

Introduction

Dr. Henry Nguyen

School of Information and Communication Technology



Dr. Henry (Quốc Việt Hùng) Nguyễn

- Lecturer, Griffith University, Australia
- He studied Bachelor at HCMUT, K2000
- He just won **DECRA** research grant from Australia Government (**500k AUD**).
- <https://sites.google.com/site/nqvhung>

Dr. Tâm Nguyễn Thành

- He just finished his PhD in July 2019, ([EPFL, Switzerland](#))
- He studied Bachelor at HCMUT, K2006
- He supports research activity in Dr. Henry Nguyen's research group.



Life in Gold Coast



Average temperature:
15 °C – 25 °C



Population: More than
500,000 people



300 days of sunshine a
year



Host of the Gold Coast
2018 Commonwealth
Games



100,000 hectares of
World Heritage-listed
rainforests



International
population: 28% of
residents were born
overseas







Brie's

Centro
specialty shops

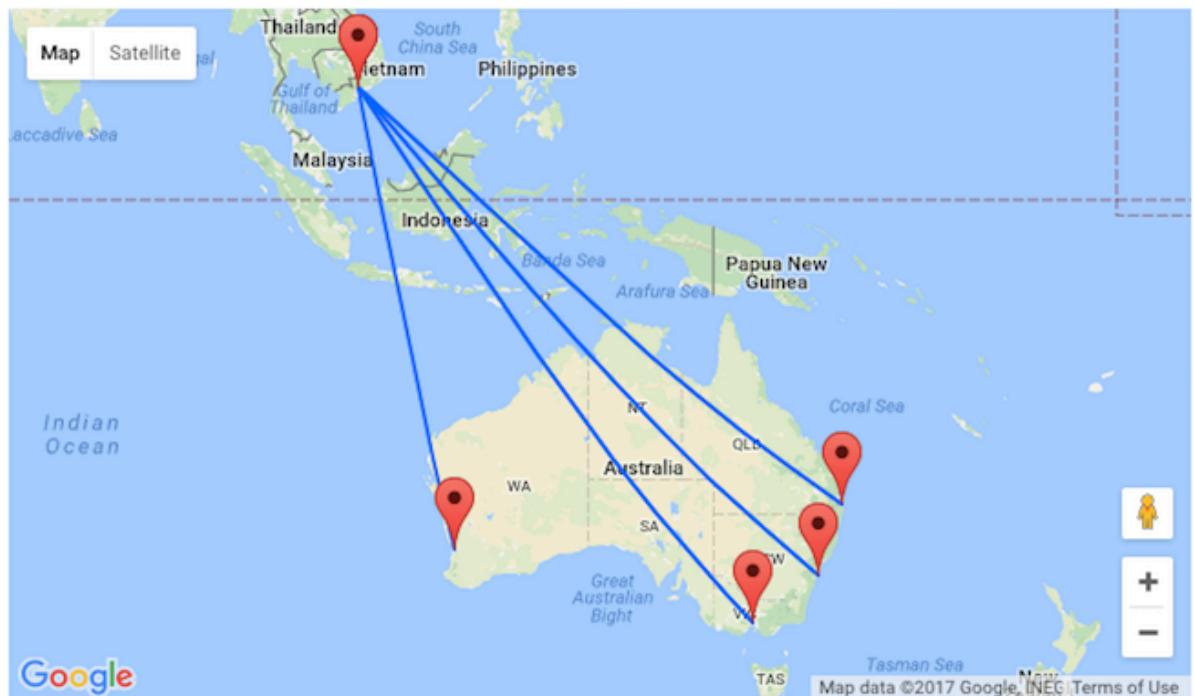
Centro
specialty
shops

'yes'
OPTUS

'yes'
OPTUS

Study in Australia

- Close to home
- Fun (Western+Asian communities)



Study at Griffith

Griffith is a world-class university with a reputation for research and teaching excellence.



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Our learning spaces inspire creativity, promote collaboration and encourage innovation.



Innovative teaching and learning

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Griffith has received more Australian Awards for University Teaching than any other university.

