

Table Detection and Recognition in Document Images

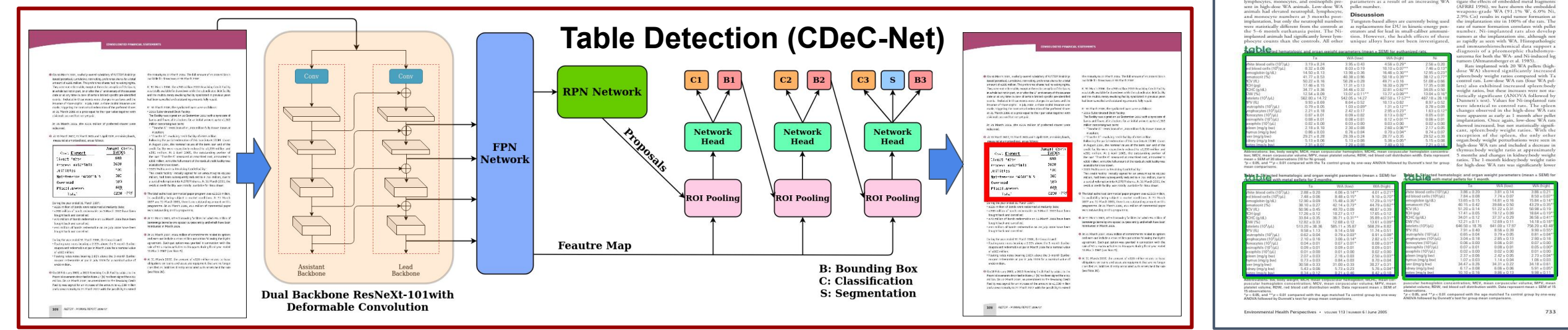
Motivation and Objective

| | These Months Ended | | | | These Months Ended | | | | |
|---|--------------------|---------------|----------------|---------------|--------------------|---------------|----------------|---------------|-----------|
| | March 31, 2003 | June 30, 2003 | Sept. 30, 2003 | Dec. 31, 2003 | March 31, 2004 | June 30, 2004 | Sept. 30, 2004 | Dec. 31, 2004 | |
| Weighted average... determined deferred stock-based compensation net | 1,552 | 5,712 | 1,281,895 | 18,760,732 | 1,004,780 | 965,520 | 635,371 | 50,904 | 2,656,575 |
| | 3.30 | \$ | 9.62 | \$ | 16.27 | \$ 38.43 | \$ 77.86 | \$ 83.45 | |
| | 33.99 | \$ | 75.05 | \$ | 88.13 | \$ 97.03 | \$ 85.00 | \$ 144.11 | |
| Deferred compensation | 12.60 | \$ 30.69 | \$ | \$ | 58.60 | \$ 7.14 | \$ 60.66 | | |
| Deferred compensation | 129.3 | \$ 43.9 | \$ 65.43 | \$ | 71.86 | \$ 56.6 | \$ 4.5 | \$ 3.1 | \$ 136.4 |
| Deferred compensation | — | 120,000 | 114,999 | — | 234,999 | — | 16,175 | — | 16,175 |
| Deferred compensation | — | \$ 25.96 | \$ 66.41 | \$ | \$ | \$ 95.09 | \$ | \$ | — |
| Deferred compensation | — | \$ 3.1 | \$ 7.6 | \$ | 10.7 | \$ | 1.5 | \$ | 1.5 |
| Deferred compensation | — | \$ | \$ | \$ | \$ | \$ | \$ | \$ 12.0 | \$ 12.0 |
| Deferred compensation | — | \$ | \$ | \$ | 10.8 | \$ 10.8 | \$ 3.9 | \$ | \$ 3.9 |
| Total | 129.3 | \$ 47.0 | \$ 280.4 | \$ 94.7 | \$ 551.4 | \$ 76.1 | \$ 58.1 | \$ 4.5 | \$ 151.8 |

