

## Appendix-I

### Algorithm 2: Modified Adamic-Adar Index for Multiplex Networks

**Input:** *MultiplexGraph G*

**Output:** *Adamic-Adar Scores for all non-edge pairs in G*

```
1: procedure ModifiedAdamicAdar(G)
2:   Initialize A to be an empty list
3:   for each non-edge pair  $(u, v)$  in G do
4:     Let  $N_u$  be the set of exclusive neighbors of u
5:     Let  $N_v$  be the set of exclusive neighbors of v
6:     Let E be  $N_u \cap N_v$  (Exclusive common neighbors)
7:     Set AdamicAdarScore to 0
8:     for each neighbor w in E do
9:       Update AdamicAdarScore by  $\frac{1}{\log(\text{Degree}(w))}$ 
10:    end for
11:    Add  $(u, v, \text{AdamicAdarScore})$  to A
12:  end for
13:  return (A)
14: end procedure
```