Open Opportunities

Dr. Henry's research group provides a fast-growing environment to publish top-tier research articles and study abroad.

- Internship at Griffith University
- Support for Master application
- Support for PhD application

Keep in touch:

- <https://forms.gle/fSQG4nmbDzphqWrbA>
- thanhtamdbl@gmail.com

Some Research

Published more than 70 papers in high impact journals and top-tier venues

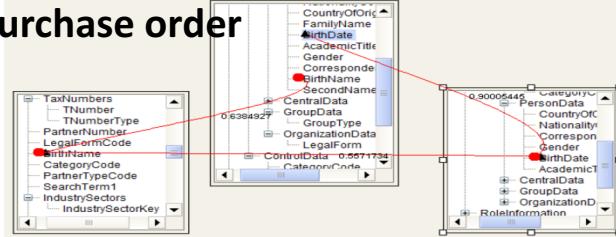
- Big Data Integration
- Crowdsourcing
- Deep Learning
- Recommendation Systems
- Internet of Things
- Information Retrieval
- Data Compression

1. Big Data integration



- **Data Integration:** combining data from **multiple sources** to provide a unified view
 - Data is distributed
 - Seved for data analytics
- Types of data integration

Purchase order



Structured Data

Product reviews



Unstructured data

1. Big Data Integration (cont'd)

- AAMAS 2013

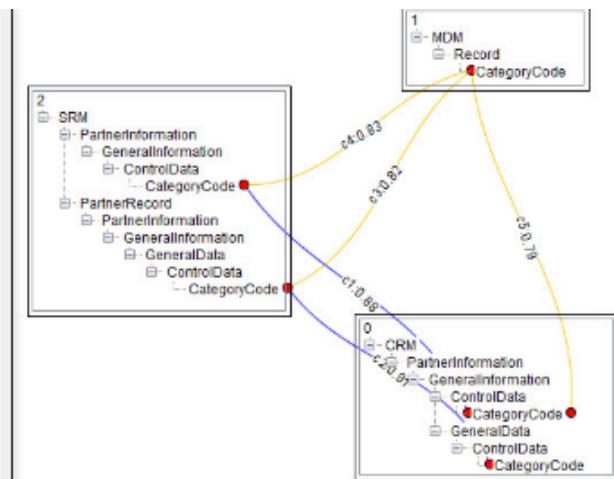
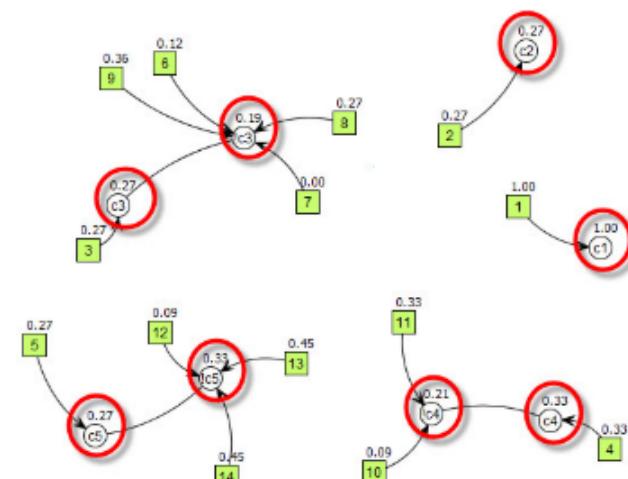
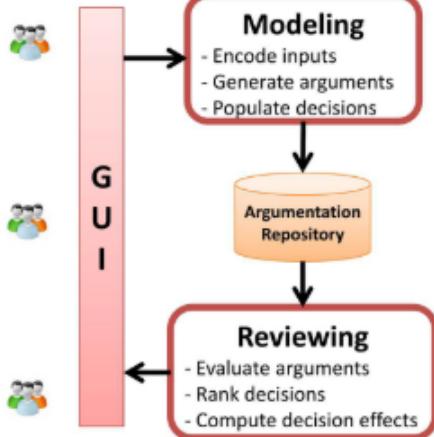


