

# **Sri Lanka Institute of Information Technology**

**B.Sc (Hons) Information Technology Specialized in Data Science**

## **Research Project - IT4010**



**P.Arudchayan - IT21190698**

**A.S.S. Ahamed – IT21342226**

**N.A.A Irfan – IT21331022**

**M.L.Waseek – IT21374524**

## **Log book**

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## Work log of research project

<b>December (2023)</b>	
<b>April 19, 2024 – April 25, 2024</b>	<ul style="list-style-type: none"> <li>Had meeting with supervisor Mr. Samadhi Ratnayake and set research objectives such publishing in Scopus-indexed journals/conferences, and enter competitions like Imagine Cup and NBQSA to showcase NSCLC360's impact</li> <li>Arudchayan secured biobank access to request biological samples and multi-omics data for lung cancer research, beginning on dataset collection</li> <li>Group held a physical meeting on April 26 to discuss research components, focusing on multi-omics data integration for personalized prognosis.</li> </ul>
<b>April 26, 2024 – May 2, 2024</b>	<ul style="list-style-type: none"> <li>Finalized research topic: "Digitizing Human Health Profiles for Precision Medicine: Leveraging Multimodal Data Integration to Enable Personalized Interventions," emphasizing NSCLC prognosis</li> <li>Arudchayan shared NCI-DOE AI/ML resources, including tools for cancer genomic analysis.</li> <li>Shamlan assigned subtopics for multi-omics integration: Cardiovascular, Neurological, Metabolic, and Immune Health, to structure data analysis.</li> <li>Shamlan proposed Reinforcement Learning to model cancer progression and treatment outcomes, with personalized intervention goals.</li> <li>Arudchayan shared a Kaggle competition link and a research paper on lung cancer treatment strategies to inform model design.</li> <li>Held an online meeting on April 30 to finalize research tasks, focusing on data pipeline development</li> </ul>
<b>May 3, 2024 – May 9, 2024</b>	<ul style="list-style-type: none"> <li>Shamlan developed documentation diagrams, including system architecture for multi-omics integration, for inclusion in the TAF document.</li> <li>Waseek compiled AI references, focusing on deep learning for cancer prognosis, to support the literature review.</li> <li>H a meeting on May 9 to discuss TAF progress.</li> </ul>
<b>May 10, 2024 – May 16, 2024</b>	<ul style="list-style-type: none"> <li>Arudchayan shared public lung cancer datasets from cBioPortal and TCGA.</li> <li>Shamlan shared a research article on AI-driven drug discovery for lung cancer.</li> <li>Drafted the TAF document in Google Docs, outlining</li> </ul>

	<p>objectives, methodology, and multi-omics data sources for NSCLC360.</p> <ul style="list-style-type: none"> <li>• Meeting on May 15 to review research progress, focusing on dataset validation.</li> <li>• Meeting on May 16 to discuss TAF structure.</li> <li>• Organized a TAF writing session on May 17 via Microsoft Teams, finalizing the draft's novelty section.</li> </ul>
<b>May 17, 2024 – May 23, 2024</b>	<ul style="list-style-type: none"> <li>• Mr. Samadhi Ratnayake requested a PDF summarizing the research topic, components (e.g., AI models, data pipelines), and progress for review.</li> <li>• Arudchayan shared a cancer recurrence prediction article and a lung/prostate cancer dataset from GEO.</li> <li>• Finalized the research focus on lung and prostate cancer, updating the shared Google Doc with revised objectives.</li> <li>• Held a meeting on May 24 to discuss research findings, including initial model performance metrics.</li> </ul>
<b>May 24, 2024 – May 30, 2024</b>	<ul style="list-style-type: none"> <li>• Arudchayan shared the TAF draft Google Doc and cancer imaging datasets from The Cancer Imaging Archive (TCIA) for radiomics analysis.</li> <li>• Shamlan provided a GEO data download link for transcriptomic data, supporting multi-omics integration.</li> <li>• Discussed project website development using GitHub Pages, Flask backend for API, and Streamlit frontend for interactive visualization of prognosis models.</li> <li>• Shamlan updated the research presentation with system architecture slides.</li> </ul>
<b>May 31, 2024 – June 6, 2024</b>	<ul style="list-style-type: none"> <li>• Group initiated TAF writing, focusing on methodology and system architecture.</li> <li>• Planned a TAF writing session for June 7, refining the document's literature review.</li> </ul>
<b>Week of June 7, 2024 – June 13, 2024</b>	<ul style="list-style-type: none"> <li>• Prepared the TAF document, incorporating a system diagram for multi-omics data processing and a literature review on AI in cancer prognosis</li> </ul>
<b>June 14, 2024 – June 20, 2024</b>	<ul style="list-style-type: none"> <li>• Finalized the research topic: "Digitalizing Human Health Profiles for Prognosis of Non-Small Cell Lung Cancer: Leveraging Multiomics Data Integration to Enable Personalized Interventions"</li> <li>• Arudchayan shared the initial TAF draft, highlighting the need for enhanced novelty in explainable AI and a detailed system diagram .</li> <li>• TAF signing meeting for June 23 to review the draft with</li> </ul>

