

UnivisBot

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Pattern Recognition Lab (CS 5)
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FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG

TECHNISCHE FAKULTÄT

- 1. Motivation**
- 2. Background**
- 3. UnivisBot**
- 4. Database and parsing**
- 5. LUIS (Language Understanding Intelligent Service)**
- 6. Technical Details**
- 7. Demo**
- 8. Future scope and possibilities**

Motivation

- **Something useful to university**
- **Intuitive information extraction (everyone knows how to use chat)**
- **Webchat : growing faster than social media**
- **BT Survey among the customers**



- **Facebook messenger:**
 - **1.86 billion monthly active users [3]**
 - **34,000 developers working on 30,000 bots [3]**

Approaches to computer conversation

1. Rule-based AI

- Uses explicit rules
- Pattern matching syntax

2. Machine Learning

- Captures lots of user data
- Infers patterns automatically
- Human intervention required

Effective chat requires

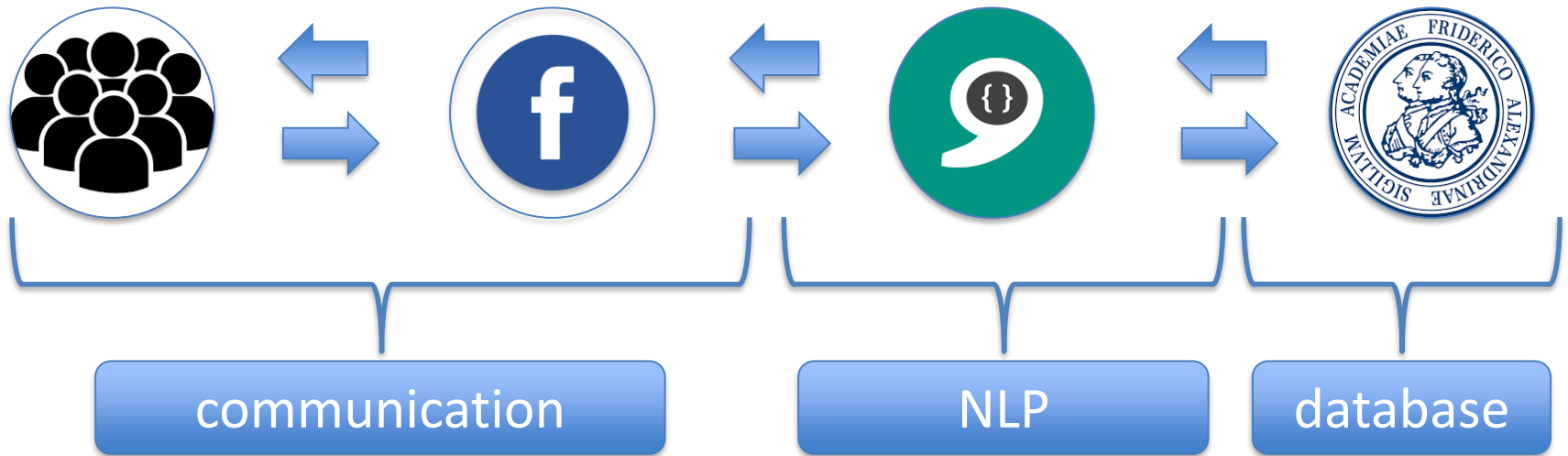
- Intelligent data collection
- Real-time predictive analytics

“add two numbers”,

Rules: “what is [number] (plus, and, +) [number]” or “add [number] and [number].”

My name is Samantha.
I'm called Fred
Hi there, my name's Jim
Hello. Sean here.
Julius is my name.

```
my name is [1=NAME]
my name's [1=NAME]
i'm called [1=NAME]
(hi, hello, hey) [0] I'm [1=NAME]
I [0] am [0] called [1=NAME]
I [0] am [1=NAME]
I'm [1=NAME]
[1=NAME] is [0] my [0] name
```



Expectation:

- Engage in conversational experiences through Facebook chat
- Figure out intent of user.
- Display the intended data.