Figure 1: Architecture of ArgSM

Figure 2: Argumentation view (left) and schema view (right) for the running scenario

1. Big Data Integration (cont'd)

- ICDE 2015

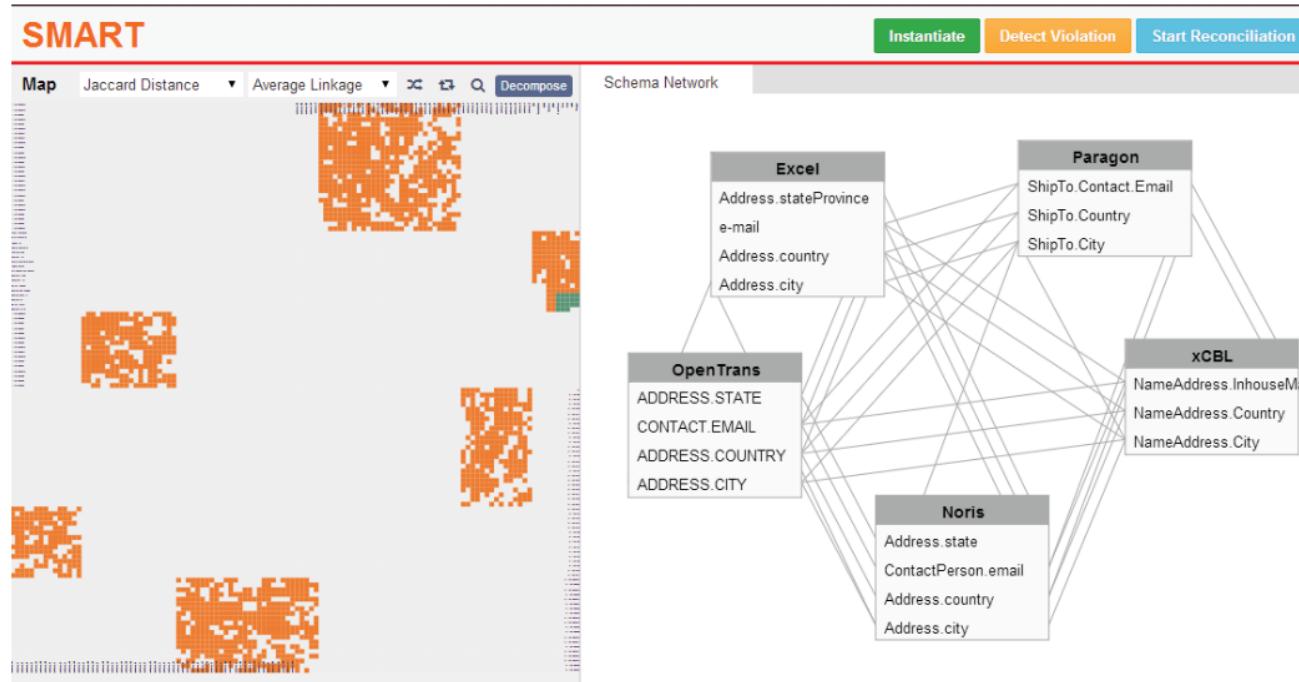


Fig. 3. The SMART user interface for the analysis and reconciliation of schema matching networks

