



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

DOCUMENTING MALAYSIAN VFX BREAKDOWN
PRACTICES IN *AIR FORCE THE MOVIE SELAGI
BERNYAWA*



05-4506832



pustaka.upsi.edu.my



CHEAH YING YI
Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

UNIVERSITI PENDIDIKAN SULTAN IDRIS

2025



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

DOCUMENTING MALAYSIAN VFX BREAKDOWN PRACTICES IN *AIR
FORCE THE MOVIE SELAGI BERNYAWA*

CHEAH YING YI



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

DISSERTATION PRESENTED TO QUALIFY FOR A
MASTER OF DESIGN
(RESEARCH MODE)

FACULTY OF ART, SUSTAINABILITY AND CREATIVE INDUSTRY
UNIVERSITI PENDIDIKAN SULTAN IDRIS

2025



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi



Please tick (√)
Project Paper
Masters by Research
Master by Mixed Mode
PhD

/

INSTITUTE OF GRADUATE STUDIES
DECLARATION OF ORIGINAL WORK

This declaration is made on the9.....day of.....9.....20..25..

i. Student's Declaration:

I, Cheah Ying Yi, M20212002989, Fakulti Seni, Kelestarian dan Industri Kreatif (PLEASE INDICATE STUDENT'S NAME, MATRIC NO. AND FACULTY) hereby declare that the work entitled Documenting Malaysian VFX Breakdown Practices in *Air Force The Movie Selagi Bernyawa* is my original work. I have not copied from any other students' work or from any other sources except where due reference or acknowledgement is made explicitly in the text, nor has any part been written for me by another person.

Signature of the student

ii. Supervisor's Declaration:

I Nur Syuhada binti Mat Sin (SUPERVISOR'S NAME) hereby certifies that the work entitled Documenting Malaysian VFX Breakdown Practices in *Air Force The Movie Selagi Bernyawa* (TITLE) was prepared by the above named student, and was submitted to the Institute of Graduate Studies as a * /full fulfillment for the conferment of Master of Design (New Media) (PLEASE INDICATE THE DEGREE), and the aforementioned work, to the best of my knowledge, is the said student's work.

9/9/2025
Date

Signature of the Supervisor



**INSTITUT PENGAJIAN SISWAZAH /
INSTITUTE OF GRADUATE STUDIES**

**BORANG PENGESAHAN PENYERAHAN TESIS/DISERTASI/LAPORAN KERTAS PROJEK
DECLARATION OF THESIS/DISSERTATION/PROJECT PAPER FORM**

Tajuk / Title: Documenting Malaysian VFX Breakdown Practices In *Air Force*
The Movie Selagi Bernyawa

No. Matrik / Matric's No.: M20212002989

Saya / I: Cheah Ying Yi

(Nama pelajar / Student's Name)

mengaku membenarkan Tesis/Disertasi/Laporan Kertas Projek (Kedoktoran/Sarjana)* ini disimpan di Universiti Pendidikan Sultan Idris (Perpustakaan Tuanku Bainun) dengan syarat-syarat kegunaan seperti berikut:-

acknowledged that Universiti Pendidikan Sultan Idris (Tuanku Bainun Library) reserves the right as follows:-

1. Tesis/Disertasi/Laporan Kertas Projek ini adalah hak milik UPSI.
The thesis is the property of Universiti Pendidikan Sultan Idris
2. Perpustakaan Tuanku Bainun dibenarkan membuat salinan untuk tujuan rujukan dan penyelidikan.
Tuanku Bainun Library has the right to make copies for the purpose of reference and research.
3. Perpustakaan dibenarkan membuat salinan Tesis/Disertasi ini sebagai bahan pertukaran antara Institusi Pengajian Tinggi.
The Library has the right to make copies of the thesis for academic exchange.
4. Sila tandakan () bagi pilihan kategori di bawah / Please tick () for category below:-

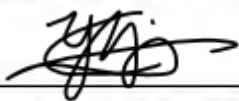
SULIT/CONFIDENTIAL

Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub dalam Akta Rahsia Rasmi 1972. / Contains confidential information under the Official Secret Act 1972

TERHAD/RESTRICTED

Mengandungi maklumat terhad yang telah ditentukan oleh organisasi/badan di mana penyelidikan ini dijalankan. / Contains restricted information as specified by the organization where research was done.

