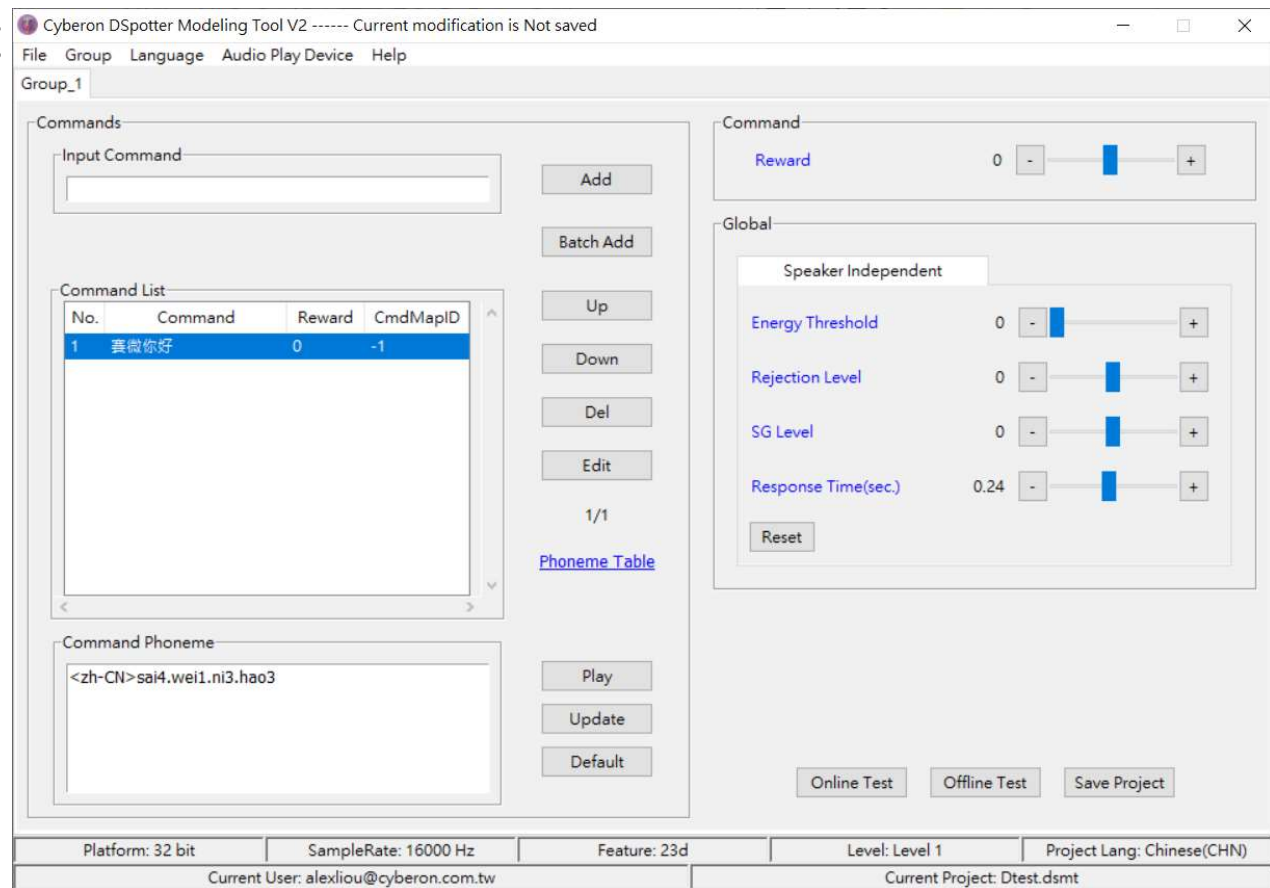
- Basic calling sequence





# DSpotter Modeling Tool

- Creating customized commands by text input
- Online/Offline testing
- Parameter setting



# Command Design Tips

- Length: recommend 4 ~ 6 syllables
- Pronunciations should have obvious difference between commands
- Each syllable should consist of consonant & vowel (CV structure)
- Each command should end in vowel



# Thanks!

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