2. Crowdsourcing



2. Crowdsourcing (cont'd)

- SIGIR 2013

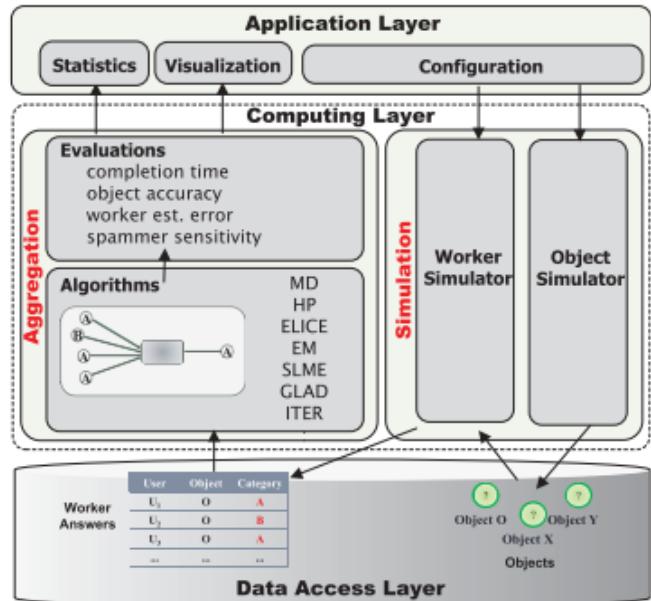


Figure 1: Benchmarking framework

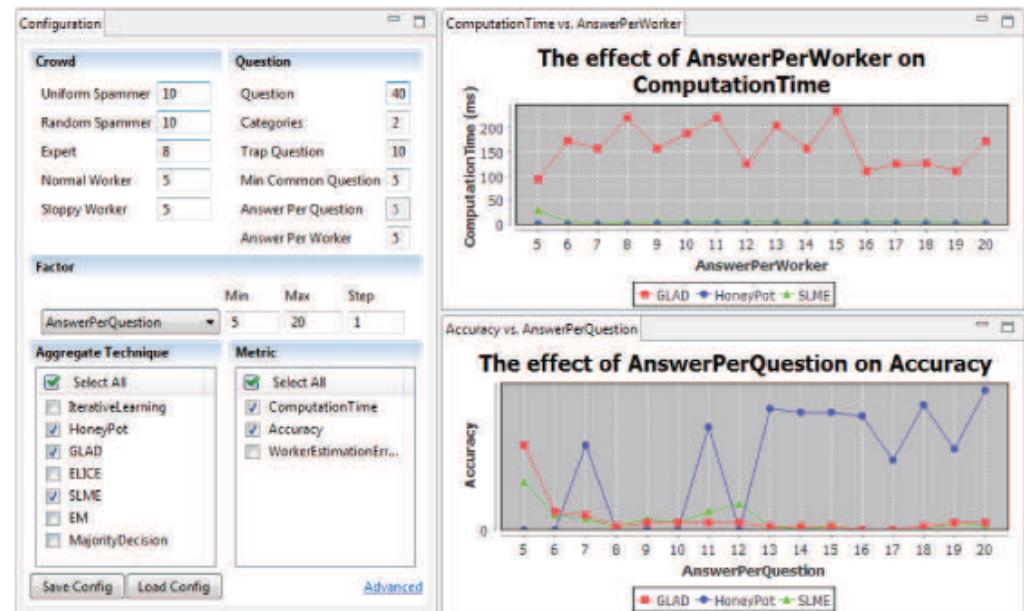


Figure 2: User Interface

2. Crowdsourcing (cont'd)

- SIGIR 2015

Figure 1: An answer matrix

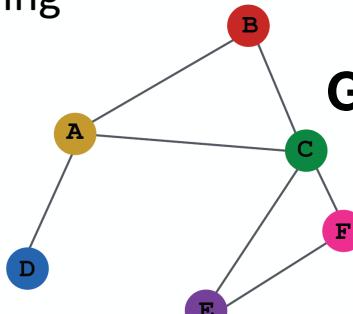
Question	Crowd	Expert
Question 1	A	A
Question 9	B	B
Question 68	B	A
Question 50	A	B
Question 44	B	A
Question 55	A	B

Number of feedbacks	6
Uncertainty	0.5584
Number of detected spammers	12
Estimated precision	0.852±0.11

