

Automatic Extraction of References Between Text and Tables

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Motivation

Problem: Difficulty of reading papers with complicated text-chart relationships

ReVision [Savva et al. 2011]

✓ Chart type classification

✗ No references between text & charts

Crowdsourcing [Kong et al. 2014]

✓ Text-chart cross-reference extraction

✗ Not scalable

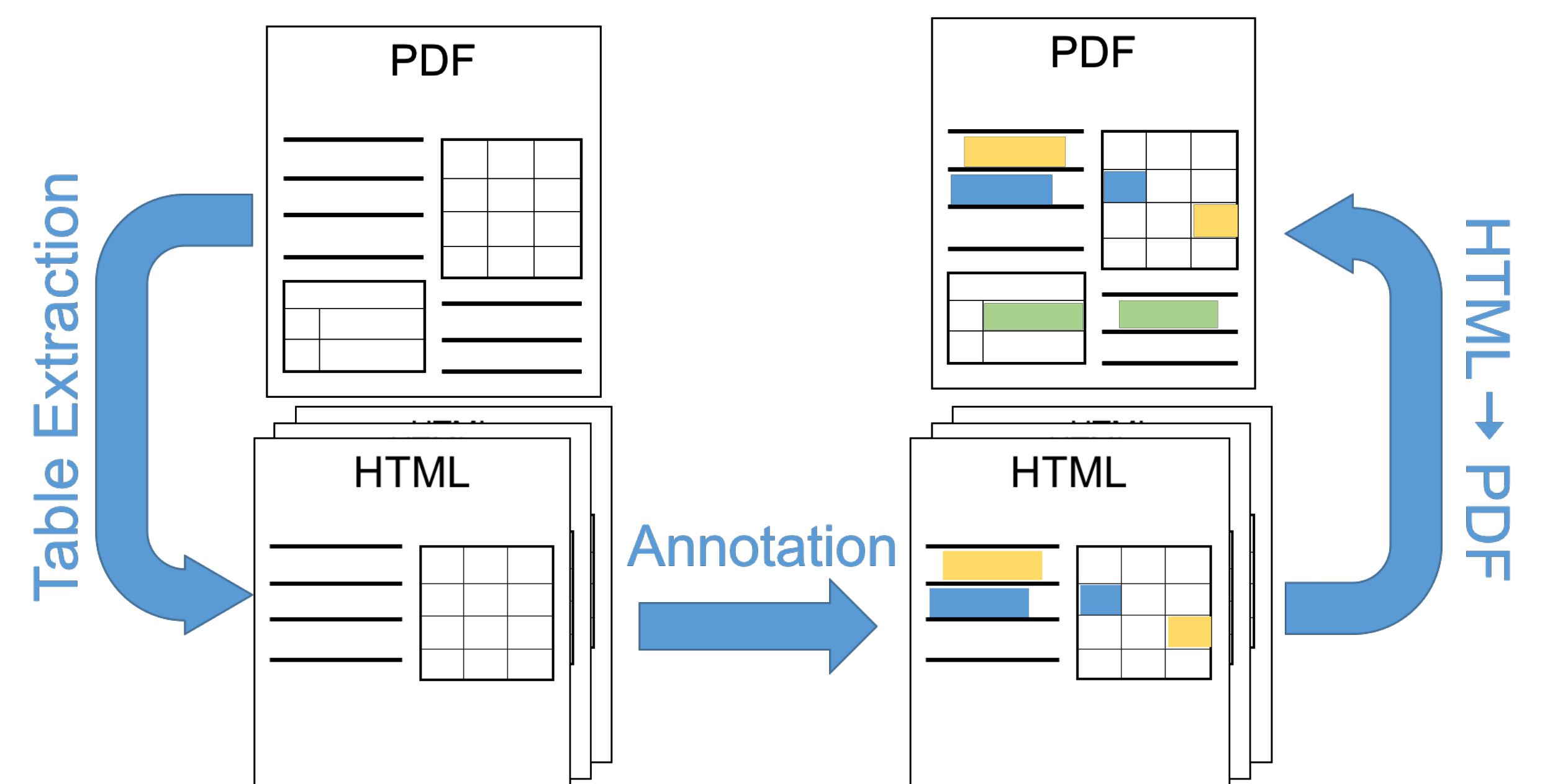
Missing Piece: Generalizable automated techniques for text-chart cross-referencing