Database and parsing: PRG Wizard

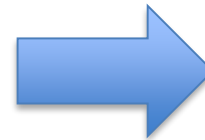
Willkommen beim **UnivIS PRG-Wizard**

1. **Server auswählen**
2. Datenbank auswählen
3. Suchparameter festlegen
4. Darstellungsart wählen

Bitte geben Sie welchen UnivIS-Server Sie anfragen möchten

univis.uni-erlangen.de

- univis.mu-luebeck.de
- univis.fh-coburg.de
- univis.uni-bamberg.de
- univis.uni-magdeburg.de
- univis.uni-kiel.de
- univis.hfm-n-a.de
- univis.uni-frankfurt.de
- univis.tu-muenchen.de
- univis.uni-erlangen.de**
- univis.fh-koeln.de



Willkommen beim **UnivIS PRG-Wizard**

1. Server auswählen
2. **Datenbank auswählen**
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4. Darstellungsart wählen

Gewählter Server: univis.uni-erlangen.de

Bitte geben Sie an in welche Datenbank Sie suchen möchten

Lehrveranstaltungen (lectures)

- Lehrveranstaltungen (lectures)
- Personen (persons)**
- Räume (rooms)
- Funktionen (functions)
- Einrichtungen (departments)
- Überschriften (chapters)
- Einzeltermine (events)
- Studien-/Diplomarbeiten (thesis)
- Publications (publications)
- Forschungsprojecte (projects)
- Internationale Kontakte (contacts)
- Belegungen (allocations)
- Benutzer (users)



Willkommen beim **UnivIS PRG-Wizard**

1. Server auswählen
2. Datenbank auswählen
3. Suchparameter festlegen
4. **Darstellungsart wählen**

Gewählter Server: univis.uni-erlangen.de
Gewählte Datenbank: persons

Folgende Suchoptionen wurden verwendet:

department = Informatik 5

Bitte wählen Sie die Darstellungsart: XML-Export (xml)

Bitte wählen Sie ein Semester aus: [default]

Bitte wählen Sie eine Sprache aus: [default]

Weitere Einschränkungen:

sich als UnivIS-Benutzer anmelden.



Willkommen beim **UnivIS PRG-Wizard**

1. Server auswählen
2. Datenbank auswählen
3. **Suchparameter festlegen**
4. Darstellungsart wählen

Gewählter Server: univis.uni-erlangen.de
Gewählte Datenbank: persons

Folgende Suchkriterien stehen zur Auswahl

(department): Informatik 5

(name):

(firstname):

(fullname):

(lehrtyp):

