



Devil-bot Chatbot

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Project Leads: Mark McCahill, Isabel Valls

Our Team

Duke HR



Emily Hughes

Duke Registrar



Jacqueline Cruz

Duke OIT



Edna Zhang

Team Leads



Mark McCahill



Brady Kim



Mitchell Negus



Ayoub Mahdar



Isabel Valls

Team Goals



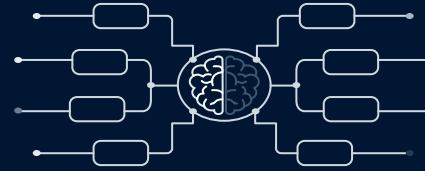
Address the consumer's
questions before an
employee has to



Leveraging Microsoft and
IBM AI technology to build
Chat-bot

How Does the Chat-bot Work?

- Software that can automatically communicate with users
- Uses patterns to develop responses

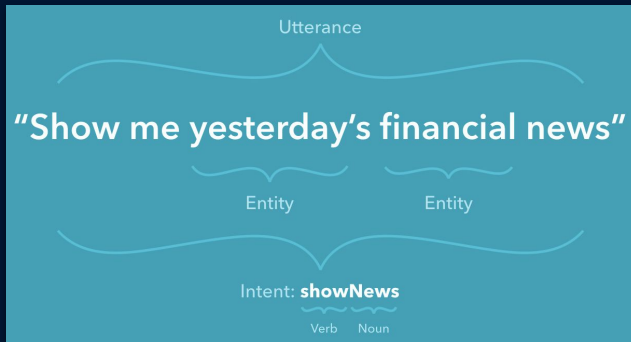


Technology Implemented

- Applies NLP (Natural Language Processing)
- Analyzes intents and entities used to answer a question
- Implements data to identify how to answer
- Multi-turn conversation

IBM Watson Assistant Chatbot

- **Detects intent from an utterance**
 - Intent: user's goal or purpose
 - Utterance: what the user says
- **Also looks for entities**
 - Entity: specific word of significance
- **Checks nodes and delivers response**



I want to order food

#setTimer

false

#orderFood

true

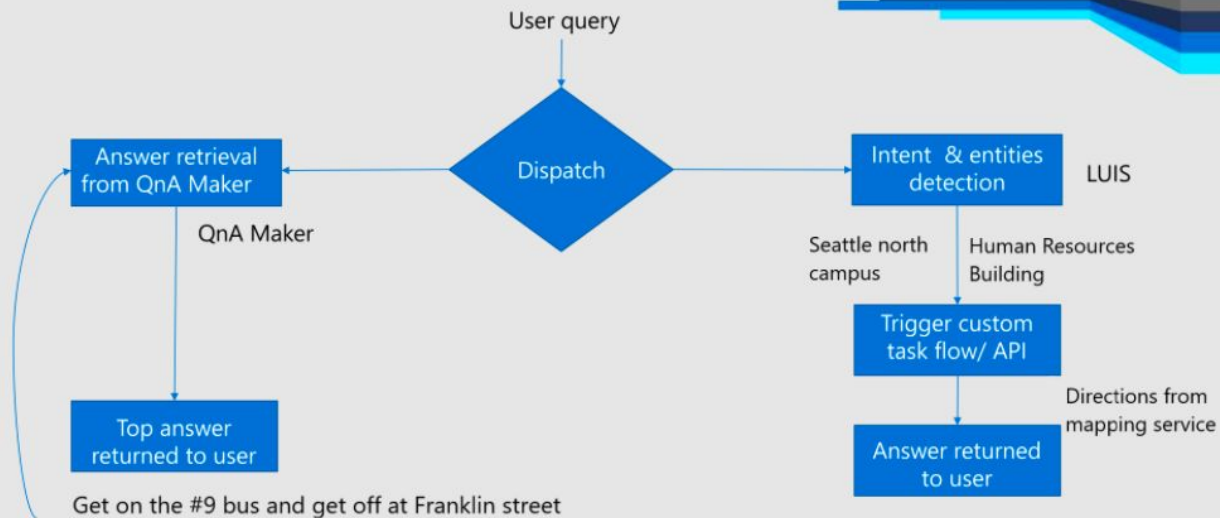
What can I get you?

