




Malaria Image Detection Model

Milestone Project Presentation

By Cheng-Han (Leon) Lin
MIT Professional Education - Applied Data Science Program



Agenda

1	Introduction
2	Objectives
3	Model Assessment & Selection
4	Conclusion
5	Future Challenges & Next Step

Introduction



- A contagious disease caused by Plasmodium parasites that are transmitted to humans through the bites of infected female Anopheles mosquitoes.
- In 2022, malaria caused an estimated **608,000 deaths** globally, along with **249 million clinical episodes**.
- **Traditional diagnose method:** manual inspection on each cell image

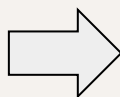
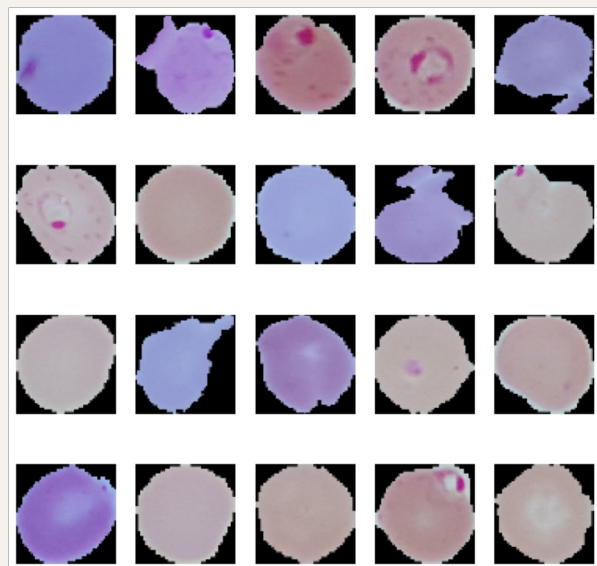
Time-consuming

Low Efficiency

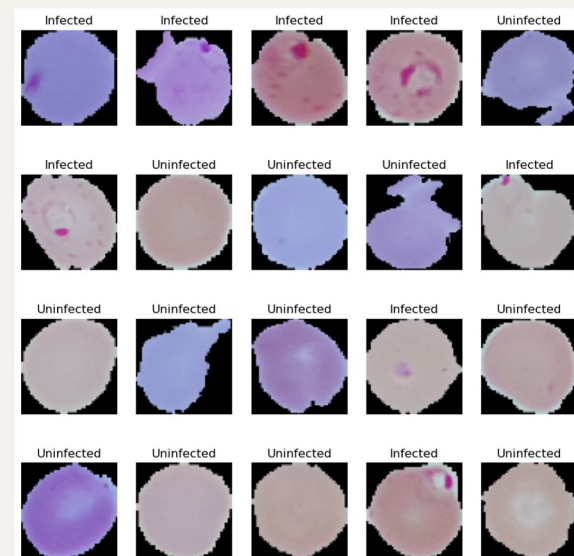
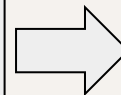
Higher Error