	supervisors.
<b>June 21, 2024 – June 27, 2024</b>	<ul style="list-style-type: none"> <li>• Updated the TAF, addressing novelty with explainable AI for NSCLC prognosis and refining the system diagram for multi-omics integration.</li> <li>• Ms. Shyamalee joined as co-supervisor.</li> <li>• Final TAF document shared for submission, incorporating supervisor feedback.</li> <li>• Held a TAF viva prep meeting on June 27 to rehearse presentation slides.</li> </ul>
<b>June 28, 2024 – July 4, 2024</b>	<ul style="list-style-type: none"> <li>• Prepared for the TAF viva, focusing on project introduction, multi-omics components, data sources.</li> <li>• Conducted a pre-viva meeting with Mr. Samadhi Ratnayake on July 2 to finalize presentation content.</li> <li>• TAF viva completed successfully, with approval from the review panel</li> <li>• Dr. Nuradh Joseph, a clinical oncologist, joined as external supervisor to validate clinical relevance of prognostic models</li> </ul>
<b>July 12, 2024 – July 18, 2024</b>	<ul style="list-style-type: none"> <li>• TAF accepted with minor revisions, submitted by July 14 after incorporating feedback on methodology.</li> <li>• Identified PLCO and National Cancer Control Programme datasets for epidemiological and clinical data integration</li> <li>• Arudchayan compiled a cBioPortal dataset with genomic and clinical NSCLC data, developing a data dictionary for analysis.</li> <li>• Held a meeting with Mr. Samadhi Ratnayake on July 14 to finalize TAF revisions.</li> </ul>
<b>August 2, 2024 – August 8, 2024</b>	<ul style="list-style-type: none"> <li>• Waseek analyzed DICOM format for imaging data and integrated clinical/genomic datasets into the project database.</li> <li>• Shamlan studied treatment-related side effect data (grades 1–4) to inform prognostic model features.</li> <li>• Waseek explored DICOM files for image processing, extracting radiomic features for cancer detection and prognosis.</li> <li>• Mr. Samadhi Ratnayake shared a model proposal presentation, outlining a deep learning framework for multi-omics integration.</li> <li>• Proposal presentation completed on August 14, receiving positive feedback on methodology.</li> <li>• Held a Zoom meeting with Dr. Nuradh on August 2 to validate dataset clinical relevance.</li> <li>• Planned a proposal presentation prep session for August 9, to refine slide.</li> </ul>

