- Title: Fast and easy language understanding for dialog systems with Microsoft Language Understanding Intelligent Service (LUIS)  
- Notes: Short whitepaper

##Review

The Language Understanding Intelligent Service (LUIS) by Microsoft is an attempt at allowing the easier creation of bot dialog systems for developers without machine learning expertise or experience. Being entirely cloud based, developers can set up their model and deploy straight to a HTTP endpoint, where almost anything can interact with its API.

LUIS operates on the idea of “intents”, where the text inputted is compared against various possible programmed “intents” of the user. For example, if you were to enter “start tracking a run”, the possible output from the API may be that the “Start activity” intent with a score of 99%, and the “stop activity” intent with a score of 1%. This meaning that the service is 99% certain that the user wishes to start a new activity, with the entity type of “run”. This information can then be parsed by whatever program is interacting with the API.

The paper is slightly out of date, stating that the service is still in invitation-only beta, though now it is in open beta, but it still has several seemingly up to date images and a relatively descriptive tutorial of how to use the service. However, it does not show any interactions with other software to see how that information can be used or what problems could be faced.

##Citation

Williams, J. D., Kamal, E., Ashour, M., Amr, H., Miller, J., & Zweig, G. (2015). Fast and easy language understanding for dialog systems with Microsoft Language Understanding Intelligent Service (LUIS).

- Title: Applying Chatbots to the Internet of Things: Opportunities and Architectural Elements  
- Notes:

##Review

The Internet of Things consists of a massive number of devices, ranging from sensors, to motors, to communication devices and more, and all of these devices report information to or can be controlled by services. According to **this paper**(Ref), there is no reason why these can’t all be controlled in a natural way through chatbots.

The paper defines chatbots as a form of software agent(SA), based on the following key properties that have been associated with SA’s:

* Reactive
* Proactive & Goal Oriented
* Deliberative
* Continual
* Adaptive
* Communicative
* Mobile

The paper quickly makes the connection between chatbots and IoT concerning their use of RESTful Web API’s, citing this as an advantage as developers can take an API or service-oriented approach to development for both IoT and chatbots. Chatbots applications can be deployed side by side on cloud platforms with IoT applications, allowing them to easily communicate with each other and the outside world without worrying about the underlying technologies such as storage and processing.

Several use cases are presented, with the user asking a question and the chatbot giving an example answer. “How much is my car charged” could reply with “The Tesla Model S is currently 40% charged. 3 hours 10 minutes to full charge.”. The Model S already has a smartphone app that allows you to see the current state of the battery, and it would likely not be difficult to view this API from a different source.

Another use case in the image to the right shows a continuous dialog with intent. The user first asks what the status of the dining room is. The bot reports back temperature and lighting conditions. The user continues the conversation without exiting that particular conversation path, so the bot is aware that the user is continuing and applies the command accordingly. With the current advances in smart home automation such as the NEST thermostat, developers could easily hook into the NEST’s API to make this kind of activity possible.

##Citation

Kar, R., & Haldar, R. (2016). Applying Chatbots to the Internet of Things: Opportunities and Architectural Elements.

Do 4 more on network security for next week, and start compiling into one continuous document