Objective

Automated Image Detection Model



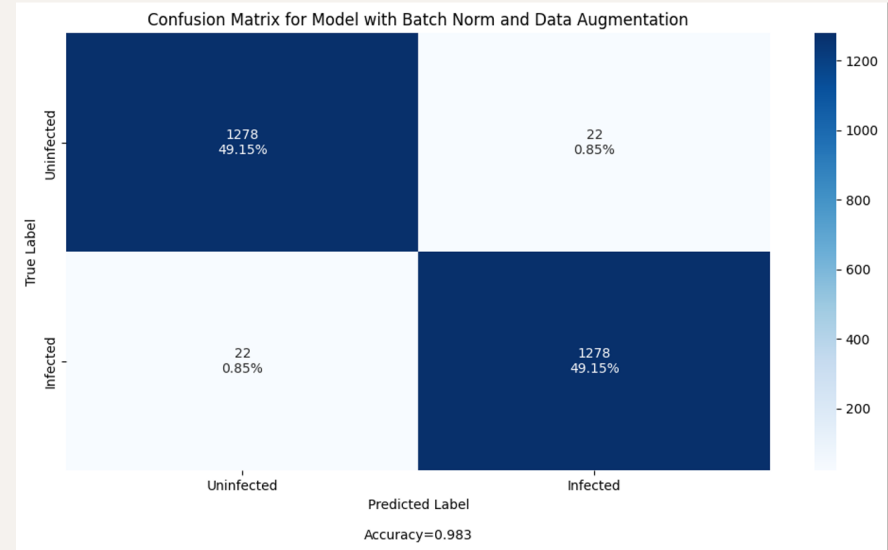
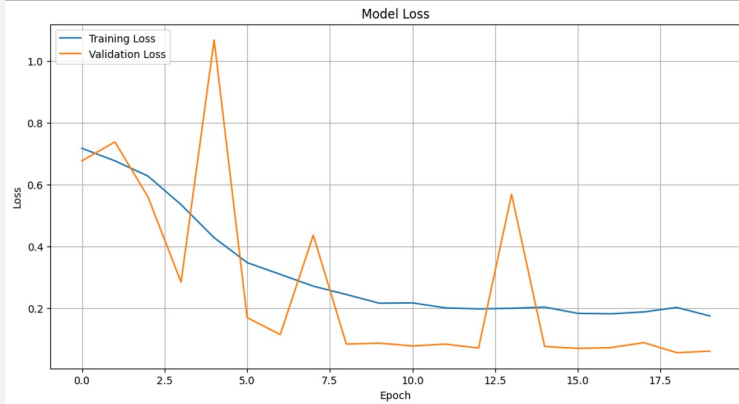
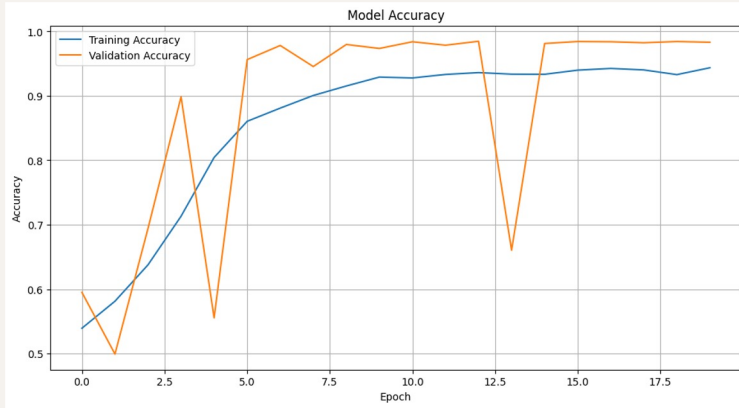
**Trained
Deep-Learning
Classification
Model**



Model Assessment & Selection

	Base Model	Model 1	Model 2	Model 3	Model 4
Model Description	Use the base model to give a quick overview	Adding new layers: Spatial Dropout	1. Add Batch Normalization 2. Set LeakyRelu as the activation function	Data Augmentation	Pre-trained model (VGG16)
Accuracy	98%	62%	98.1%	98.3%	67%

Best Model Performance



How can this model help in detecting Malaria?

Key recommendations to implement the model:

Integration with
Healthcare Systems

Training and Support

Continuous Monitoring

Key actions to stakeholders:

Allocate Budget

Collaborate with Experts

Policy Development

Future Challenges & Recommendation

Key risks:

Data Privacy

Model Improvement

Operational Challenges

Key areas for further analysis

Scalability

Long-term Performance

Associated Health Issues

The image features a light gray background with two thin, dark horizontal lines. One line is positioned near the top, and the other is near the bottom. A dark, curved line starts from the top right edge and curves downwards and to the left, ending near the center of the top edge.

Thank You