TIDAK TERHAD / OPEN ACCESS



(Tandatangan Pelajar/ Signature)



(Tandatangan Penyelia / Signature of Supervisor)
& (Nama & Cop Rasmi / Name & Official Stamp)

DR NUR SYUHADA BINTI MAT SIN
Jabatan Multimedia Kreatif
Fakulti Seni Kelestarian dan Industri K
Universiti Pendidikan Sultan Idris
35900 Tanjung Malim, Perak

Tarikh: 9/9/2025

Catatan: Jika Tesis/Disertasi ini **SULIT @ TERHAD**, sila lampirkan surat daripada pihak berkuasa/organisasi berkenaan dengan menyatakan sekali sebab dan tempoh laporan ini perlu dikelaskan sebagai **SULIT** dan **TERHAD**.

Notes: If the thesis is **CONFIDENTIAL** or **RESTRICTED**, please attach with the letter from the organization with period and reasons for confidentiality or restriction.



ACKNOWLEDGEMENT

I wish to extend my deepest gratitude to the VFX supervisor of Air Force The Movie: Selagi Bernyawa, and the other experts who participated in this research. Their invaluable cooperation and the insights they shared into the film's visual effects—despite their demanding schedules—have significantly enriched the quality and depth of this study. I am also sincerely thankful to the lecturers who carefully reviewed the interview questions, ensuring they remained aligned with the research objectives. Special thanks are due to Dr. Afeez Nawfal Bin Mohd Isa for his additional research insights, which proved immensely helpful during the development of this work. Most importantly, I am profoundly grateful to my supervisor, Dr. Nur Syuhada Binti Mat Sin, for her unwavering support, guidance, and innovative ideas, all of which have been instrumental in the successful completion of this research. Finally, I would like to acknowledge and thank all those who offered support and assistance behind the scenes. Their invisible contributions have not gone unnoticed and are deeply appreciated.





ABSTRACT

This study investigates the underrepresentation of Visual Effects (VFX) breakdowns in Malaysian cinema through a case study of *Air Force The Movie: Selagi Bernyawa*, the award-winning film from the 32nd Malaysia Film Festival (FFM). Employing a qualitative approach, it combines semi-structured interviews with four experienced VFX professionals and visual analysis of selected scenes. Thematic analysis reveals that time and resource constraints, legal and intellectual property (IP) restrictions, and a limited perceived return on investment are major barriers to producing VFX breakdowns. However, the findings also demonstrate that breakdowns provide substantial value by enhancing studio visibility, supporting educational use, promoting creative problem-solving, and strengthening industry communication. The study documents the VFX workflow, tools, and production timeline, and reconstructs three scenes using illustrative breakdowns developed under legal constraints. These reconstructions offer an alternative model for generating breakdowns in restricted production environments. By bridging practical documentation with academic reflection, this study contributes to both media scholarship and industry practice, offering actionable strategies to improve VFX transparency and literacy in Malaysia.





PENDOKUMENTASIAN AMALAN PECAHAN VFX MALAYSIA DALAM FILEM AIR FORCE THE MOVIE SELAGI BERNYAWA

ABSTRAK

Kajian ini menyelidik isu kekurangan penggunaan pecahan VFX dalam sinema Malaysia melalui kajian kes filem *Air Force The Movie: Selagi Bernyawa*, pemenang Anugerah Kesan Visual Terbaik di Festival Filem Malaysia ke-32 (FFM). Pendekatan kualitatif digunakan dengan menggabungkan temu bual separa berstruktur bersama empat profesional VFX berpengalaman dan analisis visual terhadap babak-babak terpilih. Hasil analisis tema mendapati bahawa kekangan masa dan sumber, sekatan undang-undang serta hak harta intelek (IP), serta pulangan pelaburan yang kurang jelas merupakan halangan utama dalam penghasilan VFX breakdown. Namun, dapatan kajian turut menunjukkan bahawa VFX breakdown memberikan nilai yang signifikan dalam meningkatkan keterlihatan studio, menyokong penggunaan pendidikan, memupuk penyelesaian masalah secara kreatif, dan memperkukuh komunikasi industri. Kajian ini turut mendokumentasikan aliran kerja VFX, penggunaan perisian, dan garis masa pengeluaran, serta membina semula tiga babak melalui ilustrasi breakdown yang dibangunkan di bawah kekangan undang-undang. Hasil ini menawarkan model alternatif bagi penghasilan breakdown dalam persekitaran produksi yang terhad. Dengan menggabungkan dokumentasi praktikal dan refleksi akademik, kajian ini menyumbang kepada keserjanaan media dan amalanan industri, serta mengemukakan strategi yang boleh dilaksanakan bagi meningkatkan ketelusan dan literasi VFX di Malaysia.



