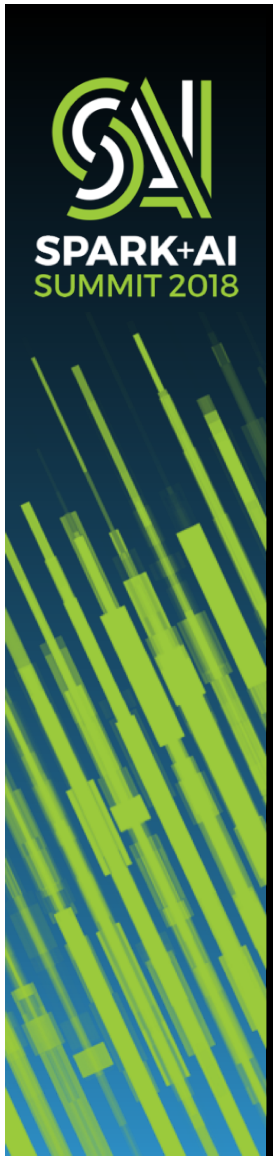


Conversational Artificial Intelligence

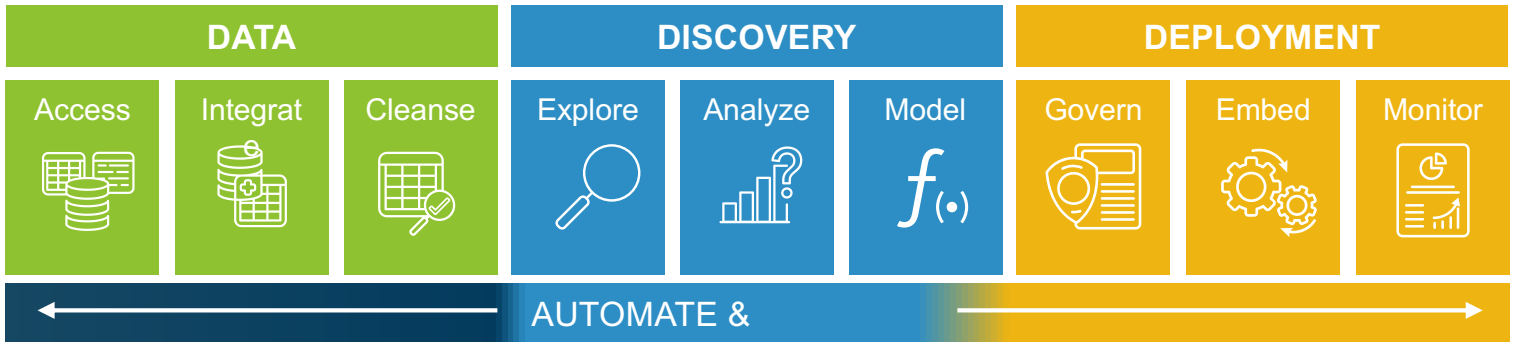
Ben Tomlinson & Andre Violante, SAS

#AISAIS17

Agenda

- SAS
- Architecture
- Demo
  - Building a bot
  - Running a bot
- Q&A

The Analytics Process



Foundation for Analytics

- Access - All sources
- Build – Merge and transform
- Profile – Explore your data
- Fix Quality - Standardize
- Governance and Lineage

Broad Range of Capabilities

- Reporting - BI
- Explore - Data Visualization
- Forecast – Time Series
- Statistics – Explain
- Prediction –ML and AI
- Optimize – Best outcome

Creation of Analytic Assets

- Centrally Manage
- Deploy in database
- Create Efficiencies
- Control & Adjust

Analytics Personas

1 BUSINESS ANALYST

WHAT DO THEY DO?

Understands the business context of underlying data & is focused on answering a defined question.

Provides guidance and support to stakeholders by building reports and interpreting results.

WHAT DO THEY NEED?

Flexible, easy-to-use graphical user interfaces

2 CITIZEN DATA SCIENTIST

WHAT DO THEY DO?

Extends the business analyst work pattern with data preparation, exploration and visualization.

Explores the use of advanced analytic modeling techniques to solve a particular business problem using wizards and prebuilt logic.

WHAT DO THEY NEED?

