In the original paper - <https://github.com/LeapLabTHU/Dynamic_Perceiver>

The architecture is implemented with ResNetY, MobileNet and ResNet

For this project, the backbone model is going to be YOLOV8 which supports both detection and segmentation pipeline.

Training results :

swetapattnaik@Swetas-MacBook-Air-2 dynamic\_perceiver\_model\_pipeline % python main.py

Training Perceiver on original dataset...

Epoch 1, Loss: 0.6513

Epoch 2, Loss: 0.6452

Epoch 3, Loss: 0.6438

Epoch 4, Loss: 0.6423

Epoch 5, Loss: 0.6419

Epoch 6, Loss: 0.6381

Epoch 7, Loss: 0.6290

Epoch 8, Loss: 0.6141

Epoch 9, Loss: 0.5962

Epoch 10, Loss: 0.5932

Epoch 11, Loss: 0.5879

Epoch 12, Loss: 0.5861

Epoch 13, Loss: 0.5883

Epoch 14, Loss: 0.5839

Epoch 15, Loss: 0.5791

Epoch 16, Loss: 0.5806

Epoch 17, Loss: 0.5785

Epoch 18, Loss: 0.5805

Epoch 19, Loss: 0.5768

Epoch 20, Loss: 0.5763

Epoch 21, Loss: 0.5762

Epoch 22, Loss: 0.5739

Epoch 23, Loss: 0.5712

Epoch 24, Loss: 0.5738

Epoch 25, Loss: 0.5728

Epoch 26, Loss: 0.5724

Epoch 27, Loss: 0.5693

Epoch 28, Loss: 0.5691

Epoch 29, Loss: 0.5678

Epoch 30, Loss: 0.5719

Epoch 31, Loss: 0.5689

Epoch 32, Loss: 0.5673

Epoch 33, Loss: 0.5688

Epoch 34, Loss: 0.5656

Epoch 35, Loss: 0.5660

Epoch 36, Loss: 0.5658

Epoch 37, Loss: 0.5658

Epoch 38, Loss: 0.5655

Epoch 39, Loss: 0.5619

Epoch 40, Loss: 0.5637

Epoch 41, Loss: 0.5628

Epoch 42, Loss: 0.5656

Epoch 43, Loss: 0.5652

Epoch 44, Loss: 0.5593

Epoch 45, Loss: 0.5612

Epoch 46, Loss: 0.5613

Epoch 47, Loss: 0.5650

Epoch 48, Loss: 0.5604

Epoch 49, Loss: 0.5634

Epoch 50, Loss: 0.5607

Epoch 51, Loss: 0.5572

Epoch 52, Loss: 0.5594

Epoch 53, Loss: 0.5612

Epoch 54, Loss: 0.5612

Epoch 55, Loss: 0.5590

Epoch 56, Loss: 0.5561

Epoch 57, Loss: 0.5538

Epoch 58, Loss: 0.5590

Epoch 59, Loss: 0.5563

Epoch 60, Loss: 0.5504

Epoch 61, Loss: 0.5527

Epoch 62, Loss: 0.5546

Epoch 63, Loss: 0.5540

Epoch 64, Loss: 0.5519

Epoch 65, Loss: 0.5565

Epoch 66, Loss: 0.5498

Epoch 67, Loss: 0.5515

Epoch 68, Loss: 0.5467

Epoch 69, Loss: 0.5461

Epoch 70, Loss: 0.5491

Epoch 71, Loss: 0.5475

Epoch 72, Loss: 0.5449

Epoch 73, Loss: 0.5446

Epoch 74, Loss: 0.5436

Epoch 75, Loss: 0.5473

Epoch 76, Loss: 0.5432

Epoch 77, Loss: 0.5437

Epoch 78, Loss: 0.5420

Epoch 79, Loss: 0.5425

Epoch 80, Loss: 0.5412

Epoch 81, Loss: 0.5397

Epoch 82, Loss: 0.5427

Epoch 83, Loss: 0.5389

Epoch 84, Loss: 0.5350

Epoch 85, Loss: 0.5388

Epoch 86, Loss: 0.5360

Epoch 87, Loss: 0.5373

Epoch 88, Loss: 0.5393

Epoch 89, Loss: 0.5355

Epoch 90, Loss: 0.5362

Epoch 91, Loss: 0.5323

Epoch 92, Loss: 0.5318

Epoch 93, Loss: 0.5321

Epoch 94, Loss: 0.5266

Epoch 95, Loss: 0.5327

Epoch 96, Loss: 0.5275

Epoch 97, Loss: 0.5279

Epoch 98, Loss: 0.5256

Epoch 99, Loss: 0.5240

Epoch 100, Loss: 0.5259

Model saved to perceiver\_original.pt

Training Perceiver on synthetic dataset...

