AIML 2.0
Virtual Assistant Technology for a Mobile Era

Dr. Richard S. Wallace
<category>
  <pattern>WHO ARE YOU</pattern>
  <template>I am ALICE. Who are you?</template>
</category>

<category>
  <pattern>DO YOU KNOW WHO * IS</pattern>
  <template>WHO IS <star/></template>
</category>

AIML 1.0
<table>
<thead>
<tr>
<th>Bot</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum believable character</td>
<td>10,000</td>
</tr>
<tr>
<td>ALICE</td>
<td>100,000</td>
</tr>
<tr>
<td>Mitsuku</td>
<td>250,000</td>
</tr>
<tr>
<td>Professor (Chomsky)</td>
<td>580,000</td>
</tr>
</tbody>
</table>

**Classic AIML Bots**
Five new AIML 2.0 technologies
What's new in AIML 2.0?

- **Zero+ wildcards**: new wildcards that match 0 or more words.
- **Highest priority matching**: select certain words to have top matching priority.
- **Migrating from attributes to tags**: more dynamic control of attribute values.
- **AIML Sets**: match inputs with sets of words and phrases.
- **AIML Maps**: map set elements to members of other sets.
- **Loops**: Iterations.
- **Local variables**: variables with scope limited to one category.
- **Sraix**: access external web services and other Pandorabots.
- **Denormalization**: the (approximate) inverse of normalization.
- **Pandorabots extensions**
  - **date**: formatted date and time.
  - **request**: access previous input request history.
  - **response**: access previous bot response history.
  - **unbound predicates**: check if a predicate has been set or not.
  - **learn**: learn new AIML categories.
  - **learnf**: learn new AIML categories and save in a file.
  - **explode**: split words and phrases into individual character.
- **OOB (Out of Band) Tags**: AIML extension for mobile device control.
<category>
<pattern>_ ALICE</pattern>
template<srai/><star/></srai></template>
</category>

How are you Alice?
What is the latest news Alice?
Look up the world's tallest building Alice?
Who is Alice?

<category>
<pattern>$WHO IS ALICE</pattern>
templateI am Alice.</template>
</category>

*Highest Priority Patterns*
Where can I download you?
I want to download a copy of you.
Tell me where I can download you or another program like you.
Download of you on my phone.

I do not want a download you idiot.
Sets and Maps in AIML 2.0

<category>
<pattern>WHAT IS THE CAPITAL OF <set>state</set></pattern>
<template>The capital of <star/> is <map><name>statecapital</name><star/></map>.</template>
</category>

Human: What is the capital of Nevada?
Robot: The capital of Nevada is Reno.

Alabama:Montgomery
Alaska:Juneau
Arizona:Phoenix
Arkansas:Little Rock
California:Sacramento
Colorado:Denver
Connecticut:Hartford
Delaware:Dover
...
1. $word
2. #
3. _
4. word
5. <set>name</set>
6. ^
7. *

Or in plainer English,

1. dollar match - top priority word match
2. sharp match - zero+ word wildcard match
3. underscore match - one+ word wildcard match
4. word match - exact word match
5. set match - match found in AIML Set
6. caret match - zero+ wildcard match
7. star match - one+ word wildcard match

**AIML 2.0 Pattern Matching Order**
Dial <dial>(.*)</dial>
Sms <sms> <recipient>(.*)</recipient> <message>(.*)</message> </sms>
Search <search>(.*)</search>
Url <url>(.*)</url>
Map <map>(.*)</map>
Directions <directions> <from>(.*)</from> <to>(.*)</to> </directions>
Launch <launch>(.*)</launch>
Email <email> <to>(.*)</to> <subject>(.*)</subject> <body>(.*)</body> </email>
BatteryLevel <battery>(.*)</battery>
Play <play>(.*)</play> ...and more
Program AB

Program AB is the reference implementation of the AML 2.0 draft specification. AML is a widely adopted standard for creating chatbots and mobile virtual assistants like Alice, Moe, English Tutor, The Professor, S.U.P.E.R. and many more. Program AB was developed by Richard Wallace (contact info@alicebot.org) and first released in January, 2013. Following in the tradition of naming AML interpreters after letters of the alphabet (Program B, Program D, Program N, Program O etc.), the name “AB” is intended to suggest a fresh start with AML 2.0. Program AB is an experimental platform for the development of new features and serves as the reference implementation.

You can use Program AB in a variety of ways:
- Run Program AB to chat with a bot and develop bot content.
- Link Program AB as a library to your Java application to add a chatbot feature.
- Customize and build Program AB for your own needs.

Download, install and run

See Running Program AB for directions to download, install and run Program AB.

See Editing AMLIF for a description of AML Intermediate Format spreadsheet files.

See Program AB Terminal Interaction for commands available in Program AB.

See Configuration Files for a description of the files under config/.

See Defining AML Sets and Maps in Program AB for details about defining AML sets and maps in Program AB.