Figure 2: Expert feedback view

3. Deep Learning

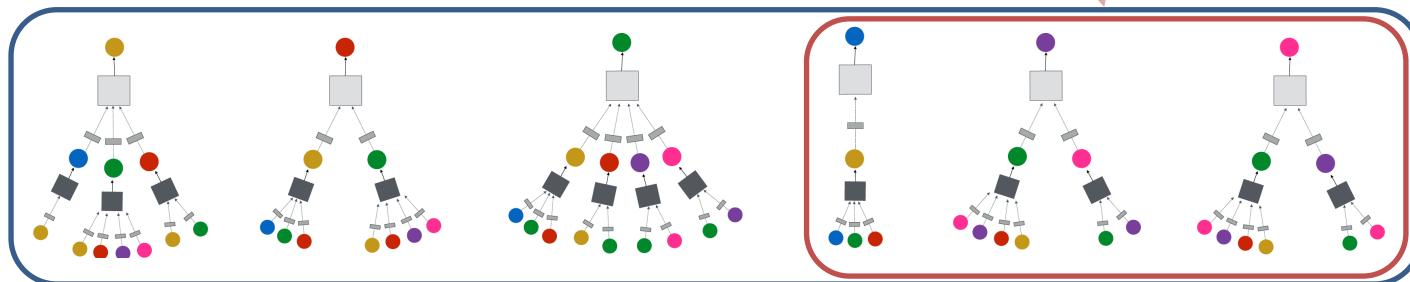
Graph Embedding



INPUT GRAPH

**Generate embeddings for nodes
as needed**

**Even for nodes we never
trained on!!!!**



3. Deep Learning (cont'd)

Remote Sensing

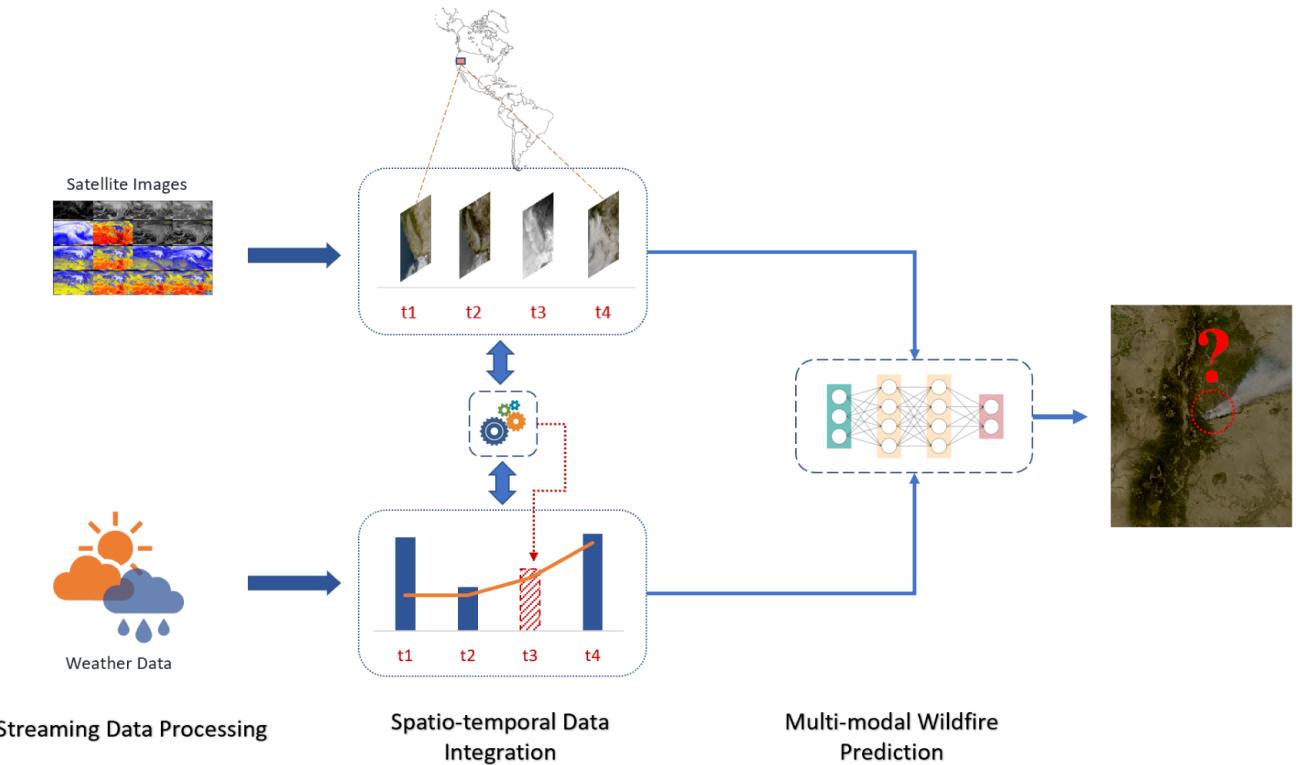


Figure 1: Overview of the proposed wildfire detection system.