#checkWeather

false

Microsoft Azure bot

Use QnA Maker & LUIS together





01

Duke Registrar

Jacqueline Cruz &
Mitchell Negus

02

Duke OIT

Edna Zhang &
Ayoub Mahdar

03

Human Resources

Emily Hughes &
Brady Kim



01

Duke Registrar

Jacqueline Cruz & Mitchell Negus

Duke Registrar Chatbot

About the Registrar

- Manages a variety of academic services
- Drop/add, final exam schedules, transfer credit, grade changes, DukeHub

Goals

- Handles a high volume of requests
- Provides a personalized experience
- Offers friendly, round-the-clock support

Undergraduate

Faculty

Graduate

Staff

Professional



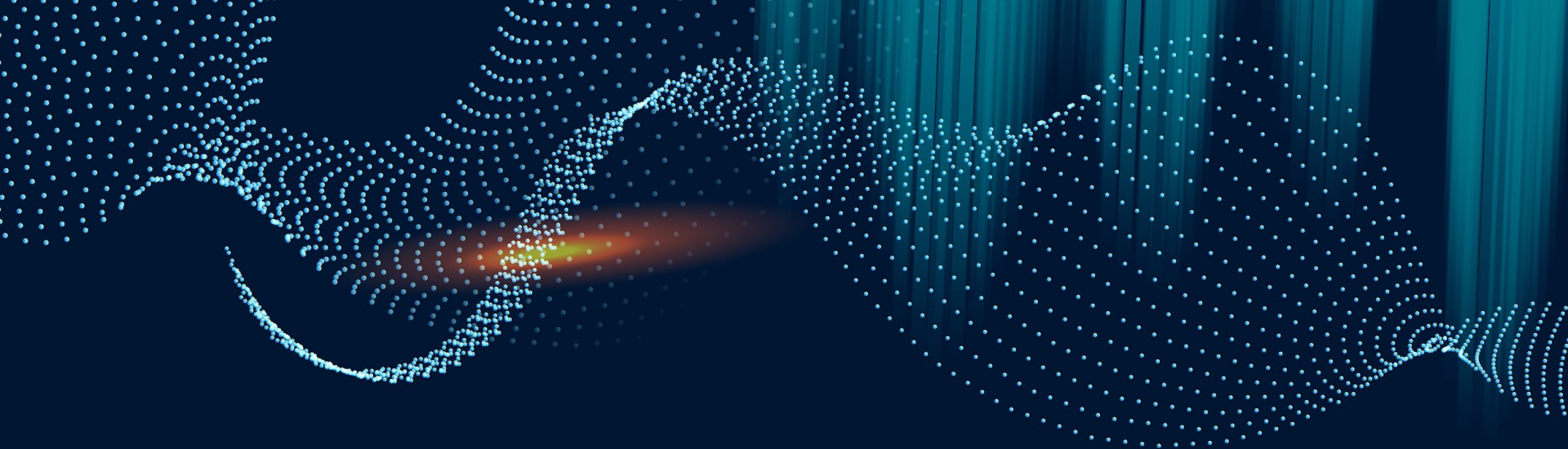
Duke Registrar Chatbot

Current Status

- Implemented questions from user testing
- Familiarized users with the registrar
- Chatbot can write to a database

Next Steps

- More user testing
- Subject-expert testing
- Iterate and improve the chatbot



02

Duke OIT

Edna Zhang & Ayoub Mahdar

Duke OIT Chatbot

About Office of Information Technology

- Manage Duke's technology
- Provide services and applications to students and faculty

Goals

- Cope with staff shortage during the COVID-19 pandemic
- Bridge between website and Live Chat/phone/email



Duke OIT Chatbot

Current Status

- Answer OIT FAQs
- 1st round of user testing
- ~7% Redirect to DHTS

Next Steps

- Use Live Chat transcripts for bot improvement
- Stakeholder testing
- Keep track of intent detection with SQL database



03

Human Resources

Emily Hughes & Brady Kim

Duke Human Resources Chatbot

About Human Resources

- A department of Duke that aids employees of Duke
- Information on disability benefits to retirement plans

Goals

- Answers a variety of user questions
- Presents a swift and simple interface
- Provides support anytime of the day
- Alleviates pressure on the HR staff