Flexible, easy-to-use graphical user interfaces.
Some coding capability.
Agility and consistency.

3 DATA SCIENTIST

WHAT DO THEY DO?

Performs complex exploratory analysis, descriptive segmentation and predictive modeling.

Investigate advanced analytic techniques and machine learning.

Identifies new data needed for model development and defines analytical tables.

WHAT DO THEY NEED?

A choice of tools.
Advanced coding capability.
Ability to scale methods without redefining code.

4 IT

WHAT DO THEY DO?

Facilitates data preparation, model deployment and monitoring.

Integrates analytics into existing production systems and business processes.

WHAT DO THEY NEED?

Uptime and reliability.

5 DEVELOPER

WHAT DO THEY DO?

Develops new applications with embedded analytics.

Leverages documented, public REST APIs to reference shared models and individual actions.

WHAT DO THEY NEED?

Portability and consistency.

Diversity

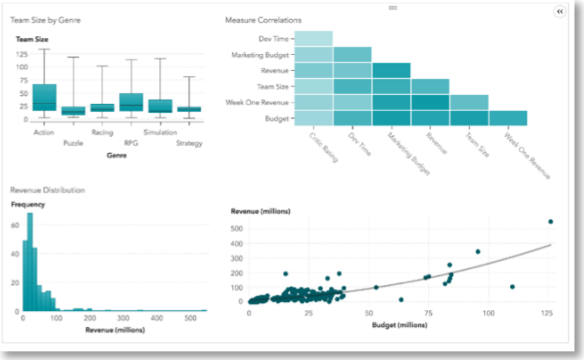
Support all users

Consistent Visual Interfaces

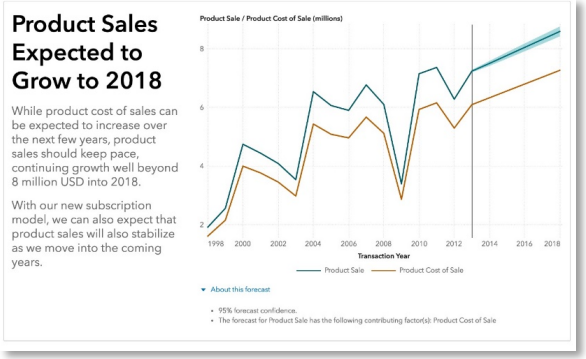
Programming Interfaces

API Interfaces

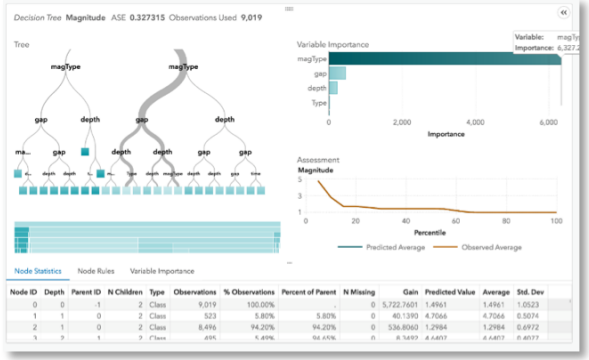
Data Discovery



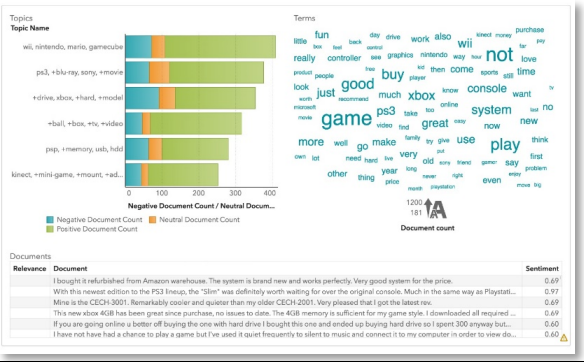
Time Series Forecasting



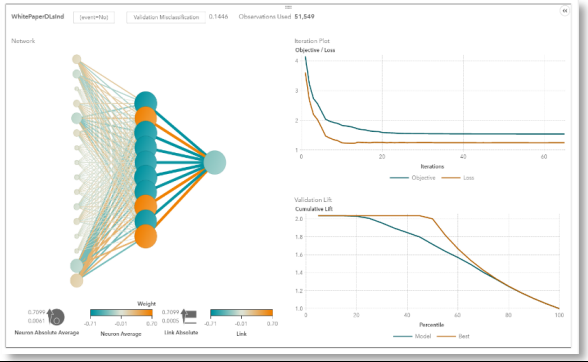
Statistics



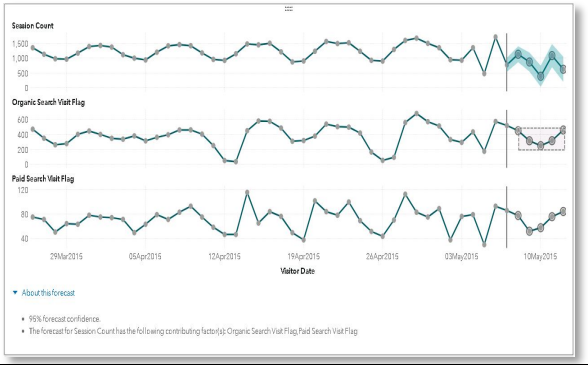
Data & Text Mining



Machine Learning

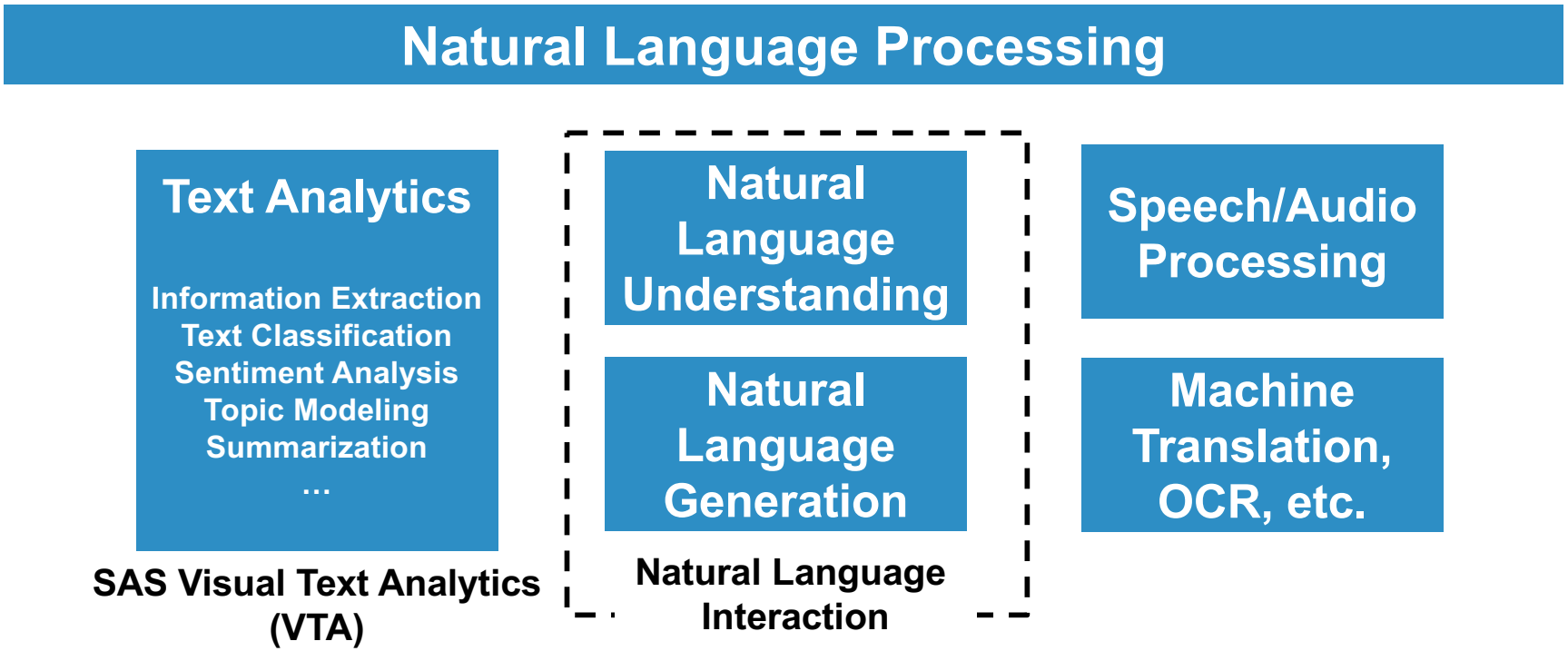


Operations Research



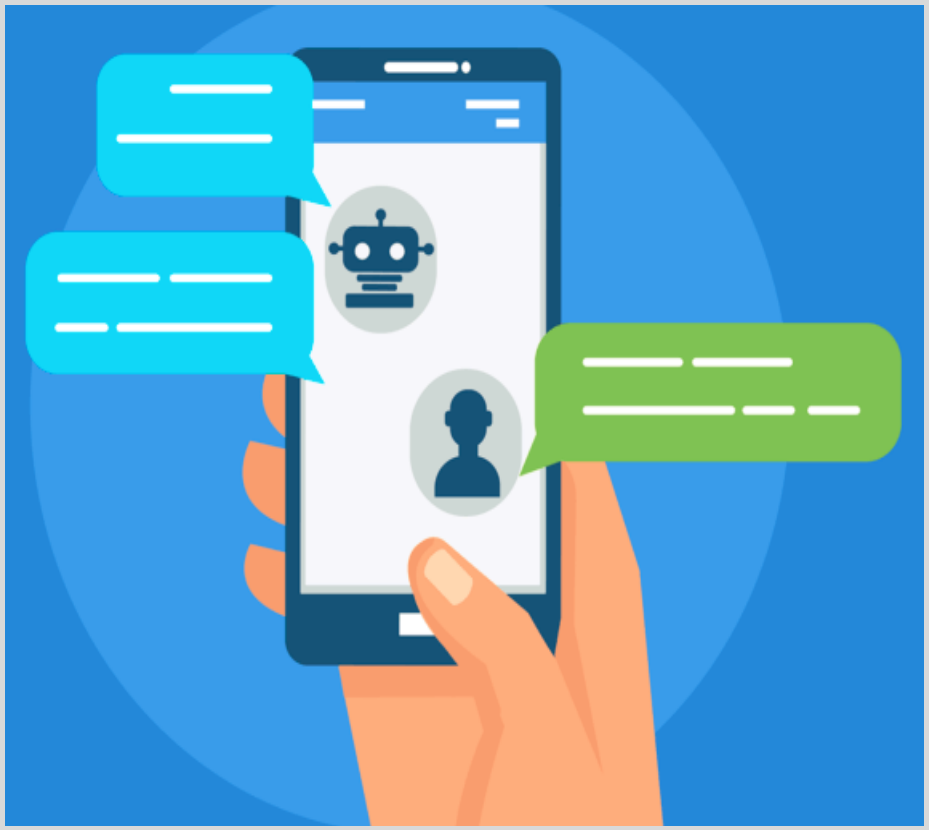
Natural Language Processing

Natural language processing (NLP) is a branch of artificial intelligence that helps computers interpret, analyze, and manipulate human language

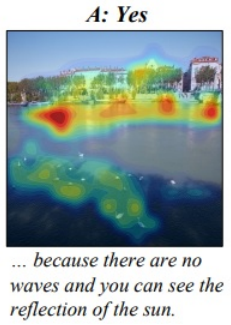


Chatbot Business Benefits

- **Operational Efficiency**
  Reduce mundane tasks, improve speed and consistency of case handling, lower-cost channel
- **Availability**
  24/7 always-on access, multiple concurrent sessions
- **Global Reach**
  Bots can be trained to communicate in multiple languages
- **Smarter Responses**
  More opportunities to embed advanced analytics for better outcomes (retention, cross-sell, upsell)



Sample NLU/NLG Use Cases

Voice activated/ enabled devices and apps		Automated Image or Text Captioning		Call Steering and IVR	
Smart Search		Automated reports, summaries, or narratives		Machine Learning Model Explanability	

Today's Focus: Chatbot Use Case

Voice activated/ enabled devices and apps

Automated Image or Text narratives

Call Steering and IVR

Smart Search

Machine ing Model Explanability

Chatbots

- Customer service bot
- Order fulfillment
- Q & A systems
- Therapy bot ("Woebot")
- Law bot
- Health bot

