Deep Learning for Improving Legal Accessibility
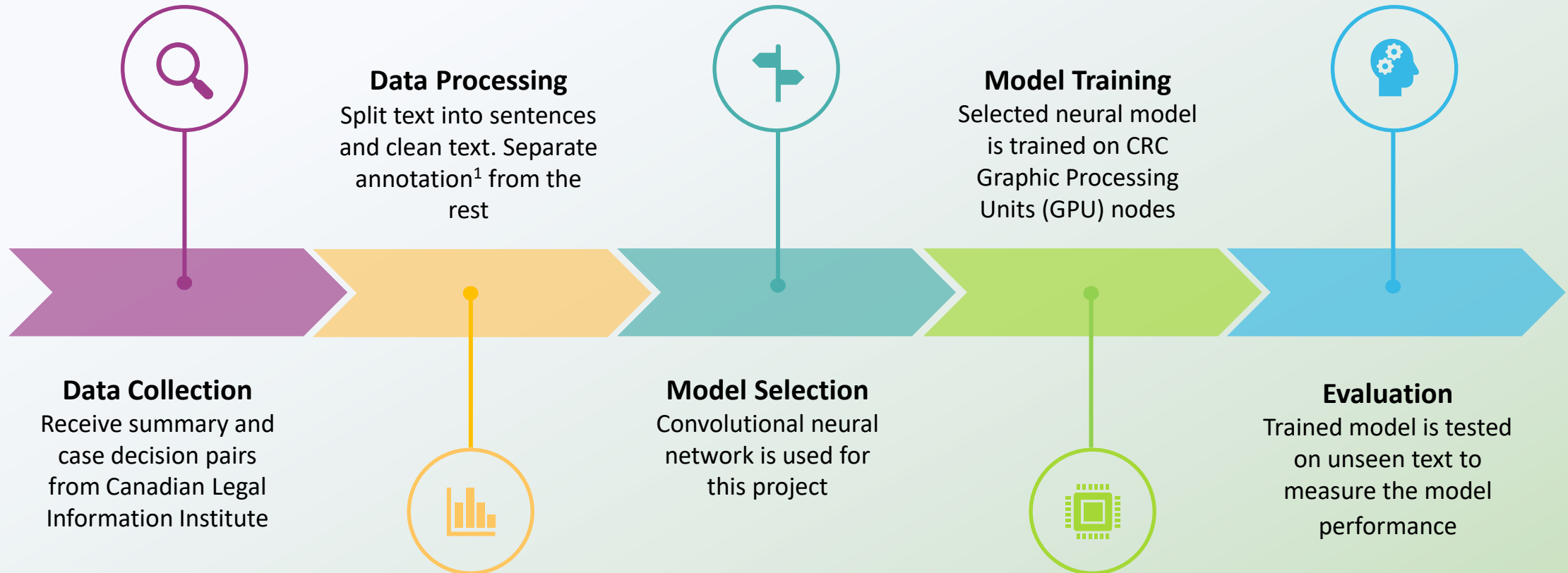
Huihui Xu

Intelligent Systems Program
School of Computing and Information
University of Pittsburgh
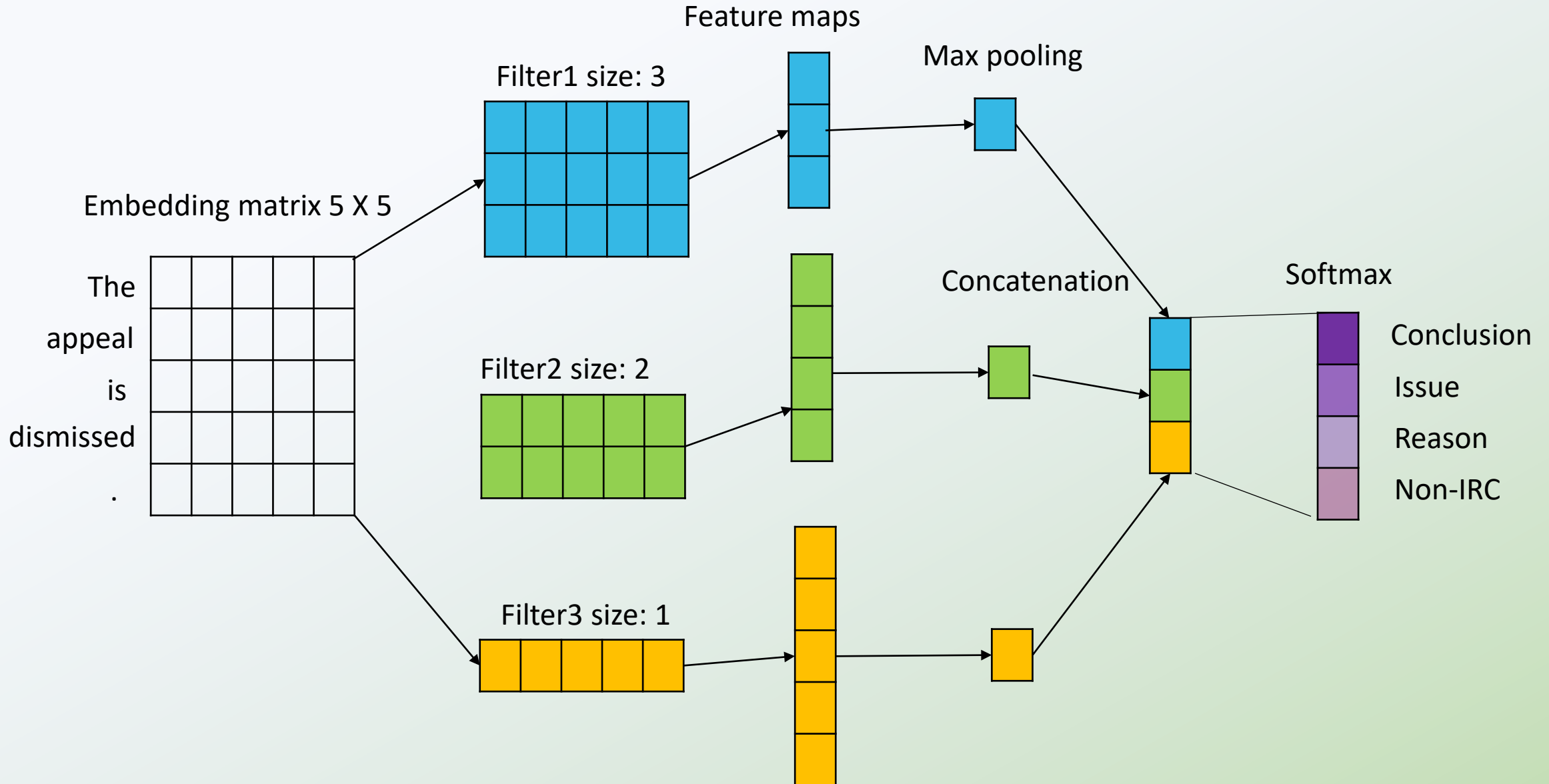
Deep Learning Outline Diagram