3. Deep Learning (cont'd)

Agriculture Mapping

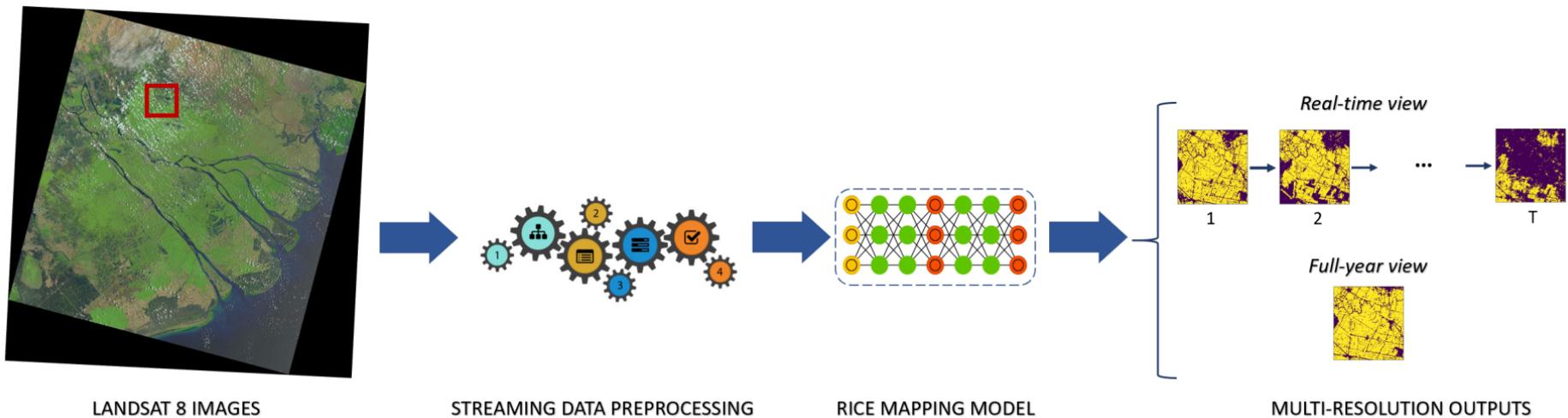


Figure 1: Overview of our autonomous and intelligent rice mapping system.

4. Recommendation Systems



"Large-Scale Deep Learning with TensorFlow," Jeff Dean

18,670 views

128

7

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Association for Computing Machinery (ACM)

