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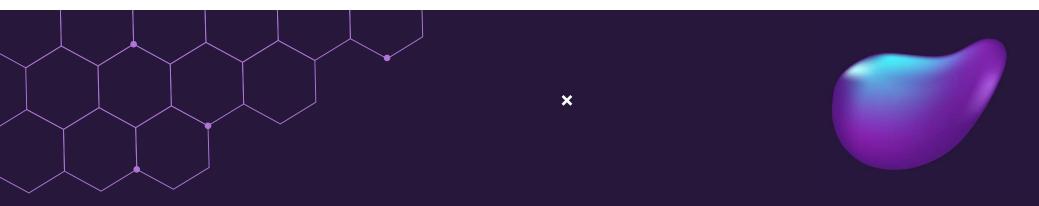
#### **Tools and Libraries**

• Utilizes Python, Anaconda, and libraries such as Keras and TensorFlow, highlighting the technical depth and the advanced tools employed in the development of the solution.



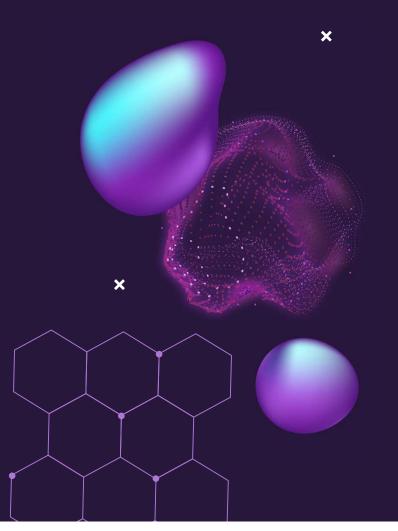
X

- Domain: Machine Learning, with a focus on Deep Learning and Image Recognition.
- Techniques: Utilizes Deep Convolutional Neural Network (CNN),
  Transfer Learning, with specific implementation via AutoML and
  NASNetMobile for advanced image classification tasks



#### **Description and Impact on Sustainable Development Goals (Criteria 1)**

- Problem Statement: Early detection of cancer through histological analysis of tissue images represents a critical challenge in healthcare, directly impacting Sustainable Development Goal 3: X
  Good Health and Well-being.
- Solution Overview: The project leverages Google's AutoML technology (NASNet) to identify cancer markers in microscopic tissue images. By achieving high accuracy in identifying these markers, the solution can significantly contribute to early cancer detection, thereby improving patient outcomes and reducing healthcare costs.
- Scalability and Impact: With a 90.21% testing accuracy on a substantial dataset, this approach demonstrates potential for real-world application and scalability across different types of cancer and diagnostic settings.



#### **Innovation and Creativity (Criteria 2)**

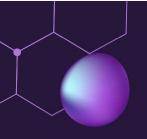
- Innovative Approach: The project employs a novel combination of AutoML for model optimization and NASNetMobile for efficient, accurate analysis of histopathologic images. This unique approach showcases creativity in applying generative AI to solve a critical \* healthcare problem.
- Generative AI Use: Through the creative use of generative AI, this project pushes the boundaries of what's possible in medical image analysis, setting a new standard for the application of AI in healthcare.

#### **Technical Quality (Criteria 3)**

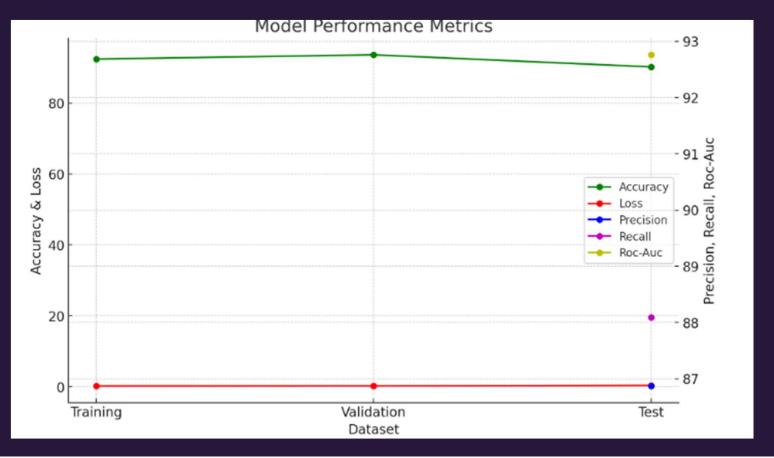
Architecture and Tech Stack: The solution's architecture is meticulously designed to leverage the strengths of generative AI, utilizing a combination of AutoML for model selection and optimization, and NASNetMobile for efficient processing of large-scale image datasets.

