

## Speeding Up RPA through Behavioural Observation

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**Utrecht University** 



#### Who are we?

Andrés Jiménez-Ramírez



Assistant professor at Universidad de Sevilla

Teaching for 10 years Research on Flexible BPM Hajo Reijers



Full professor at Utrecht University and TU/e

Teaching for >10 years Research on Process Innovation



In the past years and currently: focus on RPA



### Outline

- Traditional RPA The Outsourcing context
  - It's not just a matter of speed
- Behavior Observation
  - Discovery at Image level
- Open Challenges



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**Open Challenges** 

### **RPA vs BPM**







**Open Challenges** 

### **RPA & BPM**



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### RPA in the BPO



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### RPA in the BPO







Traditional RPA

**Behaviour Observation** 

**Open Challenges** 

### RPA in the BPO





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8

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### RPA in the BPO







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# RPA in the BPO







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### RPA in the BPO







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### RPA in the BPO



October, 8

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### RPA in the BPO







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### RPA in the BPO





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### RPA in the BPO With Process Mining



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**Open Challenges** 

### **Behaviour observation**

How to log user activities in your own webapp?

How to do the same in a webapp that is owned by others?

Complexi What happens if the user activities involve external apps beyond web?

#### What if the users are behind a secure connection, only images can be processed?





**Open Challenges** 

### **Behaviour observation - log**



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...

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Leno, V., Polyvyanyy, A., La Rosa, M., Dumas, M. & Maggi, F. M. (2019). Action logger: Enabling process mining for robotic process automation

López-Carnicer, J.M., Del Valle, C., González Enriquez, J. (2020). Towards an OpenSource Logger for the Analysis of RPA Projects

Agostinelli, A., Lupia, M., Marrella, A., Mecella, M. (2020). Automated Generation of Executable RPA Scripts from User Interface Logs

img\_name

img\_12

img\_13

img\_14

img\_15

img 16

...



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**Open Challenges** 

### **Behaviour observation - images**



#### Source image



Reduced color, size, etc. Hash/fingerprint



00011000010 10**1**001100... 10101001100 010000<mark>01</mark>000

Hamming

distance

18





00011000010 10**0**001100... 10101001100 010000<mark>10</mark>000





**Open Challenges** 

### **Behaviour observation - images**



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### **Behaviour observation - discovery**



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### **Behaviour observation - discovery**



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### **Behaviour observation - discovery**



to improve the early stages of the robotic process automation lifecycle





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# **Open Challenges**



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# **Open Challenges**





### Thank you Any question?

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