### **AAPD**

#### **CNN**

Mean-std F1: 0.6905202470478784 +- 0.004271928000195109

Mean-std Accuracy: 0.9715648148148148 +- 0.0008360552255634905

Max F1: 0.6975246528476554 Corresponding

Accuracy: 0.9721666666666666

#### **CNN** + attention

Mean-std F1: 0.6924864212895088 +- 0.002157541353495924

Mean-std Accuracy: 0.9721296296296297 +- 0.0008302411767207192

Max F1: 0.6951767232962311

Corresponding Accuracy: 0.971092592592592

### **CNN + Capsule**

Mean-std F1: 0.6237688324095451 +- 0.003230050131621928

Mean-std Accuracy: 0.9681481481481481 +- 0.0004911773040694344

Max F1: 0.6292714377820762

Corresponding Accuracy: 0.968055555555556

### CNN + heinsen\_routing

Mean-std F1: 0.6462661208139784 +- 0.002178485096897939

Mean-std Accuracy: 0.968180555555556 +- 0.0011972315315727628

Max F1: 0.6495412844036696

Corresponding Accuracy: 0.9681666666666666

# CNN + DSA

Mean-std F1: 0.5447950920623322 +- 0.09222027231863844

Mean-std Accuracy: 0.959805555555556 +- 0.004405257412108959

Max F1: 0.6437926581811474

Corresponding Accuracy: 0.9642407407407407

### CNN + DSA global

Mean-std F1: 0.39412996325280103 +- 0.04657212868242956

Mean-std Accuracy: 0.9504074074074075 +- 0.0012648975082777474

Max F1: 0.4725409836065574

Corresponding Accuracy: 0.95233333333333334

# CNN + PCaps (no routing)

Mean-std F1: 0.6638932889486201 +- 0.018920427319850226

Mean-std Accuracy: 0.968125 +- 0.0032760870037655565

Max F1: 0.6839293053842992

Corresponding Accuracy: 0.9715185185185186

# **CNN + custom routing**

Mean-std F1: 0.675009039817287 +- 0.002465229226083077

Mean-std Accuracy: 0.9695462962962963 +- 0.0009935922964564193

Max F1: 0.6780400714144019

Corresponding Accuracy: 0.969944444444445

# CNN + custom routing - alpha

Mean-std F1: 0.6328506620440629 +- 0.024755185524353362

Mean-std Accuracy: 0.961847222222223 +- 0.0042765425304899345

Max F1: 0.6511885019347706

Corresponding Accuracy: 0.964944444444445

# CNN + custom global

Mean-std F1: 0.6328656760989102 +- 0.005441120628893775

Mean-std Accuracy: 0.9634074074074075 +- 0.000898386757155329

Max F1: 0.637129256682534

Corresponding Accuracy: 0.9632962962962963

### CNN + custom2

Mean-std F1: 0.6565426987721943 +- 0.023314909276626678

Mean-std Accuracy: 0.9663425925925926 +- 0.003202753552101778

Max F1: 0.6782442748091604

### Reuters

#### **CNN**

Mean-std F1: 0.838352288850432 +- 0.0027363052495231314

Mean-std Accuracy: 0.9957594494129772 +- 7.946243699277265e-05

Max F1: 0.8420312280208188

Corresponding Accuracy: 0.9958669169334953

## **CNN** + attention

Mean-std F1: 0.8150755668787749 +- 0.004412657801670214

Mean-std Accuracy: 0.9950572301350705 +- 0.00011765755668284107

Max F1: 0.8204195804195804

Corresponding Accuracy: 0.9952743734128299

### **CNN + dynamic routing**

Mean-std F1: 0.7375745272426287 +- 0.008098216270982814

Mean-std Accuracy: 0.9931088292664974 +- 0.0002597493037998695

Max F1: 0.7487656933276908

Corresponding Accuracy: 0.9934452173272975

# **CNN + heinsen routing**

Mean-std F1: 0.7227464413502809 +- 0.012109571596369821

Mean-std Accuracy: 0.9927628721798978 +- 0.0003792456832895604

Max F1: 0.7459723820483314

Corresponding Accuracy: 0.9935004232453719

#### CNN + DSA

Mean-std F1: 0.42135560879572936 +- 0.053638590787633306 Mean-std Accuracy: 0.9813683706893379 +- 0.0040105525256181

Max F1: 0.4904281747771445

Corresponding Accuracy: 0.987166464244967

# CNN + DSA global (sentence encoding style)

Mean-std F1: 0.4206616060043812 +- 0.06042927548124126

Mean-std Accuracy: 0.9815038092083471 +- 0.0048451040872299015

Max F1: 0.5028164838422768

Corresponding Accuracy: 0.9876559567185602

# CNN + PCaps (no routing)

Mean-std F1: 0.7014700886970225 +- 0.023249916658437505

Mean-std Accuracy: 0.9913150049685326 +- 0.0009744845215481066

Max F1: 0.7310767590618338

Corresponding Accuracy: 0.9925729638217217

### **CNN** + custom (new routing + reverse normalization)

Mean-std F1: 0.6803338852618203 +- 0.044566665570434955

Mean-std Accuracy: 0.9913584336240845 +- 0.001432274133591975

Max F1: 0.732120186203978

Corresponding Accuracy: 0.9930109307717787

# CNN + custom highway ablation (new routing + reverse normalization)

Mean-std F1: 0.7125975018629648 +- 0.03803243900410711

Mean-std Accuracy: 0.9925008280887712 +- 0.001065158827816488

Max F1: 0.7506223458778737

Corresponding Accuracy: 0.9937322881012844

### CNN + custom global (new routing + reverse normalization + sentence encoding)

Mean-std F1: 0.6662682439189019 +- 0.027691971797940595

Mean-std Accuracy: 0.991165580950278 +- 0.0007550411694691755

Max F1: 0.7055627055627055

Corresponding Accuracy: 0.9924220676456517

# CNN + custom2 (new routing)

Mean-std F1: 0.7325465776580459 +- 0.021502922752991652

Mean-std Accuracy: 0.9928261749659564 +- 0.0006469518076441448

Max F1: 0.7605554776265957

Corresponding Accuracy: 0.9937175665231313