Epoch 1, Loss: 0.8667

Epoch 2, Loss: 0.7595

Epoch 3, Loss: 0.6647

Epoch 4, Loss: 0.7233

Epoch 5, Loss: 0.7077

Epoch 6, Loss: 0.7187

Epoch 7, Loss: 0.6767

Epoch 8, Loss: 0.6724

Epoch 9, Loss: 0.6860

Epoch 10, Loss: 0.6935

Epoch 11, Loss: 0.6746

Epoch 12, Loss: 0.6763

Epoch 13, Loss: 0.6537

Epoch 14, Loss: 0.6419

Epoch 15, Loss: 0.7003

Epoch 16, Loss: 0.6370

Epoch 17, Loss: 0.6842

Epoch 18, Loss: 0.6775

Epoch 19, Loss: 0.5734

Epoch 20, Loss: 0.6505

Epoch 21, Loss: 0.6425

Epoch 22, Loss: 0.5686

Epoch 23, Loss: 0.5394

Epoch 24, Loss: 0.4745

Epoch 25, Loss: 0.4132

Epoch 26, Loss: 0.3322

Epoch 27, Loss: 0.2110

Epoch 28, Loss: 0.1031

Epoch 29, Loss: 0.0441

Epoch 30, Loss: 0.0155

Epoch 31, Loss: 0.0088

Epoch 32, Loss: 0.0056

Epoch 33, Loss: 0.0038

Epoch 34, Loss: 0.0029

Epoch 35, Loss: 0.0022

Epoch 36, Loss: 0.0017

Epoch 37, Loss: 0.0014

Epoch 38, Loss: 0.0011

Epoch 39, Loss: 0.0009

Epoch 40, Loss: 0.0007

Epoch 41, Loss: 0.0006

Epoch 42, Loss: 0.0005

Epoch 43, Loss: 0.0005

Epoch 44, Loss: 0.0004

Epoch 45, Loss: 0.0003

Epoch 46, Loss: 0.0003

Epoch 47, Loss: 0.0003

Epoch 48, Loss: 0.0003

Epoch 49, Loss: 0.0002

Epoch 50, Loss: 0.0002

Epoch 51, Loss: 0.0002

Epoch 52, Loss: 0.0002

Epoch 53, Loss: 0.0002

Epoch 54, Loss: 0.0002

Epoch 55, Loss: 0.0002

Epoch 56, Loss: 0.0001

Epoch 57, Loss: 0.0001

Epoch 58, Loss: 0.0001

Epoch 59, Loss: 0.0001

Epoch 60, Loss: 0.0001

Epoch 61, Loss: 0.0001

Epoch 62, Loss: 0.0001

Epoch 63, Loss: 0.0001

Epoch 64, Loss: 0.0001

Epoch 65, Loss: 0.0001

Epoch 66, Loss: 0.0001

Epoch 67, Loss: 0.0001

Epoch 68, Loss: 0.0001

Epoch 69, Loss: 0.0001

Epoch 70, Loss: 0.0001

Epoch 71, Loss: 0.0001

Epoch 72, Loss: 0.0001

Epoch 73, Loss: 0.0001

Epoch 74, Loss: 0.0001

Epoch 75, Loss: 0.0001

Epoch 76, Loss: 0.0001

Epoch 77, Loss: 0.0001

Epoch 78, Loss: 0.0001

Epoch 79, Loss: 0.0001

Epoch 80, Loss: 0.0001

Epoch 81, Loss: 0.0001

Epoch 82, Loss: 0.0001

Epoch 83, Loss: 0.0001

Epoch 84, Loss: 0.0001

Epoch 85, Loss: 0.0000

Epoch 86, Loss: 0.0000

Epoch 87, Loss: 0.0000

Epoch 88, Loss: 0.0000

Epoch 89, Loss: 0.0000

Epoch 90, Loss: 0.0000

Epoch 91, Loss: 0.0000

Epoch 92, Loss: 0.0000

Epoch 93, Loss: 0.0000

Epoch 94, Loss: 0.0000

Epoch 95, Loss: 0.0000

Epoch 96, Loss: 0.0000

Epoch 97, Loss: 0.0000

Epoch 98, Loss: 0.0000

Epoch 99, Loss: 0.0000

Epoch 100, Loss: 0.0000

Model saved to perceiver\_synthetic.pt

Training Perceiver on combined dataset...