End Goal

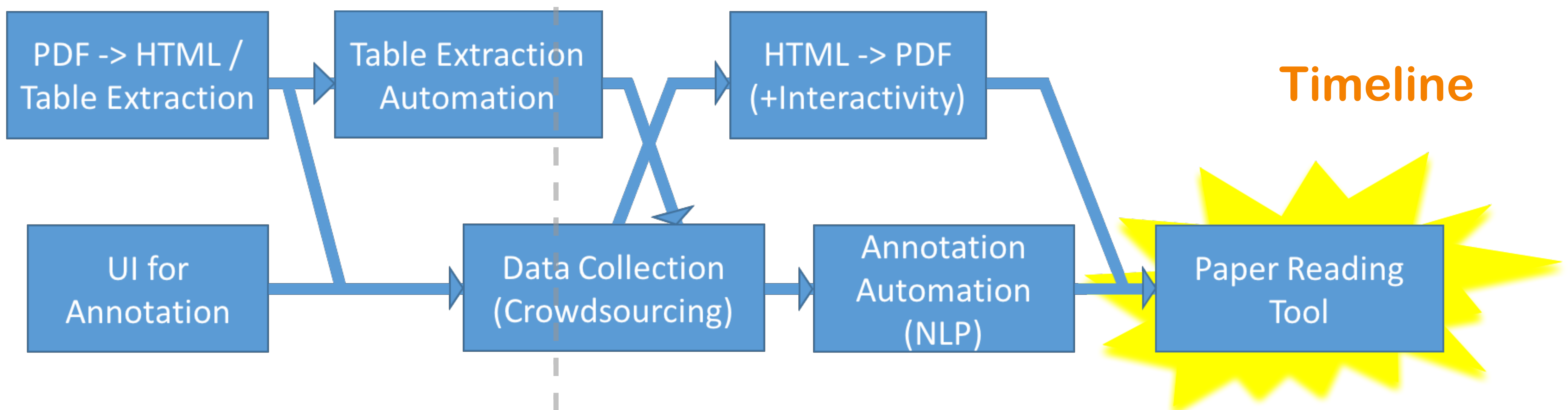


Intelligent interactive paper reading tool

Our Approach



Current



User Interface

Drone and Me: An Exploration Into Natural Human-Drone Interaction

Table 2. Percentage of use of interaction modalities

Out of the 418 interaction tasks, 4 were misunderstood by the users, and removed from further analysis. We found 216 unique interactions: 98 gestures (body gestures not restricted to hands and arms), 59 sounds, 53 combinations of gesture and sound, and 8 with a prop. Given the low usage of props, we do not count them in further analysis. We use gesture and sound only as they encompass the vast majority of interactions, as shown in Table 2. Many participants initially expressed discomfort in talking with the drone. Gestures are quick and allowed for precise adjustments and continuous control throughout the interaction. Over the course of the study, participants felt more confident in the drone's ability. As illustrated by the increase from 37% to 57% in using sound for the representative tasks in Part 2, participants started giving voice commands. This suggests that rapport can be established, allowing humans to accept collocated drones.

Tasks Performed	Gesture	Sound	Both
All	88%	38%	26%
Representative tasks (Part 1)	88%	37%	28%
Representative tasks (Part 2)	70%	57%	33%

Upload your annotated results

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References:

Text: "37%", "57%", "representative tasks in Part 2" | Cells: "Representative tasks (Part 2)", "37%", "57%" | Delete

Key Challenges

- Generalized table extraction
- Characterization of cross-references
- Quality crowdsourced data
- Annotation automation via NLP