Published on Aug 9, 2016

Title: Large-Scale Deep Learning with TensorFlow

Date: Thursday, July 07, 2016

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Up next

AUTOPLAY



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Verge Science
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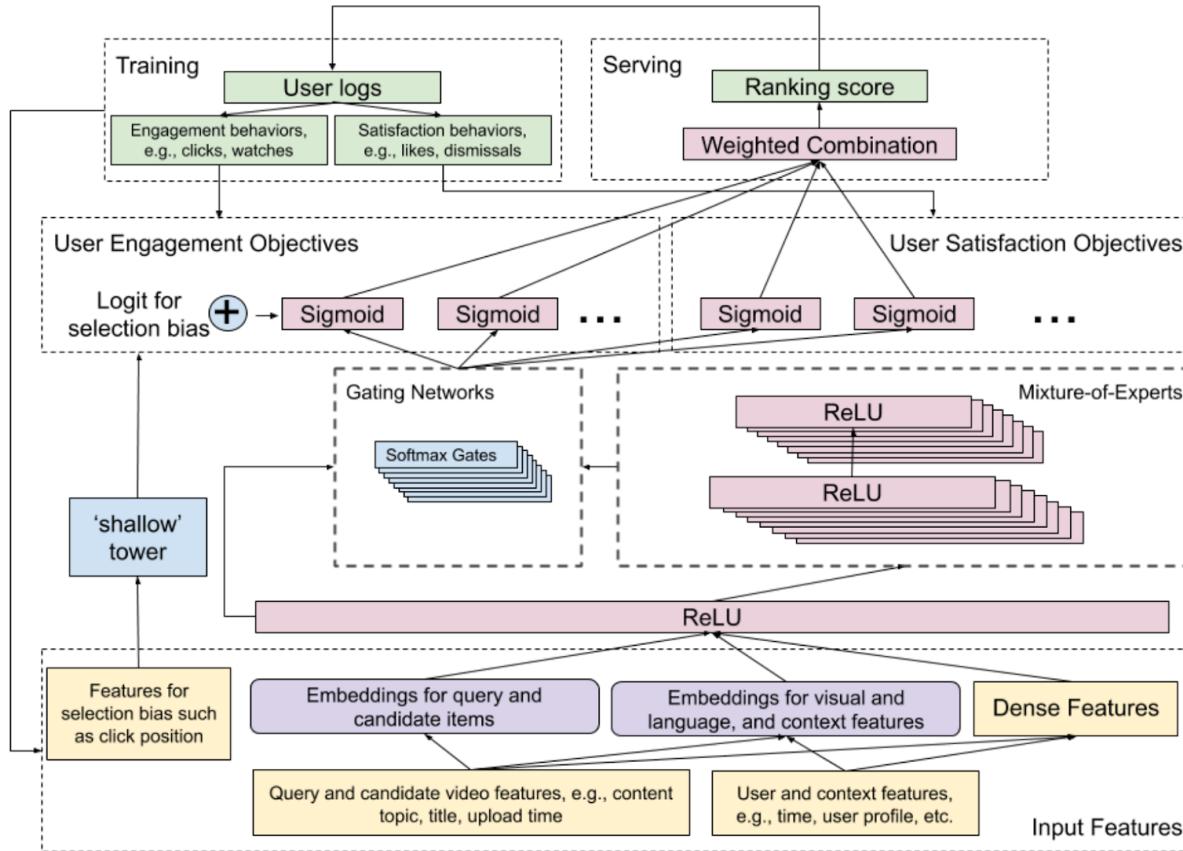
Tensorflow and deep learning - without a PhD...

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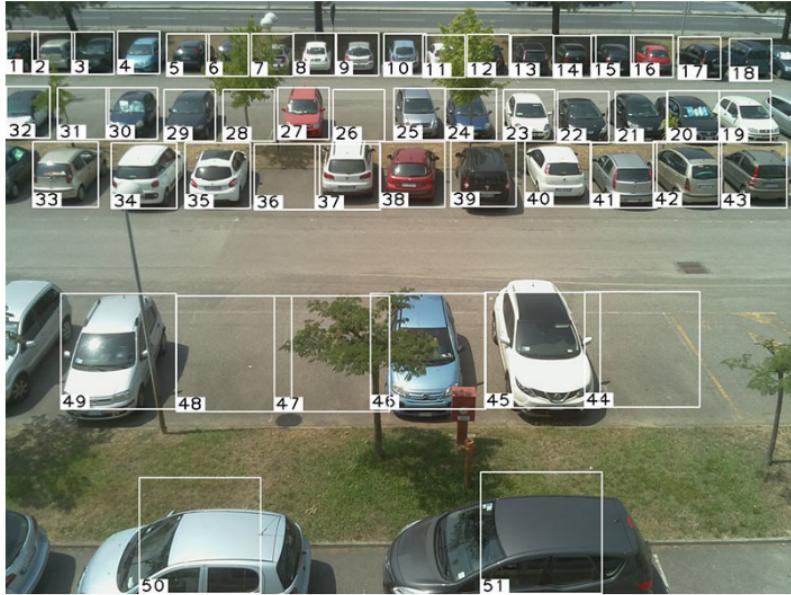
4. Recommendation Systems (cont'd)