CONTENTS

	Page
DECLARATION OF ORIGINAL WORK	ii
DECLARATION OF DISSERTATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
ABSTRAK	vi
CONTENTS	vii
LIST OF TABLES	xv
LIST OF FIGURES	xvii
LIST OF APPENDICES	xx
CHAPTER 1 INTRODUCTION	1
1.1 Introduction	1
1.2 Background Research	3
1.2.1 Visual Effects (VFX)	4
1.2.2 VFX breakdown	5
1.2.3 Air Force: The Movie - Selagi Bernyawa (2022)	8
1.3 Problem Statement	10
1.4 Objective of the Study	15
1.5 Research Question	16
1.6 Theoretical Framework of Research	17
1.7 Importance of Research	18

1.8 Operational Definitions	19
1.9 Study Limitations	20
1.10 Summary	21

CHAPTER 2 LITERATURE REVIEW

23

2.1 Introduction	23
2.2 Overview of Visual Effects (VFX) in Film	24
2.3 Visual Effects in Malaysian Films	27
2.3.1 Overview of Malaysian VFX Industry	27
2.3.2 Copyright and Ownership Challenges	30
2.3.3 Independent Creators and the Rise of VFX Talent	32
2.3.4 Digital Skill Gaps in the Creative and VFX Industries	33
2.4 Overview of VFX Breakdown	35
2.4.1 VFX Breakdown as Creative Labour and Promotional Tool	36
2.4.2 Case examples of VFX breakdown in practice	36
2.4.3 Terminological ambiguities: Breakdown vs. making-of and behind-the-scenes	38
2.4.4 Neglect of VFX breakdowns in research, education, and representation	39
2.5 Visual Effects Practice and Documentation Approach	42
2.5.1 Documentation as a method and research	42
2.5.2 Conceptual foundations and case examples	43
2.5.3 Practice examples from VFX literature	44
2.5.4 Documentation across VFX disciplines	54
2.6 Skills And Techniques In VFX Production	55
2.6.1 2D	57
2.6.2 3D	57
2.6.2.1 Modelling	58
2.6.2.2 Texturing and shading	59

- 2.6.2.3 Rigging 60
- 2.6.2.4 Animation 61
- 2.6.2.5 Lighting 62
- 2.6.2.6 Rendering 63
- 2.6.3 Compositing 64
 - 2.6.3.1 Rotoscoping 65
 - 2.6.3.2 Green screen or blue screen 66
 - 2.6.3.3 Matte painting 67
- 2.6.4 Overview of skills and techniques in VFX production 67
- 2.7 Theoretical Framework 68
 - 2.7.1 Reputation and cultural capital 68
 - 2.7.2 Knowledge sharing and visualisation 70
 - 2.7.3 Legal and contractual perspectives 71

- 2.8 Summary 72

CHAPTER 3 METHODOLOGY

- 3.1 Introduction 76
- 3.2 Research Approach 77
- 3.3 Participant And Case Selection 81
 - 3.3.1 Selection of Film-related Expert 82
 - 3.3.2 Selection of External Industry Experts 83
- 3.4 Instrument 84
 - 3.4.1 Expert Insight Instrument 84
 - 3.4.2 VFX Documentation Instrument 86
 - 3.4.3 Scene Reconstruction Instrument 90
 - 3.4.4 VFX Breakdown Practice and Evaluation Instrument 92
 - 3.4.5 Follow-up Question 93
 - 3.4.6 Initial Reliability and Validity of the Instrument 94

3.5	Data Collection Procedures	95
3.5.1	Protocol	95
3.5.1.1	Contacting Respondents	95
3.5.1.2	Development of the Protocol	96
3.5.2	Collection of VFX Supervisor Insight	99
3.5.3	Collection of VFX Production Workflow Data	101
3.5.4	Collection of Scene-Based VFX Breakdown Data	102
3.5.5	Experts' Review and Evaluation of VFX Breakdown Practice	104
3.6	Ethical Considerations	106
3.6.1	Informed Consent	108
3.6.2	Confidentiality and Anonymity	109
3.6.3	Verification and Authorisation	110
3.6.4	Data Security	110
3.6.5	Copyright Considerations	111
3.7	Data Analyses	113
3.7.1	Data Preparation	115
3.7.2	Coding and Semantic Thematic Analysis	115
3.7.3	Descriptive and Document Analysis	117
3.7.4	Analysis of the VFX Scene for Practice	119
3.8	Data Processing	123
3.8.1	Visualization	123
3.8.2	Illustration and Practice VFX Breakdown Processes	124
3.8.3	Methodological Triangulation	126
3.8.4	Reporting	127
3.9	Credibility and Trustworthiness Measures	128
3.9.1	Use of Visual Aids	128