<b>August 9, 2024 – August 15, 2024</b>	<ul style="list-style-type: none"> <li>• Prepared data request documents, including CVs and confirmation letters, to access restricted NSCLC datasets from biobanks.</li> <li>• Scheduled a meeting for the week following August 14, to plan future research tasks, including model training.</li> </ul>
<b>August 30, 2024 – September 5, 2024</b>	<ul style="list-style-type: none"> <li>• Abdul Azeez shared data request guidelines and finalized documents for biobank submissions.</li> </ul>
<b>September 20, 2024 – September 26, 2024</b>	<ul style="list-style-type: none"> <li>• Arudchayan detailed the NSCLC360 sub-topic: explainable AI for prognostic analysis, focusing on biomarker identification and validation across diverse populations</li> <li>• Held a meeting on September 25 to discuss explainable AI implementation.</li> </ul>
<b>September 27, 2024 – October 3, 2024</b>	<ul style="list-style-type: none"> <li>• Abdul Azeez shared updated research documents, including methodology revisions, for group review</li> </ul>
<b>October 4, 2024 – October 10, 2024</b>	<ul style="list-style-type: none"> <li>• Conducted a research discussion on October 10 via Microsoft Teams, focusing on model optimization strategies</li> </ul>
<b>November 29, 2024 – December 5, 2024</b>	<ul style="list-style-type: none"> <li>• Prepared the PP1 presentation, highlighting multi-omics data integration and initial model result.</li> <li>• Held a PP1 prep meeting on December 5.</li> </ul>
<b>March 14, 2025 – March 20, 2025</b>	<ul style="list-style-type: none"> <li>• Compiled and emailed a research paper draft, detailing findings, methodologies, data sources (e.g., TCGA, cBioPortal), and implementation details.</li> </ul>
<b>March 28, 2025 – April 3, 2025</b>	<ul style="list-style-type: none"> <li>• Azeez shared a condensed research paper draft; Shamlan and Waseek streamlined the methodology and literature review sections for clarity.</li> <li>• Applied to conferences and planned a project website to showcase NSCLC360's</li> <li>• Held a research progress call on March 30 to discuss paper revisions and conferences.</li> </ul>
<b>April 4, 2025 – April 10, 2025</b>	<ul style="list-style-type: none"> <li>• Waseek tested Jupyter container for model training, compatibility with multi-omics datasets</li> <li>• Submitted papers to Mercon and ICTer in Springer LNCS format.</li> <li>• Scheduled a report finalization meeting for April 11 to prepare</li> </ul>

	conference submissions.
<b>April 11, 2025 – April 17, 2025</b>	<ul style="list-style-type: none"> <li>• Waseek formatted the final research report, Arudchayan corrected references to IEEE format for publication</li> <li>• Addressed reviewer feedback, updating tables in Overleaf to add improved model metrics and data analysis.</li> <li>• Mr. Samadhi Ratnayake reviewed and approved the research paper draft, for submission.</li> <li>• Held a paper update meeting on April 17 to incorporate reviewer comments.</li> <li>• Scheduled a document finalization meeting for April 18 to complete the paper.</li> </ul>
<b>April 18, 2025 – April 24, 2025</b>	<ul style="list-style-type: none"> <li>• Shamlan shared the final presentation file for conference sessions, highlighting NSCLC360's prognostic model</li> </ul>
<b>April 25, 2025 – May 1, 2025</b>	<ul style="list-style-type: none"> <li>• Completed the ICECET camera-ready paper submission, incorporating final revisions on model performance and explainable AI.</li> </ul>
<b>May 2, 2025 – May 8, 2025</b>	<ul style="list-style-type: none"> <li>• Applied for SLASSCOM National Ingenuity Awards, submitting idea forms detailing NSCLC360's innovative prognosis approach.</li> <li>• Resent the research paper email to Mr. Samadhi Ratnayake for final supervisor review before award submission.</li> <li>• Planned a research progress meeting for the week following May 7, 2025, to discuss award application status.</li> </ul>
<b>May 16, 2025 – May 22, 2025</b>	<ul style="list-style-type: none"> <li>• Assigned final presentation roles.</li> <li>• Added tasks for Ethical Analysis.</li> <li>• Held a final presentation meeting on May 19 to rehearse slides and demo.</li> </ul>
<b>May 23, 2025 – May 25, 2025</b>	<ul style="list-style-type: none"> <li>• Waseek shared updated model and website images for the Streamlit frontend.</li> <li>• Finalized Flask/Streamlit integration for the project website.</li> <li>• Held an integration meeting on May 24 to ensure website functionality.</li> <li>• Conducted a backend integration call on May 25 to finalize API and frontend synchronization.</li> </ul>

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Lab sheet 7

Herath H M N R it21292668: .