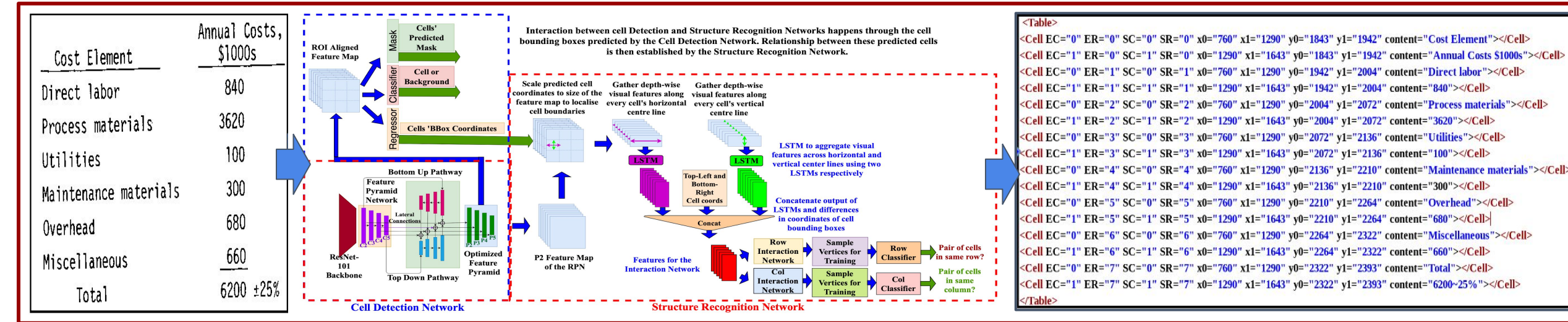
- Tables are information-rich structured objects in document. We present a novel end-to-end trainable deep network, (CDeC-Net) for detecting tables in the documents.

Method and Results

- After localizing table, we recognize localized table structure by presenting an approach (TabStruct-Net) that combines cell detection and interaction modules to localize the cells and predict their row and column associations with other detected cells.



| Year | Acc. | Opt. | Base. | Opt. f | TN | TP | FN | FP | Total |
|------|--------|--------|--------|--------|----|----|----|----|-------|
| 1999 | 0.7500 | 0.7500 | 0.7500 | 0 | 0 | 6 | 0 | 2 | 8 |
| 2000 | 0.6000 | 0.7000 | 0.7000 | 0 | 0 | 6 | 1 | 3 | 10 |
| 2001 | 0.1333 | 0.6000 | 0.5333 | 3 | 1 | 1 | 7 | 6 | 15 |
| 2003 | 0.6667 | 0.8889 | 0.5556 | 374 | 3 | 3 | 2 | 1 | 9 |
| 2004 | 0.3000 | 0.7000 | 0.5000 | 35 | 2 | 1 | 4 | 3 | 10 |
| 2005 | 0.4706 | 0.5882 | 0.5882 | 472 | 8 | 0 | 7 | 2 | 17 |
| 2006 | 0.5714 | 0.5714 | 0.5714 | 1559 | 7 | 1 | 5 | 1 | 14 |
| 2007 | 0.6667 | 0.6667 | 0.6000 | 37 | 5 | 5 | 1 | 4 | 15 |
| 2008 | 0.4286 | 0.7143 | 0.5000 | 197 | 2 | 4 | 3 | 5 | 14 |
| 2009 | 0.4545 | 0.5455 | 0.6364 | 214 | 5 | 0 | 4 | 2 | 11 |
| 2010 | 0.6190 | 0.7143 | 0.5714 | 1105 | 11 | 2 | 7 | 1 | 21 |
| 2011 | 0.5000 | 0.6667 | 0.5556 | 59 | 3 | 6 | 4 | 5 | 18 |
| 2012 | 0.7059 | 0.7059 | 0.6471 | 633 | 11 | 1 | 5 | 0 | 17 |
| 2013 | 0.6316 | 0.7895 | 0.7895 | 240 | 12 | 0 | 4 | 3 | 10 |
| 2014 | 0.6923 | 0.6923 | 0.7692 | 64 | 9 | 0 | 3 | 1 | 13 |
| 2015 | 0.6364 | 0.7273 | 0.7273 | 96 | 7 | 0 | 3 | 1 | 11 |
| 2016 | 0.5882 | 0.7059 | 0.5882 | 2 | 9 | 1 | 6 | 1 | 17 |
| All | 0.5523 | 0.6862 | - | - | 95 | 37 | 66 | 41 | 239 |