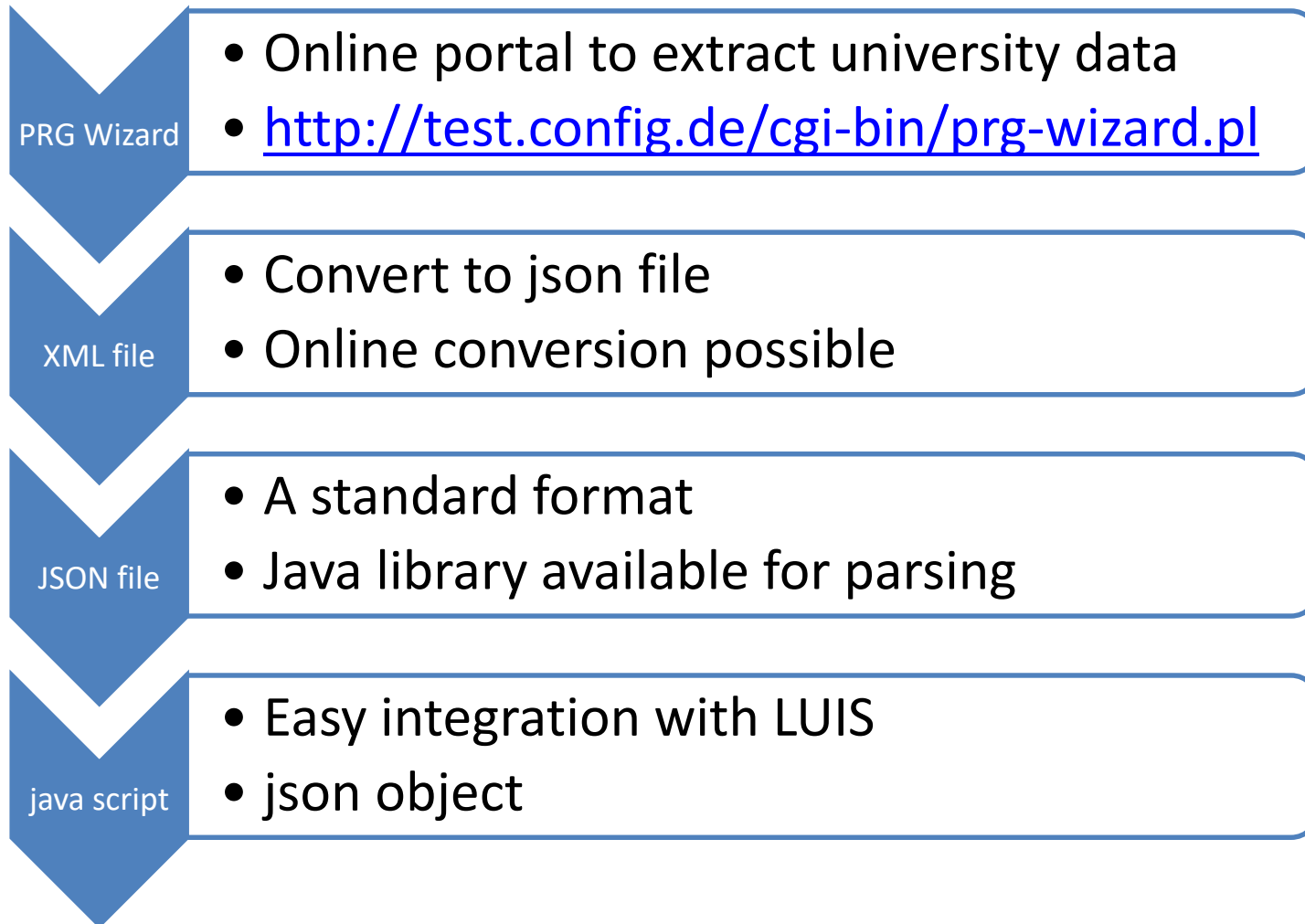
(xjob):

(path):

(title):

(id):

Database and parsing: Flow Diagram



Short for : Language Understanding Intelligent Services



Part of Microsoft Cognitive Services

- Interactive machine learning
- Language understanding

Functionalities

- Web – app
- Intent and Entity based
- Returns a json file

Model prediction
please look for the **faculty** that master luke works at . GetInformation (0.94)
please look for the **faculty** that master **luke** works at . GetInformation(0.94)

Model prediction
going to the zoo is fun . None(0.35)
going to the zoo is fun .

Model prediction
look for courses containing chem . GetInformation(0.16)
look for **courses** **containing** **chem** .

Model prediction
can you give me the **phone number** of **heisenberg** ? GetInformation (0.99)
can you give me the **phone number** of **heisenberg** ? GetInformation(0.99)

Univis_Questionair_V1

App Settings

Publish

Intents (+)

None
GetModule
GetInformation

Entities (+)

DescriptiveTerms

Name (v)

Forename
Postname
Module (v)
FullName
ContainsName
PersInfo (v)
Mail
Telephone
Faculty

Pre-built Entities (+)

No pre-built entities added

Regex Features (+)

No patterns added

Phrase List Features (+)