5. Internet of Things

SmartCity + Image recognition

- Problem:
 - *Input: image from camera*
 - *Output: detect visual parking occupancy*
- Techniques:
 - *CNN (mAlexNet) on camera devices*
 - *No central server*



6. Information retrieval

- Tag-based retrieval and query auto-completion
 - Retrieval Process:
 - Step 1 - **Querying**: user selects a keyword/tag as query
 - Step 2 - **Retrieving**: system shows documents containing selected tags
 - Step 3 - **Suggesting**: system suggests k tags to filter the search results

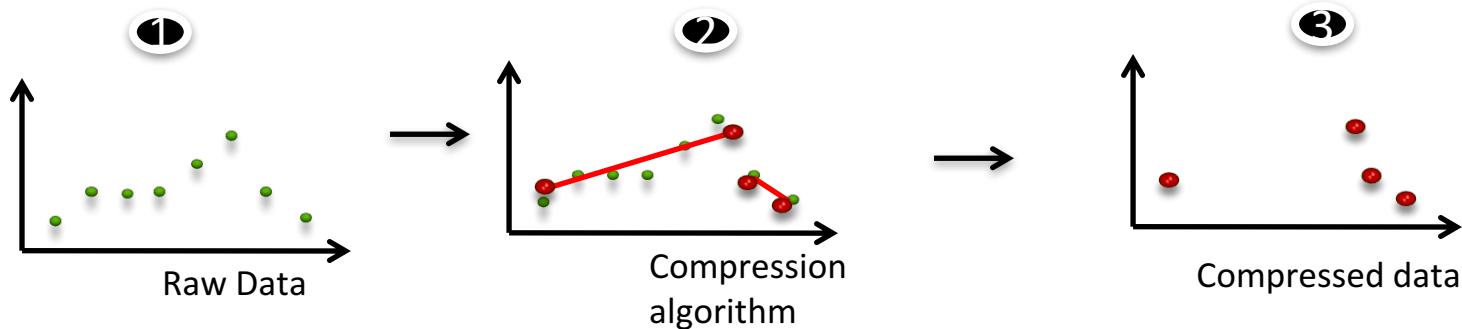
The screenshot illustrates the three-step retrieval process:

- Step 1 - Querying:** The user has entered the keyword "Paper" into the search input field, which is highlighted with a red circle labeled "1".
- Step 2 - Retrieving:** The search results are displayed on the right, showing four academic papers. The first result is "User Feedback as a First Class Citizen in Information Integration Systems" by Norman W. Paton, Khalid Belhajjame, Cornelia Hedeler, et al., with a "more" link and a [Google] button. This result is highlighted with a red circle labeled "2".
- Step 3 - Suggesting:** On the left sidebar, under the "Data Integration" section, there is a list of suggested tags: "Matcher", "Privacy", "Ontology Alignment", "Query Processing", and "Record matching". The "Matcher" tag is highlighted with a red circle labeled "3".

Searching	Paper
Enter keyword Paper	User Feedback as a First Class Citizen in Information Integration Systems Norman W. Paton, Khalid Belhajjame, Cornelia Hedeler... more [Google]
Data Integration Matcher	Pay-as-you-go user feedback for dataspace systems Michael J. Franklin, Alon Y. Halevy, Shawn R. Jeffery... more [Google]
Privacy	
Ontology Alignment	
Query Processing	Schema Matching Crowdscreen: Algorithms for filtering data with humans Neoklis Polyzotis, Hyunjung Park, Jennifer Widom... more [Google]
Record matching	Matching Schemas in Online Communities: A Web 2.0 Approach Warren Shen, AnHai Doan, Robert McCann... more [Google]

7. Data Compression

- Input data
 - Time series
- Compression type
 - Lossy: $|\text{decompress data} - \text{raw data}| < \text{predefined tolerance}$
- Goal: Minimize the size compressed data



Q&A

Welcome motivated and creative students

Contact us:

- <https://forms.gle/fSQG4nmbDzphqWrbA>
- thanhtamdblp@gmail.com