3.9.2	Member Checking	129
3.9.3	Expert Evaluation	130
3.10	Limitations of the Study	131
3.11	Summary	133
CHAPTER 4 DATA PRESENTATION AND ANALYSIS		136
4.1	Introduction	136
4.1.1	Description of the Respondent and Film	138
4.2	Experts' Insights	140
4.2.1	Standpoint	141
4.2.2	Factor	143
4.2.2.1	Artist: Limited Time and Resources	144
4.2.2.2	Legal: Ownership and NDA Restrictions	145
4.2.2.3	Audience: Lack of Awareness and Low Interest	146
4.2.2.4	Industry: Lack of Shared Support & Collaboration Structures	147
4.2.2.5	Network for Factor	148
4.2.2.6	Other Special Factors	149
4.2.2.7	Summary: Factors Affecting the Production of VFX Breakdowns	153
4.2.3	Challenge	154
4.2.3.1	Artist: Time, Skills, and Workload Demands	155
4.2.3.2	Legal: Approval, Copyright, and IP Restrictions	156
4.2.3.3	Industry: Lack of Reference Value, Visibility, and Perceived ROI	158
4.2.3.4	Network for Challenge	160
4.2.3.5	Other Special Challenges	161
4.2.3.6	Summary: Challenges in Producing VFX Breakdowns	165

4.2.4	Solution	166
4.2.4.1	Studio Practice and Disclosure	167
4.2.4.2	Filmmaker Awareness and Practice	169
4.2.4.3	Educational Support	171
4.2.4.4	Industry Role and Engagement	173
4.2.4.5	Network for Solution	174
4.2.4.6	Other Special Solution	176
4.2.4.7	Summary: Solution of the VFX Breakdowns Lacking Issues.	182
4.2.5	Benefit	183
4.2.5.1	Problem Solving	184
4.2.5.2	Marketing	188
4.2.5.3	Inspire: Creative Inspiration Across Roles	192
4.2.5.4	Network for Benefit	195
4.2.5.5	Other Special Benefit	196
4.2.5.6	Summary: Benefit of VFX Breakdowns	202
4.3	Documentation Of Skills and Techniques	203
4.3.1	Common Types of VFX	204
4.3.1.1	Analysis of Common Types of VFX	206
4.3.2	Pre-Production Crafts	206
4.3.2.1	Analysis of the Process of Pre-Production Crafts	208
4.3.3	On-Set	209
4.3.3.1	Analysis of the Process of On-Set	210
4.3.4	Post-Production	211
4.3.4.1	Analysis of the Process of Post-Production	212
4.3.5	Overview of the Workflow	214
4.3.6	VFX Application and Challenges	216

4.3.7	Summary of the Documentation	217
4.4	Practice VFX Breakdown	218
4.4.1	Cockpit Shot	219
4.4.2	Crash Site shot	221
4.4.3	Missiles Deploying Shot	223
4.4.4	External Review by Industry Experts	224
4.4.4.1	Accuracy and Completeness	225
4.4.4.2	Structure and Workflow Logic	226
4.4.4.3	Communication and Clarity	227
4.4.4.4	Comparative and Practical Use	227
4.4.4.5	Summary of Expert Feedback	229
4.4.5	Summary of Practice VFX Breakdown	230
4.5	Summary of the Findings	232
4.5.1	Various Aspects of the VFX Breakdown Process	233
4.5.2	Documentation of VFX	235
4.5.3	Practice VFX Breakdown	238
CHAPTER 5 DISCUSSION		241
5.1	Introduction	241
5.2	Interpreting the Aspects of Producing VFX Breakdowns	243
5.3	VFX Documentation	248
5.3.1	VFX Workflow and Production Insights	248
5.3.2	Documentation Benefits	251
5.3.2.1	Reframing VFX Breakdown Through Documentation	252
5.3.2.2	Expanding Beyond Visual Breakdown	253
5.3.2.3	Identifying Technical Tendencies and Time Allocation	254
5.3.2.4	Highlighting Gaps in VFX Planning	255