Epoch 1, Loss: 0.6534

Epoch 2, Loss: 0.6463

Epoch 3, Loss: 0.6434

Epoch 4, Loss: 0.6432

Epoch 5, Loss: 0.6389

Epoch 6, Loss: 0.6389

Epoch 7, Loss: 0.6318

Epoch 8, Loss: 0.6214

Epoch 9, Loss: 0.6018

Epoch 10, Loss: 0.5936

Epoch 11, Loss: 0.5908

Epoch 12, Loss: 0.5866

Epoch 13, Loss: 0.5828

Epoch 14, Loss: 0.5837

Epoch 15, Loss: 0.5829

Epoch 16, Loss: 0.5835

Epoch 17, Loss: 0.5819

Epoch 18, Loss: 0.5790

Epoch 19, Loss: 0.5766

Epoch 20, Loss: 0.5774

Epoch 21, Loss: 0.5784

Epoch 22, Loss: 0.5753

Epoch 23, Loss: 0.5772

Epoch 24, Loss: 0.5735

Epoch 25, Loss: 0.5740

Epoch 26, Loss: 0.5726

Epoch 27, Loss: 0.5694

Epoch 28, Loss: 0.5701

Epoch 29, Loss: 0.5701

Epoch 30, Loss: 0.5687

Epoch 31, Loss: 0.5702

Epoch 32, Loss: 0.5695

Epoch 33, Loss: 0.5661

Epoch 34, Loss: 0.5699

Epoch 35, Loss: 0.5667

Epoch 36, Loss: 0.5674

Epoch 37, Loss: 0.5657

Epoch 38, Loss: 0.5640

Epoch 39, Loss: 0.5626

Epoch 40, Loss: 0.5676

Epoch 41, Loss: 0.5643

Epoch 42, Loss: 0.5633

Epoch 43, Loss: 0.5629

Epoch 44, Loss: 0.5606

Epoch 45, Loss: 0.5613

Epoch 46, Loss: 0.5591

Epoch 47, Loss: 0.5568

Epoch 48, Loss: 0.5617

Epoch 49, Loss: 0.5579

Epoch 50, Loss: 0.5571

Epoch 51, Loss: 0.5562

Epoch 52, Loss: 0.5537

Epoch 53, Loss: 0.5563

Epoch 54, Loss: 0.5548

Epoch 55, Loss: 0.5549

Epoch 56, Loss: 0.5524

Epoch 57, Loss: 0.5535

Epoch 58, Loss: 0.5541

Epoch 59, Loss: 0.5505

Epoch 60, Loss: 0.5496

Epoch 61, Loss: 0.5511

Epoch 62, Loss: 0.5484

Epoch 63, Loss: 0.5494

Epoch 64, Loss: 0.5501

Epoch 65, Loss: 0.5466

Epoch 66, Loss: 0.5562

Epoch 67, Loss: 0.5475

Epoch 68, Loss: 0.5483

Epoch 69, Loss: 0.5416

Epoch 70, Loss: 0.5422

Epoch 71, Loss: 0.5420

Epoch 72, Loss: 0.5386

Epoch 73, Loss: 0.5447

Epoch 74, Loss: 0.5434

Epoch 75, Loss: 0.5423

Epoch 76, Loss: 0.5416

Epoch 77, Loss: 0.5426

Epoch 78, Loss: 0.5447

Epoch 79, Loss: 0.5416

Epoch 80, Loss: 0.5349

Epoch 81, Loss: 0.5385

Epoch 82, Loss: 0.5333

Epoch 83, Loss: 0.5379

Epoch 84, Loss: 0.5356

Epoch 85, Loss: 0.5388

Epoch 86, Loss: 0.5407

Epoch 87, Loss: 0.5327

Epoch 88, Loss: 0.5362

Epoch 89, Loss: 0.5320

Epoch 90, Loss: 0.5330

Epoch 91, Loss: 0.5312

Epoch 92, Loss: 0.5278

Epoch 93, Loss: 0.5316

Epoch 94, Loss: 0.5300

Epoch 95, Loss: 0.5331

Epoch 96, Loss: 0.5349

Epoch 97, Loss: 0.5290

Epoch 98, Loss: 0.5252

Epoch 99, Loss: 0.5279

Epoch 100, Loss: 0.5270

Model saved to perceiver\_combined.pt

Evaluating Perceiver on original dataset...

[ORIGINAL] Accuracy: 65.45%

Evaluating Perceiver on synthetic dataset...

[SYNTHETIC] Accuracy: 100.00% -> ???? how, something is wrong here, need to check

Evaluating Perceiver on combined dataset...

[COMBINED] Accuracy: 67.29%

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