Data Processing
Split text into sentences and clean text. Separate annotation[1] from the rest

Model Training
Selected neural model is trained on CRC Graphic Processing Units (GPU) nodes

Data Collection
Receive summary and case decision pairs from Canadian Legal Information Institute

Model Selection
Convolutional neural network is used for this project

Evaluation
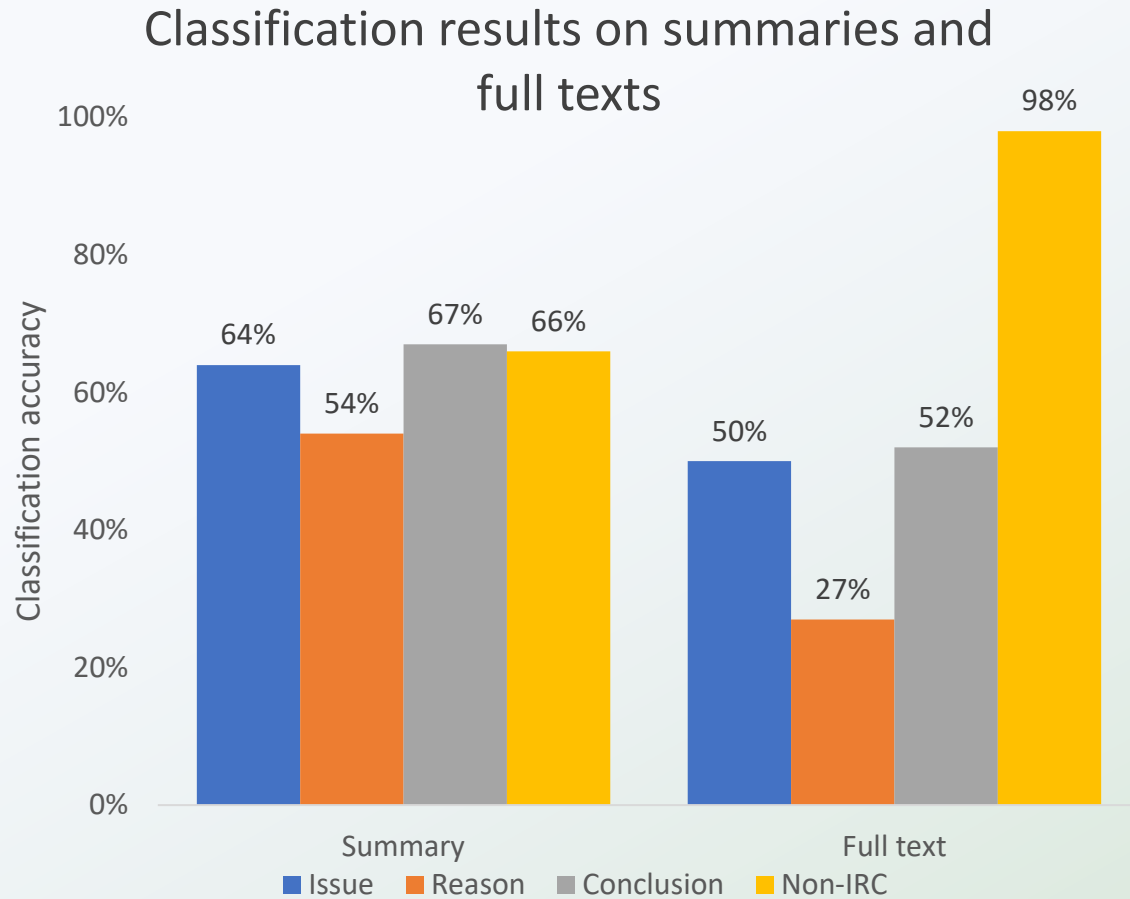Trained model is tested on unseen text to measure the model performance

[1]Selected and annotated sentences as Issues, Reasons, and Conclusions, which are used for the classification task

Convolutional Neural Network Architecture

Summary and Acknowledgement

Classification results on summaries and full texts

Summary

- Deep learning model can distinguish different types of sentences
- The model performs better on summaries

Acknowledgement

- National Science Foundation
- Center for Research Computing
- Canadian Legal Information Institute
- University of Montreal CyberJustice Laboratory Autonomy through Cyberjustice Technologies (ACT) Project