No phrase list features added

Example of LUIS results

```
{
  "query": "What is the mail adress of Peter Wilke?",
  "topScoringIntent": {
    "intent": "GetInformation",
    "score": 0.9904961,
    "actions": [
      {
        "triggered": false,
        "name": "GetInformation",
        "parameters": [
          {
            "name": "SearchThing",
            "type": "PersInfo",
            "required": true,
            "value": null
          },
          {
            "name": "PersonName",
            "type": "Name",
            "required": true,
            "value": null
          }
        ]
      }
    ]
  },
  "intents": [
    {
      "intent": "GetInformation",
      "score": 0.9904961,
      "actions": [
        {
          "triggered": false,
          "name": "GetInformation",
          "parameters": [
            {
              "name": "SearchThing",
              "type": "PersInfo",
              "required": true,
              "value": null
            },
            {
              "name": "PersonName",
              "type": "Name",
              "required": true,
              "value": null
            }
          ]
        }
      ]
    },
    {
      "intent": "None",
      "score": 0.09252762
    },
    {
      "intent": "GetModule",
      "score": 7.405262E-07
    }
  ],
  "entities": [
    {
      "entity": "mail",
      "type": "PersInfo::Mail",
      "startIndex": 12,
      "endIndex": 15,
      "score": 0.9346938
    },
    {
      "entity": "peter",
      "type": "Name::Forename",
      "startIndex": 27,
      "endIndex": 31,
      "score": 0.9211497
    },
    {
      "entity": "wilke",
      "type": "Name::Postname",
      "startIndex": 33,
      "endIndex": 37,
      "score": 0.9323577
    }
  ],
  "dialog": {
    "prompt": "What Name?",
    "parameterName": "PersonName",
    "parameterType": "Name",
    "contextId": "9eb5230f-c3fe-46e9-97d3-790b75c32f56",
    "status": "Question"
  }
}
```

Facebook Chat – Bot Example

An ideal conversation includes:

1. Purpose full and smooth interaction with the user
2. Highlighting of exact results
3. Providing additional information in case of mistakes
4. Default for errors

The screenshot shows a chat interface with a bot named 'Wiseogi TutorBot' (Active 1m ago). The chat history includes:

- User: 9131 85 25246 Address : 09.153,Martensstraße 3,91058 Erlangen
- Bot: Thank you for asking me! If I couldn't help please check the spelling of the searched name. for more information, please type nonsens.
- User: Who is Andreas Maier?
- Bot: I see you are looking for some information. Excellent!
- User: Let me see...
- Bot: **andreas maier**
Email : andreas.maier@fau.de
Phone number : +49 9131 85 28982
Address : ...
- User: About these ones I am sure. But hey, let me see...
- Bot: Here is the list of all possible people, in case I understood something incorrectly.
- Bot: result 1 : Name : Andreas Maier Email : andreas.maier@fau.de Phone number : +49 9131 85 28982 Address : 09.130,Martensstraße 3,91058 Erlangen
- Bot: result 2 : Name : Andreas Wimmer Email : andreas.wimmer@informatik.uni-erlangen.de Phone number : undefined Address : undefined,undefined,undefined
- Bot: result 3 : Name : Andreas Fieselmann Email : andreas.fieselmann@informatik.uni-erlangen.de Phone number : undefined Address : undefined,undefined,undefined
- User: Thank you for asking me! If I couldn't help please check the spelling of the searched name. for more information, please type nonsens.
- User: I like you
- Bot: Sorry, I did not understand 'I like you'. I can search for Mail addresses, phone numbers and office addresses. I also need the first and last name of whomever you search for.

At the bottom, there is a text input field labeled 'Type a message...' and a row of icons for attachments, emojis, and other chat functions.

- **Frontend is Facebook Chatbot API**
- **Code and Backend are created in the Microsoft Azure**
 - **Provides Storage and Life Tests**
 - **Possesses great power**
- **Programmed in Java Script**
 - **Inline commenting and description**
- **Currently functioning for the computer science department**

DEMO

Future scope and possibilities

- **Expand to more departments**
- **Get Cards to Run**
- **Include hyperlinks to Univis pages**
- **Improve accuracy with entities and intents**
- **Widen range of Entities**

References

1. [The Autonomous Customer: 5 Trends for the Future](#) [BT Survey, 2003]
2. [Hybrid AI and Machine Learning: Letting Computers Talk Back](#) [Martin Reddy, Nov 2016]
3. [36 Amazing Facebook Messenger Statistics](#) [Braig Smith, Jan 2017]
4. [Facebook: number of monthly active users worldwide 2008-2016](#)
5. [TutorBot\(UnavisBot\) WiseOgi Tutorbot](#)

Thank You