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• Cohesive Design: All components of the solution, from image preprocessing to classification and result interpretation, integrate seamlessly to create a cohesive, robust system for cancer marker analysis.



# OUR NUMBERS



## **TABLES**

	Metric	Training	Validation	Test
0	Accuracy	92.42	93.62	90.21
1	Loss	0.22	0.25	0.4
2	Precision	nan	nan	86.87
3	Recall	nan	nan	88.09
4	Roc-Auc	nan	nan	92.76

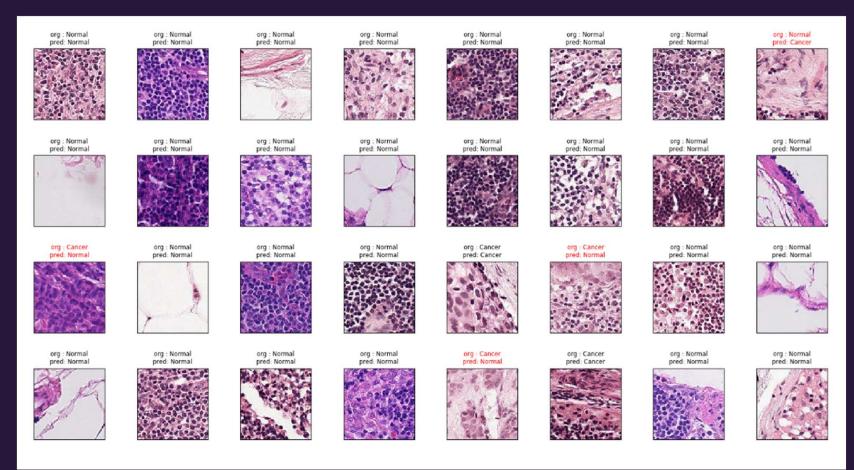
[	Parameter	Value
0	Base Models	NashNet (NashNetLarge, NashNetMobile), InceptionV3
1	Optimizers	Adam, SGD
2	Loss Function	Categorical Crossentropy, Binary Crossentropy
3	Learning Rate	0.0001, 0.00001, 0.000001, 0.0000001
4	Batch Size	32, 64, 128, 256, 512
5	Number of Epochs	2, 4, 6, 10, 30, 50, 100
6	Training Time	4.5 hour (270 min), 1 day (24 hours), 2 days (24 hours)

# PROJECT GOALS



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## **Test Cases**



## **OUR TEAM**

# Sip

### Siddhartha Pahari

Chemical Engineer-Bioengineer, Data Scientist

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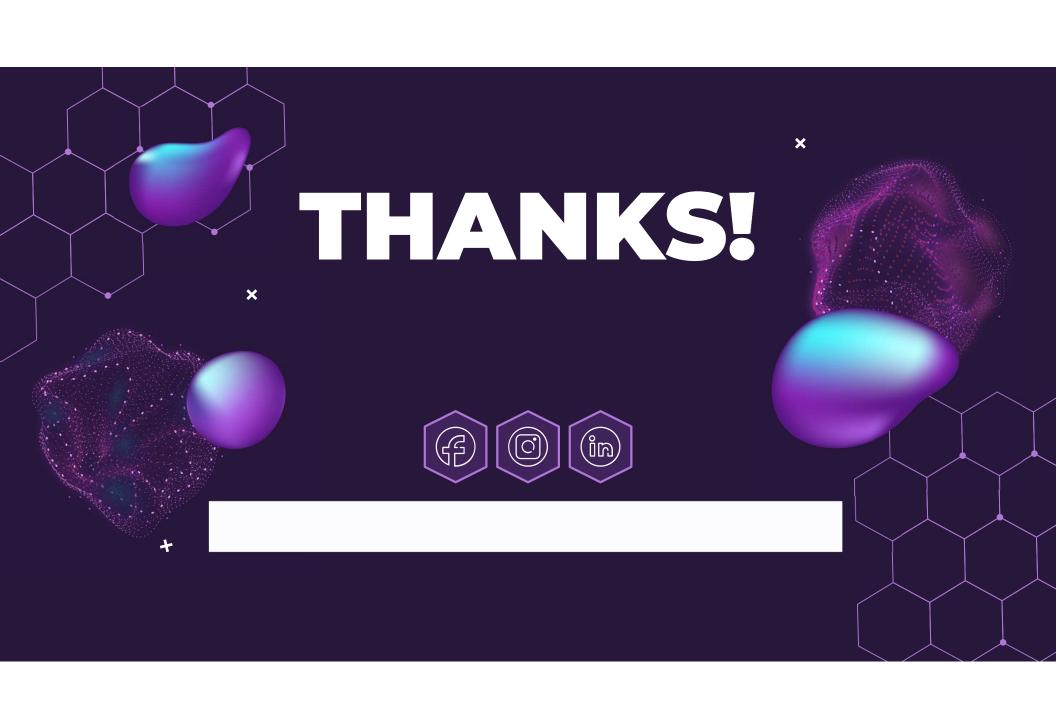


