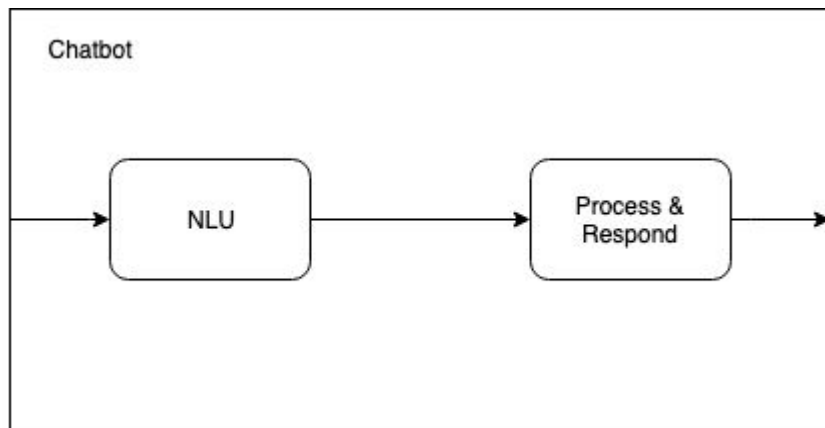Bot Friday Talk

Voice Chatbot w/ Snowboy

梁皓然Simon
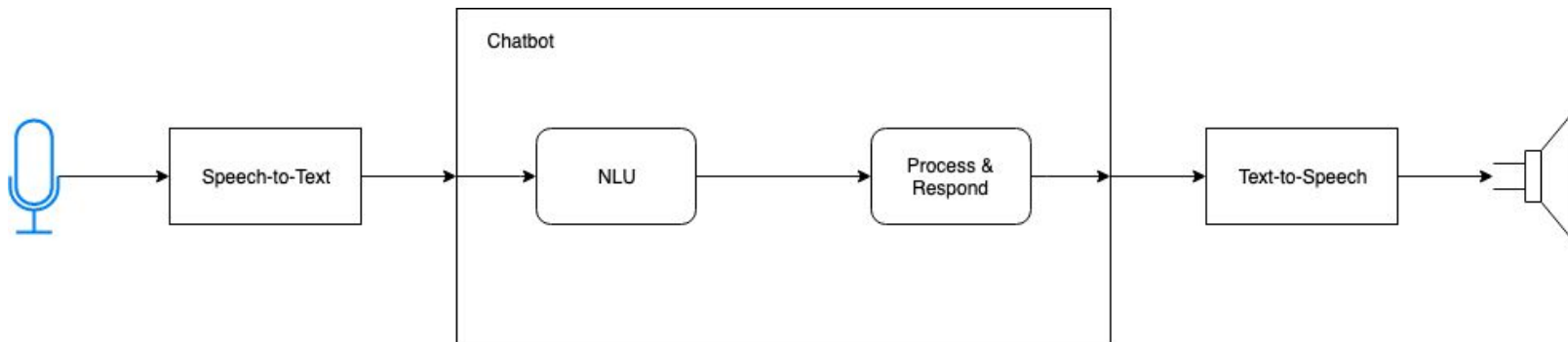simon@x-tech.io

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Chatbots

- NLU + 处理模块
- Vendors
  - 腾讯云TBP
  - Luis.ai
  - Bot Framework
  - Dialogflow
  - Amazon Lex
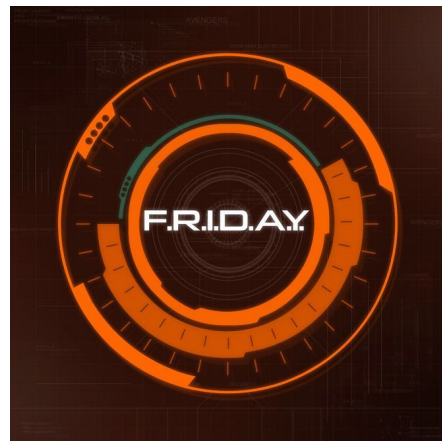 - Rasa
  - ...

Voice Chatbots

- Speech-to-Text (STT) + Chatbots + Text-to-Speech (TTS)
- Vendors
  - 腾讯云ASR + TTS
  - 科大讯飞IAT + TTS
  - Google Cloud STT + TTS

Hotwords Detection

- 机器人如果一直监听的话 没有针对性 并且消耗计算和网络资源
- 通过特定热词激活监听 完成Chatbot流程
- For example:
  - 小爱同学
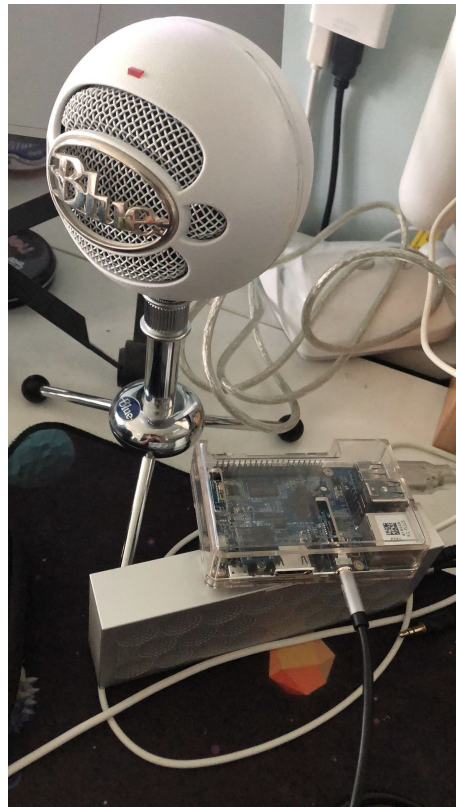 - Alexa
  - OK Google
  - Hey Siri

Snowboy

- https://snowboy.kitt.ai
- Started in 2014, Acquired by Baidu in 2017
- Written in C++, with wrappers in Python, Golang, NodeJS, iOS & Android
- Resource Efficient

Name	CPU	CPU Usage	RAM Usage
RPi 1	single-core 700MHz ARMv6	<10%	
RPi 2	quad-core 900MHz ARMv7	<5%	
RPi 3	quad-core 1.2GHz ARMv8	<5%	• Python: < 15MB
RPi Zero	single-core 1GHz ARMv6	<5%	• C: < 2MB
Macbooks	Intel Core i3/5/7	<1%	

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Build Your Own FRIDAY!

- Board: NanoPi K1 Plus from FriendlyElec
- Microphone: Blue Snowball
- Code: NodeJS v10 LTS
- STT: 科大讯飞IAT
- Chatbot: 图灵机器人
- TTS: 科大讯飞TTS

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Live Demo

- Connect to NanoPi
- Test-run with Jarvis Universal Model
- Train personal model
- Test-run with personal model
- https://github.com/xanthous-tech/snowboy-rpi-demo

Notes

- snowboy编译环境需要依赖比较复杂 主要是音频处理方面 需要libsox, alsa驱动 还需要swig (具体步骤会整理放在blog / repo上)
- 需要基本的音频格式的知识基础才能正确对接API服务 和 输入输出
- 讯飞API的连接时间特别长 影响整体体验
- 各家API验证签名机制都比较复杂 主要时间花费在鉴权上 输入参数也比较苛刻
  - 参考 @google-cloud/speech 的 inifiteStreaming.js 例子

Questions?

Thank you!

https://x-tech.io/zh
hi@x-tech.io