04-May

New meeting

Recording is ready

25-Apr

DataHack | OC Meeting

Recording is ready

19-Jan

Kiriharan M it21200410

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21-Dec-24

Arudchayan, P it21190698

You: https://mysliit-my.sharepoint.com/query?lq=...

08-Dec-24

RP Review weekly

Ahamed A.S.S it21342226: https://jour...

08-Dec-24

RP Review weekly

Chat

Shared

Recap

Speaker Coach

Q&A

Meeting Whiteboard

Join

Meeting details

Arudchayan, P it21190698 joined the conversation.

Arudchayan, P it21190698 named the meeting RP Review weekly.

Irfan N. A. A it21331022 and 2 others were invited to the meeting.

Monday, October 21, 2024

21-Oct-24 10:08 PM Meeting started

21-Oct-24 10:14 PM Arudchayan, P it21190698 started recording to the cloud

Arudchayan, P it21190698 21-Oct-24 10:50 PM

https://seer.cancer.gov/data-software/documentation/seerstat/nov2023/

https://pmc.ncbi.nlm.nih.gov/articles/PMC10807682/

subset2015to2021.csv

Arudchayan, P it21190698 21-Oct-24 10:57 PM

https://fda.fda.gov/extensions/EPD-QDE-FAERS/EPD-QDE-FAERS.html#FOIA

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You: https://mysliit-my.sharepoint.com/query?lq=...

08-Dec-24

RP Review weekly

Ahamed A.S.S it21342226: https://journals.plos.or...

08-Dec-24

RP Review weekly

Chat

Shared

Recap

Speaker Coach

Q&A

Meeting Whiteboard

Join

Meeting details

spiking neural network

https://drive.google.com/file/d/1hpRVvWwjZ1Qa8kNSCCCKOciib3bGGPu0/view?usp=sharing

tiny ml

https://drive.google.com/drive/folders/1Gw4zElgyYgKR0/qtozSv1Ty8V\_nzPA?usp=sharing

https://mysliit.sharepoint.com/sites/CDAPSubmissionCloud/24251Cloud/Forms/AllItems.aspx?id=%2Fsites%2FCDAPSubmissionCloud%2F24251Cloud%2F24%2D251%2D211%2DStudents&viewid=29f155a8%2D072%2D4b74%2D0bcb%2Dd933c2f93dfdf