| Year | Acc. | Opt. | Base. | Opt. f | TN | TP | FN | FP | Total |
|------|--------|--------|--------|--------|----|----|----|----|-------|
| 1999 | 0.7500 | 0.7500 | 0.7500 | 0 | 0 | 6 | 0 | 2 | 8 |
| 2000 | 0.6000 | 0.7000 | 0.7000 | 0 | 0 | 6 | 1 | 3 | 10 |
| 2001 | 0.1333 | 0.6000 | 0.5333 | 3 | 1 | 1 | 7 | 6 | 15 |
| 2003 | 0.6667 | 0.8889 | 0.5556 | 374 | 3 | 3 | 2 | 1 | 9 |
| 2004 | 0.3000 | 0.7000 | 0.5000 | 35 | 2 | 1 | 4 | 3 | 10 |
| 2005 | 0.4706 | 0.5882 | 0.5882 | 472 | 8 | 0 | 7 | 2 | 17 |
| 2006 | 0.5714 | 0.5714 | 0.5714 | 1559 | 7 | 1 | 5 | 1 | 14 |
| 2007 | 0.6667 | 0.6667 | 0.6000 | 37 | 5 | 5 | 1 | 4 | 15 |
| 2008 | 0.4286 | 0.7143 | 0.5000 | 197 | 2 | 4 | 3 | 5 | 14 |
| 2009 | 0.4545 | 0.5455 | 0.6364 | 214 | 5 | 0 | 4 | 2 | 11 |
| 2010 | 0.6190 | 0.7143 | 0.5714 | 1105 | 11 | 2 | 7 | 1 | 21 |
| 2011 | 0.5000 | 0.6667 | 0.5556 | 59 | 3 | 6 | 4 | 5 | 18 |
| 2012 | 0.7059 | 0.7059 | 0.6471 | 633 | 11 | 1 | 5 | 0 | 17 |
| 2013 | 0.6316 | 0.7895 | 0.7895 | 240 | 12 | 0 | 4 | 3 | 19 |
| 2014 | 0.6923 | 0.6923 | 0.7692 | 64 | 9 | 0 | 3 | 1 | 13 |
| 2015 | 0.6364 | 0.7273 | 0.7273 | 96 | 7 | 0 | 3 | 1 | 11 |
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|------|--------|--------|--------|--------|----|----|----|----|-------|
| 1999 | 0.7500 | 0.7500 | 0.7500 | 0 | 0 | 6 | 0 | 2 | 8 |
| 2000 | 0.6000 | 0.7000 | 0.7000 | 0 | 0 | 6 | 1 | 3 | 10 |
| 2001 | 0.1333 | 0.6000 | 0.5333 | 3 | 1 | 1 | 7 | 6 | 15 |
| 2003 | 0.6667 | 0.8889 | 0.5556 | 374 | 3 | 3 | 2 | 1 | 9 |
| 2004 | 0.3000 | 0.7000 | 0.5000 | 35 | 2 | 1 | 4 | 3 | 10 |
| 2005 | 0.4706 | 0.5882 | 0.5882 | 472 | 8 | 0 | 7 | 2 | 17 |
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| 2010 | 0.6190 | 0.7143 | 0.5714 | 1105 | 11 | 2 | 7 | 1 | 21 |
| 2011 | 0.5000 | 0.6667 | 0.5556 | 59 | 3 | 6 | 4 | 5 | 18 |
| 2012 | 0.7059 | 0.7059 | 0.6471 | 633 | 11 | 1 | 5 | 0 | 17 |
| 2013 | 0.6316 | 0.7895 | 0.7895 | 240 | 12 | 0 | 4 | 3 | 19 |
| 2014 | 0.6923 | 0.6923 | 0.7692 | 64 | 9 | 0 | 3 | 1 | 13 |
| 2015 | 0.6364 | 0.7273 | 0.7273 | 96 | 7 | 0 | 3 | 1 | 11 |
| 2016 | 0.5882 | 0.7059 | 0.5882 | 2 | 9 | 1 | 6 | 1 | 17 |
| All | 0.5523 | 0.6862 | - | - | 96 | 37 | 66 | 41 | 239 |

Paper Link: <https://arxiv.org/abs/2010.04565> and <https://arxiv.org/abs/2008.10831>

Code Link: <https://github.com/sachinraja13/TabStructNet> and <https://github.com/mdv3101/CDeCNet>