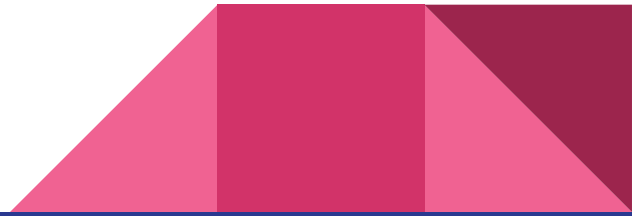
Pediatric Pneumonia Identification Using Deep Learning

By Adam Pell

Outline

- Overview
- Data Understanding
- Methodology
- Results
- Conclusion



Overview

This project uses deep learning techniques to help physicians detect pneumonia in chest X-rays.

Recommendations:

- **Supervised clinical use**
- **Academic use**
- **Second opinion for suspected illness**

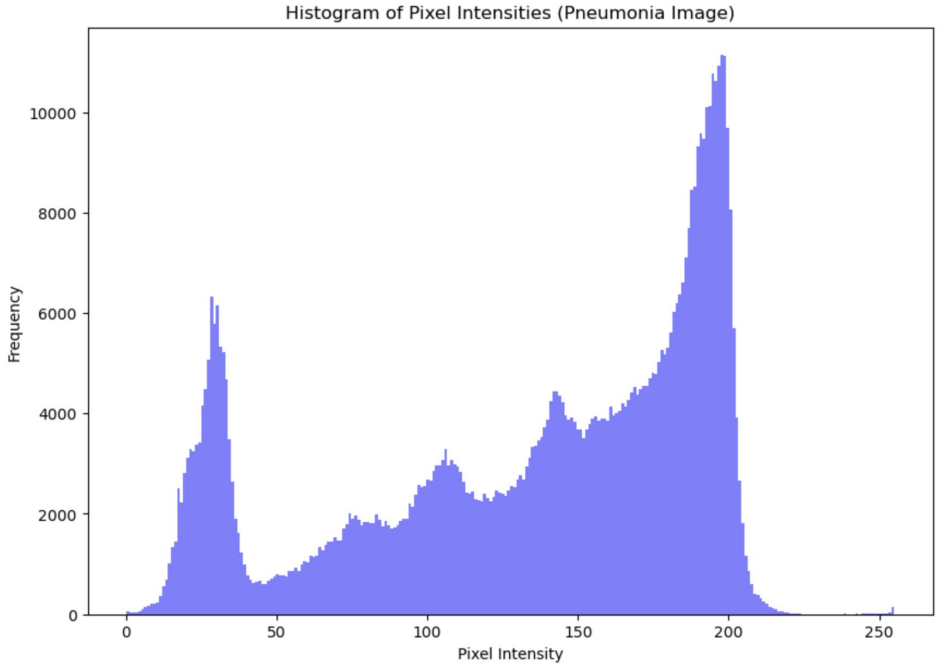
Data Understanding

Pediatric chest X-Rays from hospital in Guangzhou, China:

Image Credit: Cell.com

Methodology

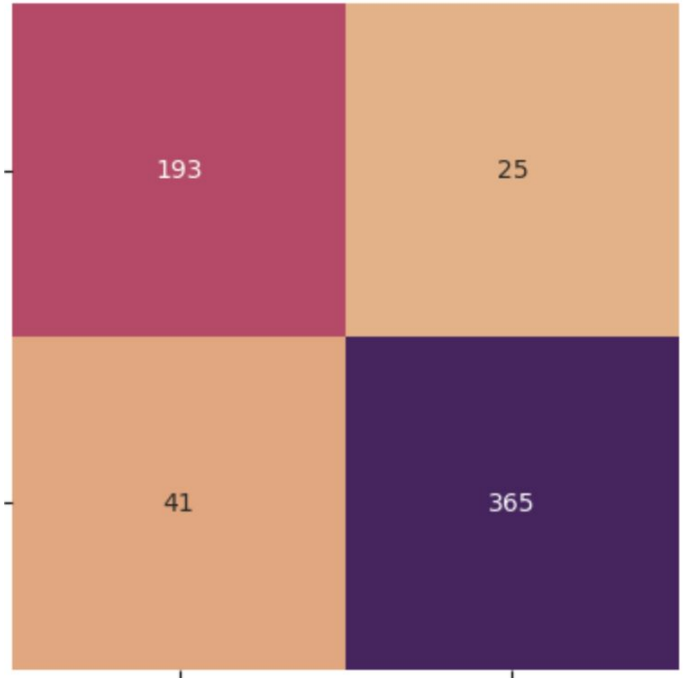
- Deep learning
- Iterative modeling
- Transfer learning



Final Model Key Trends

Final Model Results

- Negative Case (no illness)
  - 18% error
- Positive Case (illness)
  - 6% error



Conclusions

Limited Clinical Use with Supervision	Academic Use	Second Opinion
Solid Accuracy	Vital training tool	For suspected positives
Further testing could inform future changes	Quick and efficient evaluation	Rapid confirmation

Next Steps

- More data
- More complex models
- Image augmentation
- Explainability

Thank You!!

- **Email:** apell7591@gmail.com
- Github: @apell74
- **LinkedIn:** Adam Pell
- **Sources**
  - Identifying Medical Diagnoses and Treatable Diseases by Image-Based Deep Learning