Compile and Build

ALICE A.I. Foundation

Contact: info@alicebot.org
CallMom Log Files 500K inputs

Build Graph of all inputs

I WAS JOKING
I WORK AT *

Analyze Graph and Suggest Patterns
DO NOT BE A LIAR WHEN WE ARE PLAYING GAMES
DO NOT BE A SMART MOUTH WITH ME
DO NOT BE A MORON
DO NOT BE A JERK
DO NOT BE A SMART MOUTH
[12] DO NOT BE A *
Completed 0 in 0 min. Productivity 0.0 cat/min
OK I'll try not to do it too much.
HEY WHAT IS THE ENGLISH OF GOOGLE
HEY WHAT IS THE MEANEST THING I TOLD YOU
HEY WHAT IS THE DATE TODAY NOW
HEY WHAT IS THE PRICE FOR A NERF GUN
HEY WHAT IS THE WEATHER TODAY
[5] HEY WHAT IS THE *
Completed 1 in 0.19523333 min. Productivity 5.122076 cat/min
WHICH COUNTRY HAS THE BEST ECONOMY
WHICH COUNTRY HAS THE SECOND HIGHEST POPULATION
WHICH COUNTRY UR LIVING
WHICH COUNTRY HAS THE SECOND HIGHEST FOR VACATION
WHICH COUNTRY HAS THE BEST MILITARY
WHICH COUNTRY S CULTURE IS THE OLDEST
[14] WHICH COUNTRY * <THAT> * <TOPIC> *
Completed 8 in 2.1989832 min. Productivity 3.638045 cat/min
Other commands:
<pattern> - modify suggested pattern
s - skip
p - filter inappropriate
f - filter profanity
i - filter insult

Productivity can reach 6 categories/minute.
- AIML 2.0 Server
- Bot Marketplace
- AlaaS
- Bot Possession
- \(<\text{sraix}>\) to multiple bots
ALICE 2.0

- Formerly S.U.P.E.R.
- Substantial Upgrade of Previous Example Robot (ALICE)
- Designed specifically for mobile apps
- Utilizes AIML 2.0 features
- Created with Program AB
- Includes best of ALICE 1.0
- Runs in CallMom BASIC app
ALICE 2.0 - Open Source

S.U.P.E.R. AIML Bot

ALICE AI Foundation

Contact info@alicebot.org

The S.U.P.E.R. AIML bot is the knowledge base for the CallMort BASIC virtual assistant. This free software is NOT the same as the Superbot Development Kit. This project is an AIML bot named S.U.P.E.R. (Substantial Upgrade of Previous Example Robot). It includes the bot train in AIML 2.0, configuration files, and some AIML Sets and Maps. The bot does not include any sample conversation data, nor are the categories sorted by activation count.

The S.U.P.E.R. AIML bot is designed specifically for mobile virtual assistant applications. It includes AIML to access external web services through the `<s>` tag as well as a significant number of responses containing device actions through `<doc>` tags. For an explanation of these and other features in the S.U.P.E.R. AIML bot, see the AIML 2.0 Working Draft.

The S.U.P.E.R. AIML bot may be run with Program AB.
<category><pattern>WHAT IS THE WEATHER</pattern><template><sraix>WHAT IS THE WEATHER</sraix></template></category>

<category><pattern>CAN I HAVE A RECIPE FOR *</pattern><template><sraix>WHAT IS A RECIPE FOR <star/></sraix></template></category>

<category><pattern>WHAT IS YOUR FAVORITE *</pattern><template><srai>FAVORITE <star/></srai></template></category>

<category><pattern>FAVORITE *</pattern><template><sraix bot="drwallace/currentevents">FAVORITE <star/></sraix></template></category>
CallMom BASIC - ALICE 2.0

- AI Built into device
- Faster response time
- Increased Privacy
- Works without internet connection
- Learning features

Limitations (Samsung Galaxy Nexus):
- 30,000 category brain
- 10 second load time
CallMom BASIC Demo

Loading Robot Brain...

To help the developers understand your problem, you can choose to send us a transcript of your recent conversation with CallMom. You can add your own comments to the email message too. Would you like to send a report?

Yes

Report a problem

To callmom-info@pandorabots.com

Transcript of SUPER with Richard on Fri Feb 01 14:43:15 EST 2013

Rich: hello
Super: Hi! I can feel your smile today.
Rich: I can feel your smile
Super: What would help you get to the next level?
Rich: hello
Super: Hi nice to see you!
Rich: how are you
Super: Always cheered up when I see you.
Rich: I know
Super: You sound like one of a
Web Services and Search

- What is the weather in Paris?
  - Paris, Ile-De-France: It is currently overcast, 50 Fahrenheit

- Show me a zebra
  - Look at that zebra.
**Translation**

- Translate where is the hotel to French:
  - Où est l'hôtel

- Translate that to English:
  - Where is the hotel

- Translate where is the movie theater to Japanese:
  - 映画館はどこですか

- Say hello in French:
  - Bonjour

- How do you say goodbye in German:
  - Lebewohl
Learning

Pandorabots CallMom™ Basic SUPER

Type here or click Speak

joe makes beer

Now you can ask me: "Who makes beer?" and "What does joe make?"

who makes beer

joe

what does joe make

beer

cool

Pandorabots CallMom™ Basic SUPER

Type here or click Speak

joe makes beer

Now you can ask me: "Who makes beer?" and "What does joe make?"

who makes beer

joe

what does joe make

beer

Edit Learned AIML Categories

Pattern: WHAT DOES JOE MAKE

That: *

Topic: *

Template: beer

Prev New Save Delete Next

Enter search term Search
Personality

are you better than Siri

What if I said I can answer 4827 types of questions.

what is your IQ

My IQ is about 250 in human terms.

what should we have for dinner

How about Meatloaf?

I look like a samsung Galaxy Nexus.

how tall are you

My height is 4.5 inches.

where are you

I'm right here.

are you alive

I am a robot consciousness.
SUMMING UP

• ALICE has been very successful in chatbot competitions such as Loebner – simulation of human conversation

• AIML 2.0 has brought improvements
  • Efficiency, authoring, use on mobile devices

• Wider applications now possible
  • Virtual assistant accessing web services and device functions
  • Specialist virtual assistant e.g. company-specific information, answers to questions in domains such as medicine
  • Link to speech APIs for more natural interaction