5.3.2.5	Supporting Industry Knowledge and Collaboration	256
5.3.2.6	Enabling Educational and Training Applications	256
5.3.2.7	Contributing to the Local VFX Literature and Practice	257
5.3.3	Documentation challenges	258
5.4	Practice VFX Breakdown	259
5.5	Implications of the Study	263
5.6	A Recent Industry Practice: Keluang Man (2024) VFX Breakdown	266
5.7	Recommendations For Future Research	268
5.8	Limitations of the Study	271
5.9	Conclusion	273
REFERENCE		276



LIST OF TABLES

Table No.		Page
1.1	The FFM winning list of Visual Effects and Special Effects from the 23rd to the 32nd	12
1.2	Operational Definitions Table	19
3.1	Common Types of VFX Record Instrument	88
3.2	On-Set Process Record Instrument	88
3.3	Pre-Production Crafts Process Record Instrument	89
3.4	The Post-Production Process Record Instrument	89
3.5	Scene Data Instrument	91
3.6	Evaluation Criteria for VFX Breakdown Practice	92
3.7	Distribution of Instruments Based on Respondent Type and Film Involvement	97
3.8	Risk Reduction Measures for the Use of Copyrighted Film Scenes in VFX Breakdown Research	112
3.9	Overview of Data Types and Corresponding Analysis Approaches Used in the Study	114
3.10	Example of on-set VFX documentation instrument used to record task presence, duration, and technical descriptions.	118





3.11	Example of the application of the Scene Reconstruction Instrument using the CGI jet and missile emission shot.	121
4.1	Respondent Overview	139
4.2	Overview of Key Thematic Categories Derived from Expert Interviews on VFX Breakdown Practices	140
4.3	Code-Document Table (CDT) of the Standpoint	141
4.4	Code-Document Table (CDT) of Stakeholder-Related Factors Influencing VFX Breakdown Production	144
4.5	Code-Document Table (CDT) of Challenges in VFX Breakdown	155
4.6	Code-Document Table (CDT) of Solutions for VFX Breakdown Production	167
4.7	Code-Document Table (CDT) of Benefits of VFX Breakdown	184
4.8	Data for Common Types of VFX	205
4.9	Data for Pre-production Crafts	207
4.10	Data for On-set	209
4.11	Data for Post-production	211
4.12	Software's primary function and usage in the film	216
4.13	Table of Three Experts' review of VFX breakdown	225





LIST OF FIGURES

No. Figure		Page
1.1	Making Of AVATAR: THE WAY OF WATER - Best Of Behind The Scenes & Visual Effects With James Cameron on YouTube	7
1.2	Making Of OPPENHEIMER (2023) - Best Of Behind The Scenes & Set Visit With Christopher Nolan UPI on YouTube	7
1.3	Spider-Man: Far From Home - VFX Breakdown by ImageworksVFX on YouTube	8
1.4	Poster of Air Force: The Movie Selagi Bernyawa	9
1.5	The official video of the FFM Awards Ceremony for the Best Visual Effects Category on YouTube	9
2.1	The VFX breakdown of The Last of Us	37
2.2	The Fodling of Paris' VFX scene	45
2.3	Render Elements for a CG Object in Underworld: Evolution (2006)	47
2.4	A visual analysis of the method to present the VFX process as explained in Rickitt, R. (2007).	49
2.5	The Blue-Screen set-up and colour separation process.	50





2.6	Rear projection setup used in early VFX integration. This method involved projecting a background behind the actor to simulate a location during studio filming.	51
2.7	2.5D perspective view showing the layered structure used in VFX composition to simulate spatial depth	52
2.8	The materials of composition to form a VFX scene	53
3.1	Organising analytical reflexivity and surprise in the research process	80
3.2	Diagram of Methodology Flow	135
4.1	Stakeholder Influence on Factors Affecting VFX Breakdown Production	149
4.2	Network of Stakeholders and Their Associated Benefits in Producing VFX Breakdowns	161
4.4	Stakeholder Network of Proposed Solutions to Address The Inadequate Availability of VFX Breakdowns	175
4.5	Network Chart of Benefits Associated with VFX Breakdowns	195
4.6	Chart of Common Types of VFX	205
4.7	Chart of Pre-production Crafts	208
4.8	Chart of On-set	210
4.9	Charts of Post-production	212
4.10	Chart of Percentage of Duration in Each Process	214
4.11	A chart of the software that has been used in the overall process in percentage.	215