Ahamed A.S.S it21342226 08-Dec-24 11:07 PM

https://www.preprints.org/manuscript/202308.1933

https://www.acpjournals.org/doi/abs/10.7326/M20-1868

https://journals.plos.org/Plosmedicine/article?id=10.1371/journal.pmed.1004287

08-Dec-24 11:59 PM Meeting ended: 2h 47m 9s

Sunday, December 15, 2024

15-Dec-24 09:20 PM Meeting ended: 49m 39s

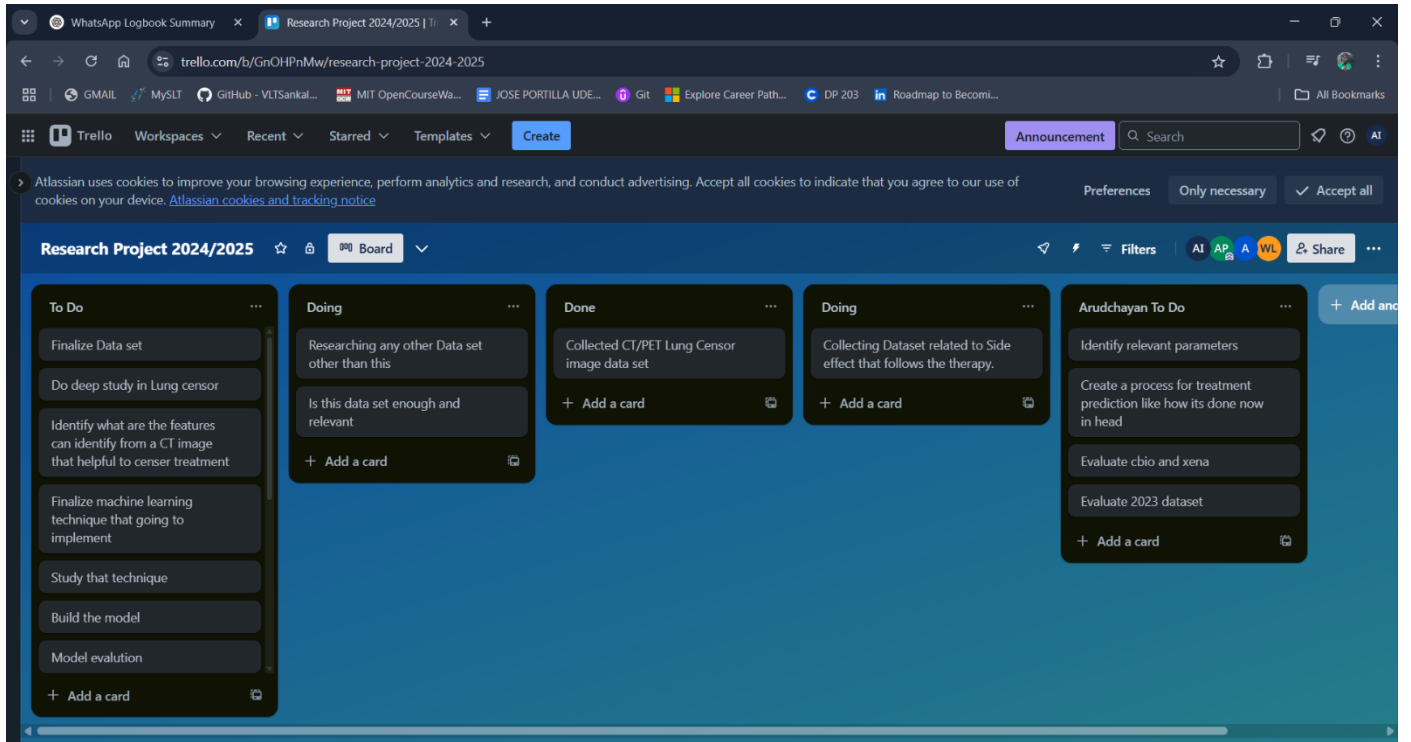
Sunday, January 5

05-Jan 11:17 PM Meeting ended: 1h 18m 42s

Type a message



# Trello



## Supervisor Meetings



# Group Meetings

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Research Project - NSCLC

Fri, Aug 2 2024, 11:00 AM - 12:00 PM

<https://us04web.zoom.us/j/75886806260?pwd=Du2oRL28Hm8E3m6EsFsADsafwALkR1.1>

Join

View join info

Description

ARUDCHAYAN . is inviting you to a scheduled Zoom meeting.

Join Zoom Meeting  
<https://us04web.zoom.us/j/75886806260?pwd=Du2oRL28Hm8E3m6EsFsADsafwALkR1.1>

Meeting ID: 758 8680 6260  
Passcode: 9pMc9P

arudchayan01@gmail.com

Going? Yes No Maybe

3 invitees 1 yes, 2 awaiting

A arudchayan01@gmail.com (Host)  
External

N nuradh@gmail.com  
External

it21331022 Abdul Azeez (You)

W waseek443@gmail.com  
External

11:34 AM  
Sunday, May 25

Today, May 25

No events scheduled.  
+ Schedule an event

Open recordings

