



Reproducibility Project : CS598 : Pre-training of Graph Augmented Transformers for Medication Recommendation (G-BERT)

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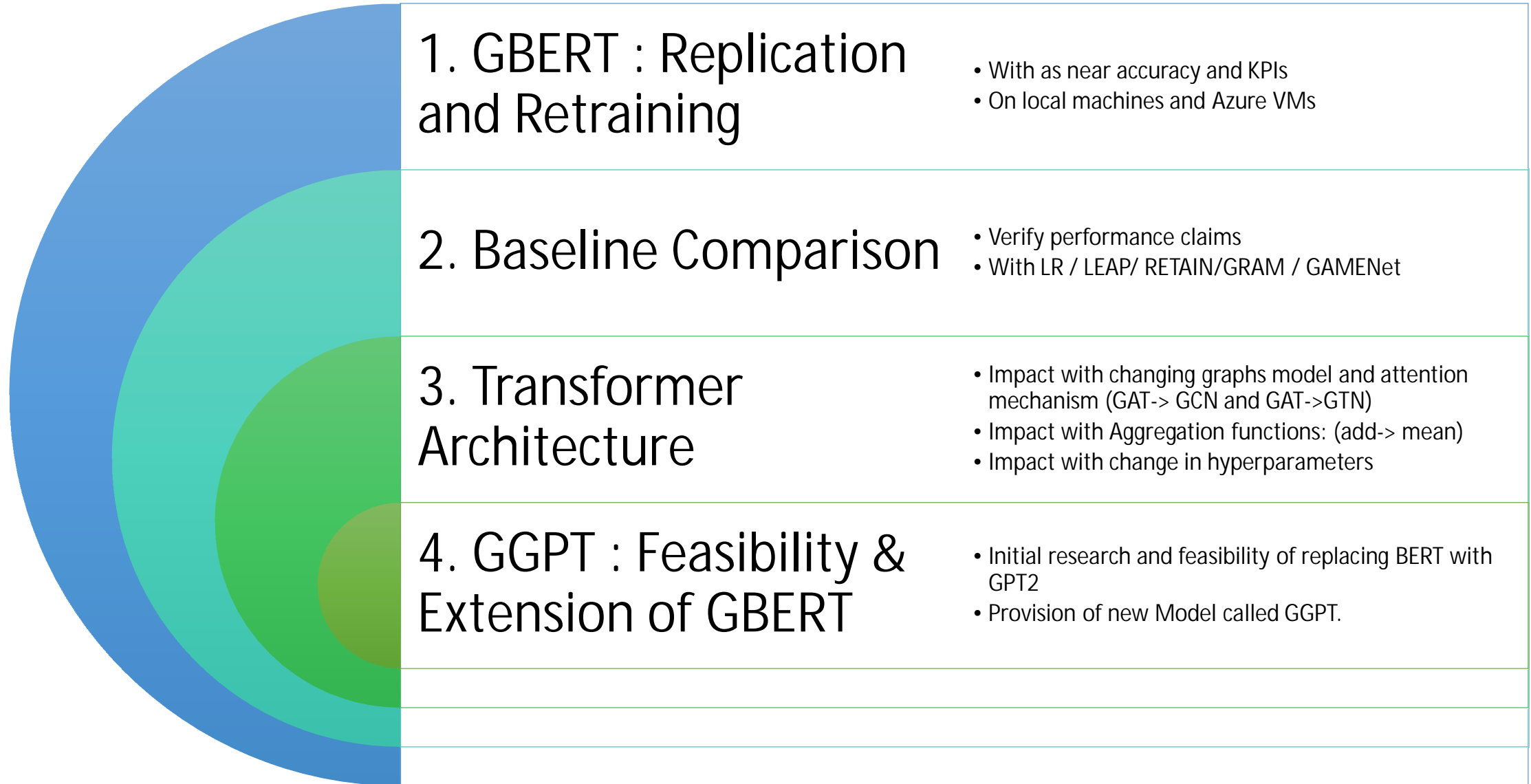
Team 15

MCS DS - UIUC

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Key Tasks and Ablations



Achievements

- Successfully completed all tasks including hypotheses and ablations.
- Replication completed with Near accuracy with training on local CPU machine and Azure Virtual Machines.
- Verified GBERT Claims and the original ablations in the paper.
- Extended GBERT with GGPT in a matter of few weeks with a potential of fine-tuning and performance improvements.