4.12	Network of Aspects of the VFX Breakdown Process in Malaysian Films	234
4.13	Data partition for the Documentation of the VFX production	236
4.14	The structure of the practice VFX breakdown	239
5.1	Breakdown stages of CGI cat (skeleton, groom, model, render)	267
5.2	Seamless VFX—green screen removal in forklift gunfire scene	268



LIST OF APPENDICES

- A The 3 Original film scenes that were used in the practice VFX breakdowns
- B Report of VFX breakdown rebuild by illustration
- C Respondent's Information Sheet and Informed Consent Form
- D Interview Data Confirmation and Authorisation Form
- E Evidence of expert participation
- F Validity Assessment of Interview Questions by Experts



CHAPTER 1

INTRODUCTION

1.1 Introduction



Visual effects (VFX) have become an increasingly significant component of digital media production, with applications spanning animation, advertising, gaming, and film. VFX refers to any imagery created, altered, or enhanced for a moving image that cannot be captured during live-action filming. This definition has evolved to encompass recent innovations such as virtual production, which enables the real-time integration of visual assets during shooting (Zwerman & Okun, 2012).

In the global film industry, particularly in Hollywood, VFX breakdowns are commonly used to showcase the technical and creative capabilities of VFX production teams. For example, the VFX breakdowns of *Avatar* (2009) reveal the layer-by-layer visual construction of the Na'vi and the world of Pandora, offering insight into both





artistic and technical workflows. While often confused with “behind-the-scenes” or “making-of” content, VFX breakdowns are distinct in their focus. Behind-the-scenes videos typically present a broader overview of the filmmaking process, including interviews, set design, and direction. In contrast, VFX breakdowns isolate and highlight the visual effects pipeline, particularly within post-production stages (“Behind-the-scenes,” 2024).

The Malaysian film industry has also embraced VFX as a vital creative tool. Hashim (2019) notes a steady increase in the use of digital effects by Malaysian filmmakers between 2010 and 2020. Malaysia’s growing VFX sector has even gained international visibility. Malaysia's VFX studios, Base FX, contributed to major Hollywood productions. The studio took part in projects like *Star Wars: The Force Awakens*, *Transformers: Age of Extinction*, and *Aquaman*, underscoring the country's expanding technical capabilities. (Begum , 2020)

Domestically, recognition of VFX is institutionalised through the Festival Film Malaysia (FFM), which began awarding Best Visual Effects from its 24th edition onward. A notable recent recipient is *Air Force: The Movie – Selagi Bernyawa* (2022), a military action film that won Best Visual Effects at the 32nd FFM. Directed by Zulkarnain Azhar and Frank See, the film received 13 nominations and earned RM30 million at the box office within four weeks of its release (Alhamzah, 2022; Begum, 2022; Chua, 2022). Its commercial and critical success reflects both audience interest and growing production ambition in Malaysian cinema.





VFX breakdowns played a critical role in deconstructing polished visuals to reveal the creative, technical, and collaborative processes behind them (Jones, 2023). These breakdowns serve multiple functions: they demonstrate a studio's expertise, support promotional efforts, and are used in award submissions, portfolios, and pitch presentations. Importantly, they help surface the otherwise invisible labour that contributes to the final visual product.

Despite their professional significance, VFX breakdowns remain infrequently produced and underutilised in the Malaysian context. This study investigates the underlying factors contributing to this issue, exploring the challenges, benefits, and potential solutions through interviews with industry professionals. It also included a case study of *Air Force: The Movie – Selagi Bernyawa*, using the film's national recognition and VFX achievements as a foundation to document and analyse VFX processes. Furthermore, the study reconstructs several scenes to demonstrate the practice of VFX breakdown documentation and highlight its potential educational and industry value.

1.2 Background Research

This section is divided into three topics to explain and discuss the background of the aspects that serve as the basis of the study. It includes Visual Effects, VFX breakdown, and the case study film *Air Force: The Movie - Selagi Bernyawa*. Before the in-depth discussion, this section provides a basic understanding and related knowledge of research topics.