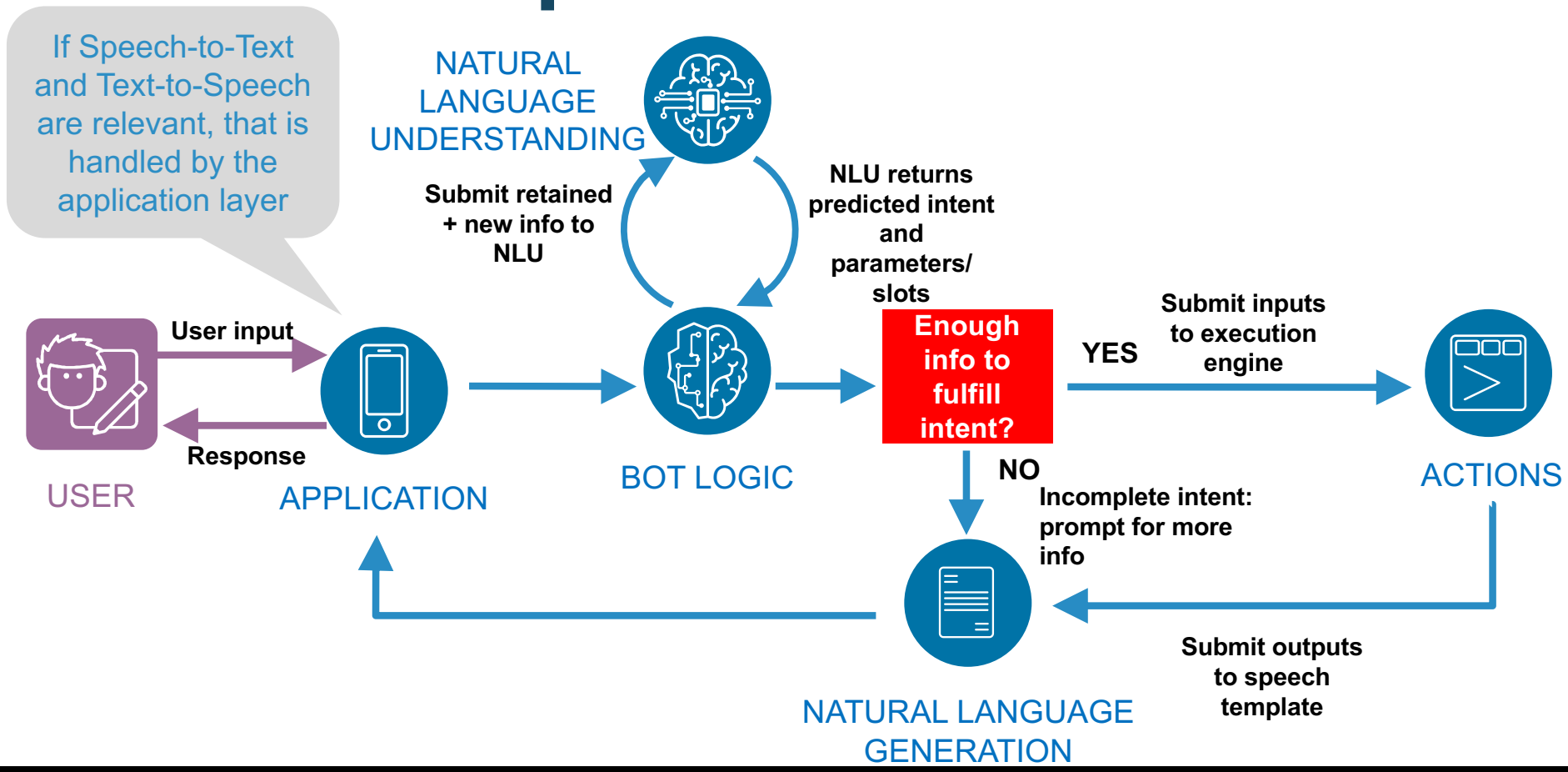
Jared Peterson
@jaredpeterson

Following

A5 As someone who works for an analytics company, I'm really excited by the possibilities of conversational assistants tapping into analytics thus making answers accessible to more people. #SASchat

6:43 AM - 20 Apr 2018

Conceptual Architecture



Demo