Intelligent Chatbots
Introduction to Bots and Intelligent Chatbots

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Communication Evolution (esp. Digital Natives)

Then

- email?
  - spam...

- website?
  - meh...

- my app?
  - which?

- phone?
  - bye-bye

Now

- hey
- What up?
- +1
- @Philz
Messaging Has Surpassed Social

4.1 Billion users in the world are on instant messaging apps

6 of Top 10 most used apps globally are messaging apps

Sources: BI Intelligence, Jan. 2016 and Statista, April 2016
Understanding a Typical Chatbot Process

1. Incoming chat

2. What does the input mean?

3. Take note of any special information

4. Executes response

“What is the balance in my savings account?”
Intelligent Chatbots: Key Components

- Unified cross-channel chat interface between bots & humans
  - Channel Configurator

- Declarative bot builder UI for bot flow
  - Dialog Flow Execution

- State machine that executes context driven workflows with scoped variables

- SDK to consume backend API's that satisfy human requests via the bot
  - Custom Components in Dialog Flow

- Active machine learning algorithms that identify relationships and extract insights from unstructured data
  - AI Engine
Understanding the Terminology of Chatbots

- Intents
- Utterances
- Entities
- Machine Learning/NLP
- Dialog Flow

*Image courtesy of Geerati at FreeDigitalPhotos.net*
“How much money do I have in my checking account?”
Utterances

- Typical statements
- “Sample data” for an intent
- Not exact string matching
- Machine learning
- Need good pool for utterances
Populating Intents with Example Utterances

Check Balance

“How much money in checking”

“What is my current balance”

“Tell me my bank balance”

“What is my bank balance”
“How much money do I have in my checking account?”

Entity

Variable/parameter for intent
Important word in an input
Adds relevance to intent
Possibly maps to domain object

Check Balance
Entity: AccountType

- Checking
- Savings
- Credit Card
“How much money do I have in my **checking** account?”

**Entity**

- Variable/parameter for intent
- Important word in an input
- Adds relevance to intent
- Possibly maps to domain object

**Check Balance**
- **Entity:** AccountType
  - Checking
  - Savings
  - Credit Card
Machine learning/NLP

- Language independent ML
- NLP for added accuracy
- Natural language processing
- Prediction based on utterances

Image courtesy of yodiyim at FreeDigitalPhotos.net
Language independent

Based on utterances

No understanding of language

Words & sentences as vectors

Frequency of words & sentence relationship important
Natural Language Processing

- Language-specific (v1 English)
- Linguistic analysis
- Trained on public information
- Colloquialisms and slang

Image courtesy of Keerati at FreeDigitalPhotos.net
Dialog flow

Manages conversation flow

State and context

What to do based on an input
You haven't defined any intents for this bot.

Enable your bot to understand and act on user input by adding intents and their associated entities.

Try me more

Add intent Import intents
**Description**

**Name**

CheckBalance

**Description**

Check the bank balance

**Examples**

Enter your example utterances.
Integrated Cloud

Applications & Platform Services