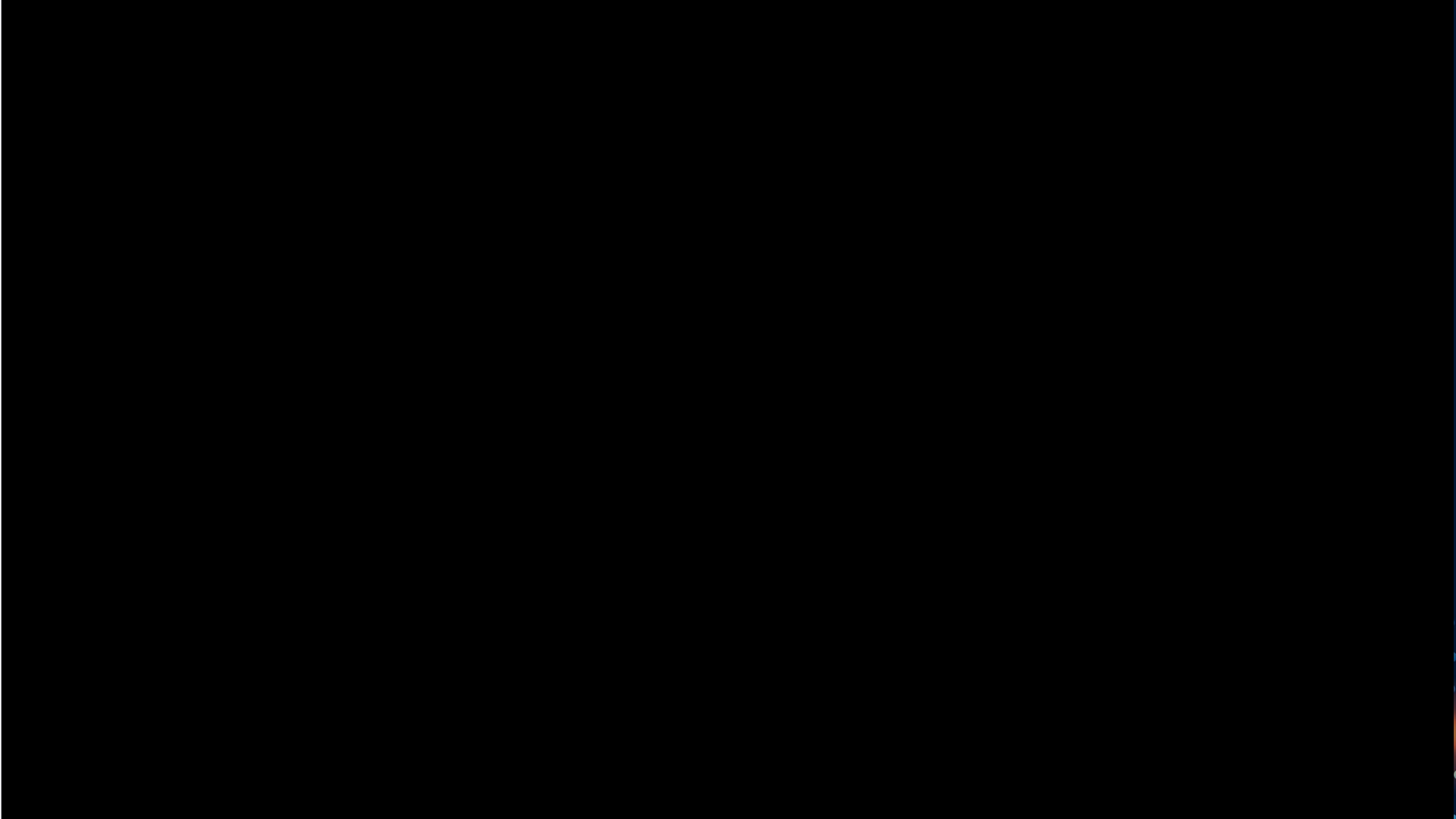
Duke Human Resources Chatbot

Current Status

- Implemented multi-turn conversations
- Going through user testing
 - Added new intents and rephrased questions thanks to user testing

Next Steps

- Continue user testing to improve bot
- Link SQL database and chatbot by questions asked and answers provided
- Have a broader variety of questions implemented



Have questions?
Talk with our OIT chatbot.

Office of Information Technology

IT STATUS ●
- [active incidents](#)
- [scheduled maintenance](#)

ABOUT ▾ WHAT WE DO HELP



What can we help you with?



Duke OIT

Yes. Log in to duke.zoom.us, and select Settings > Meeting. Under Other, Schedule Privilege displays users who may schedule on your behalf. Click the + to assign scheduling privileges to a user, who must have a Duke Zoom account. In the Assign scheduling privilege window, type the user's NetID email.

Read more about scheduling privileges [here](#).

Need further assistance?

Thanks

Thank you for chatting with me today. Was your problem resolved?

Yes

No

Yes

Thank you! I'm glad I helped. Bye!

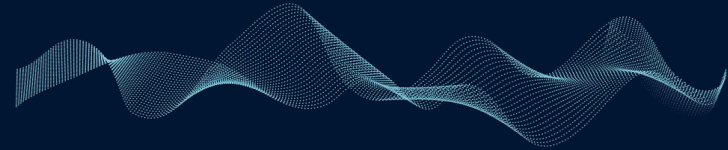
Type something...

Business Case Analysis

Our project has reached a point where we are analyzing the cost-benefit of implementing them.

Metrics

- Swift response to user
- Improved user experience
- Increase personnel efficiency



Process

- Estimate volume capabilities of bot
- Total time saved for staff
- Costs of bot support

Example: OIT Service Desk LiveChat

Method 1

Data mining: ~8000
LiveChats collected
over 2 months

LiveChat transcript
analysis to estimate
bot coverage

Method 2

Method 3

Bot could
immediately send
~7% to DHTS

Prioritize adding
intents not in bot
knowledgebase

Method 4

Goals in Final Weeks



Goal 1

Improve dialog
and multi-turn
conversations



Goal 2

Conduct subject
expert testing



Goal 3

Continuously
gather user
feedback

Registrar, OIT, HR Projects



Automate routine
questions and
answers



Relay difficult
questions to a
human



Improve the
chatbot on an
ongoing basis



THANKS!

Do you have any questions?

We are looking for volunteers to test our Chat-bots.
If interested, contact braeden.kim@duke.edu