GBERT : Replication and Retraining Success

After training and building a new model achieved:

- 99.46% of PR AUC
- 99.13% of F1 Score
- 99.13% of Jaccard Score

Baseline Comparison

- Gbert performs better with graphs and pre-training.
- Gbert performs better than Retain, GAMENet.

Transformer Architecture

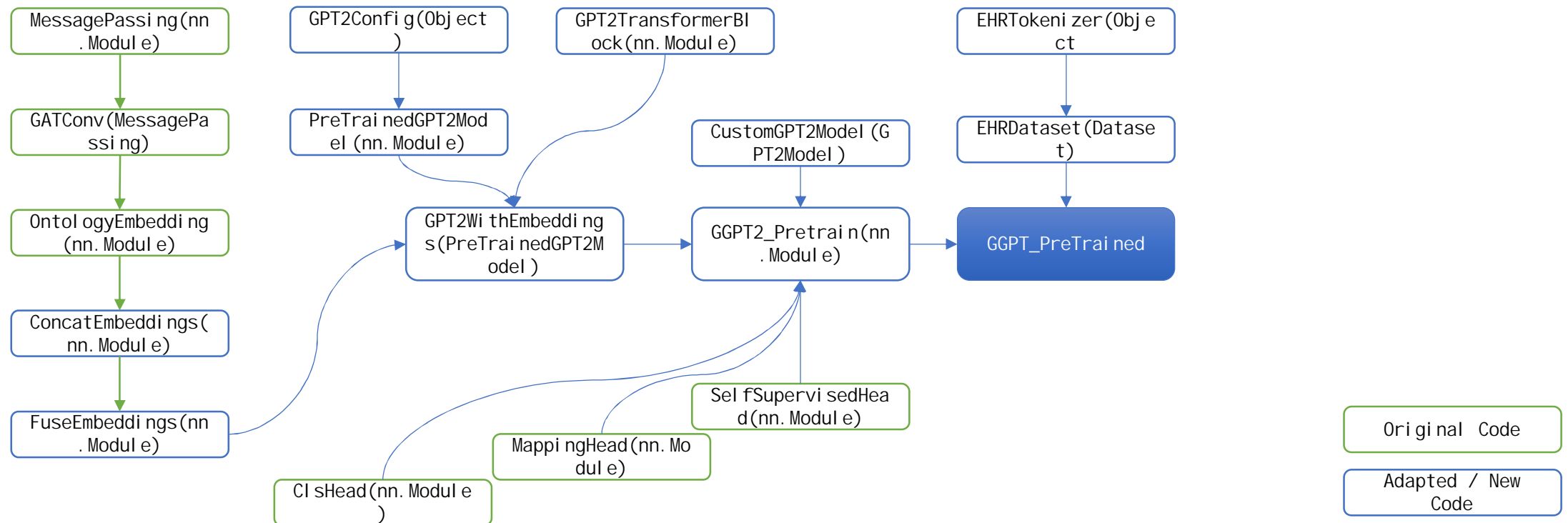
- Working code for GCNConv and GTNConv to replace GAT for ablations.
- Working code aggregation and activation functions.
- Hyperparameter changing.
- Improved baseline GBERT KPIs F1 by 0.52%, PR AUC by 0.39% , Jaccard by 0.56% in our experimental setup via ablations