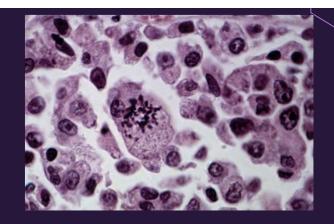


Engineering Sciences, Engineering, Al, Applied Physics









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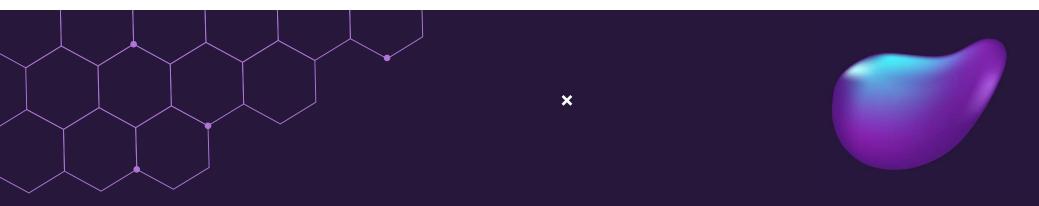
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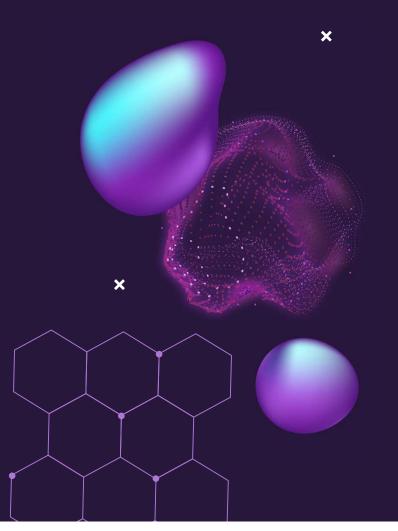
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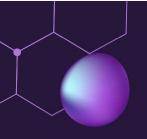
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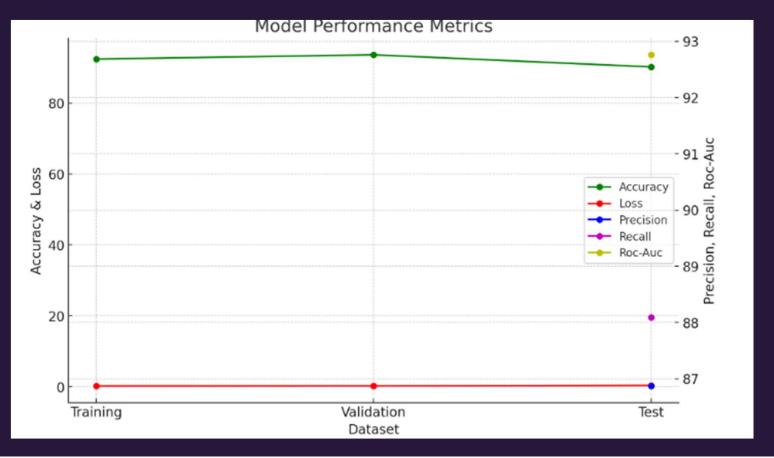
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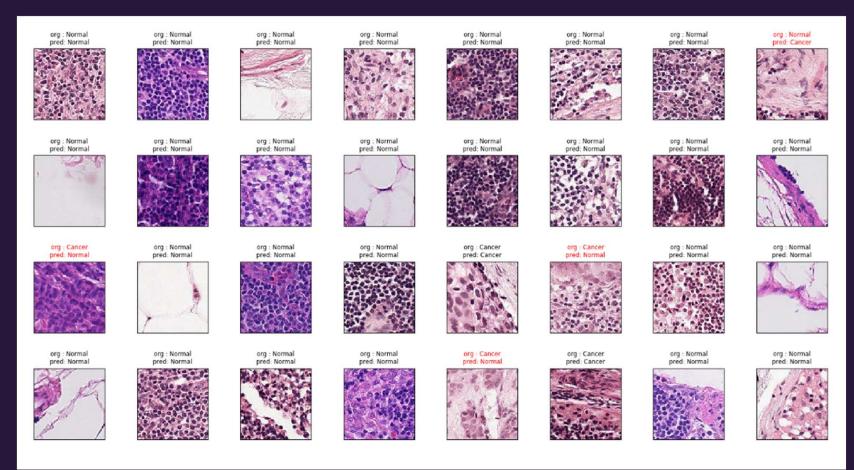
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