GGPT : Feasibility & Extension of GBERT

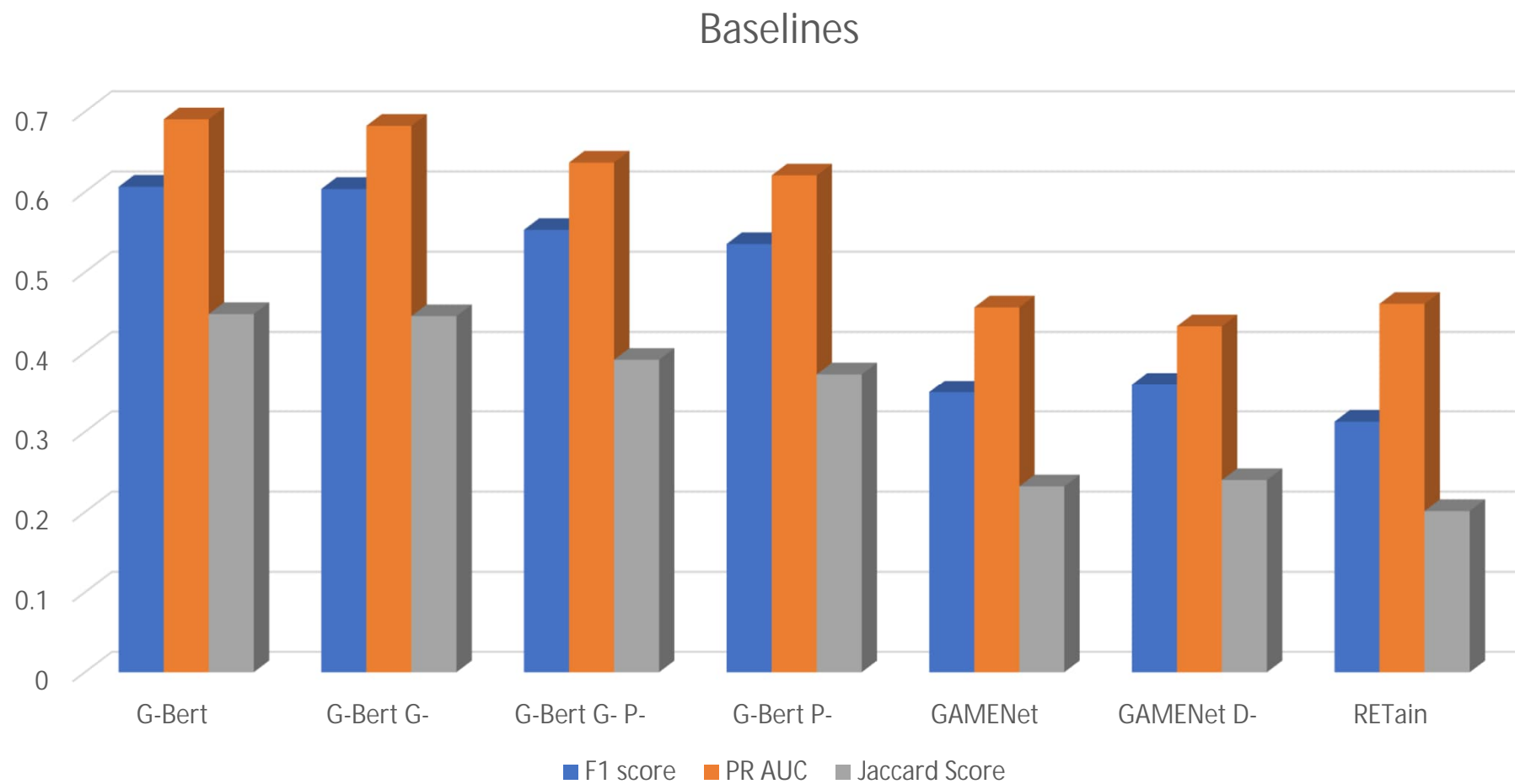
- New Model built on similar lines as GBERT: GNN+ GPT2: GGPT

New proposed model:

GGPT Approach and Architecture



Baselines



Ablations to G-Bert