1.2.1 Visual Effects (VFX)

This research will focus on Visual Effects (VFX), which is the art of combining computer-generated imagery and footage. The evolution of VFX is impressive, covering a wide range of digital media fields, including film, animation, advertising, and games. According to Byrne (2009), effects graphics that were once responsible for special effects have been replaced by VFX. The key difference is that special effects are produced in real-time during filming, while VFX is created using computer-generated imagery during post-production.

VFX (Visual Effects) and SFX (Special Effects) were distinct areas. SFX were realistic, practical effects performed on-set and captured by cameras. In contrast, VFX involves manipulating and enhancing footage digitally in post-production (Dinur, 2017). In simple terms, special effects were done in the real world (e.g., makeup, explosions, mist, fire, rain), while VFX is processed digitally or virtually after filming the footage.

Currently, VFX comprises two major departments: digital compositing and computer-generated imagery (CGI). The CGI department focuses on creating 3D computer graphics, such as modelling, texturing, rigging, animation, environment effects, and matchmoving. Filmmakers employed CGI technology to achieve effects previously unattainable with special effects, especially in science fiction films that require spectacular visual elements (Singh, 2007). For example, *Avengers: Endgame* was a science fiction film that utilised CGI to produce 3D character models, costumes, effects, and environments, highlighting futuristic technology.





According to Dinur (2017), not only was CGI necessary in most of the VFX scenes, but also manipulating the original footage and compositing additional footage or still photos was another part of VFX. This aspect of the work was called compositing, another core department in VFX. Compositing involved collecting all materials from various departments, such as CGI and filming, for the final combination. The compositing department focuses on 2D and 2.5D effects, enhancing scenes with keying, rotoscoping, tracking, masking, and lighting effects.

1.2.2 VFX breakdown

Given the extensive scope of visual effects (VFX), which involves numerous specialised roles and processes, VFX breakdowns have become an essential medium for demonstrating the skills, tools, and techniques used in producing complex scenes. A VFX breakdown visually reveals how digital elements such as CGI, matte painting, compositing, and layering were integrated into the final sequence. According to Stebleva (2024), a VFX breakdown offers a detailed explanation of how visual effects are created and integrated into film or video productions, illustrating the process by which artists merge individual effects into the final scene.

These videos used editing techniques such as wipes, freeze frames, layering, and rotating models to deconstruct a scene and highlight different stages of development in VFX work (Jones, 2023). However, there is no formal standard across the industry for how VFX breakdowns should be produced. Their structure and level of detail vary widely depending on the studio, project, or intended audience. However,





most breakdowns prioritise visual clarity and brevity, often omitting information such as production and rendering times, personnel, or location.

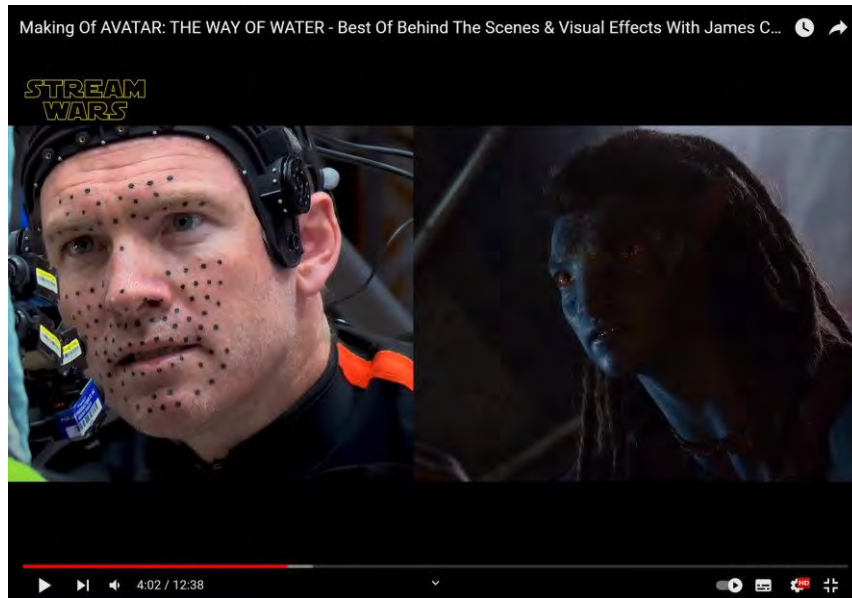
Importantly, VFX breakdowns differ from “behind-the-scenes” or “making-of” content. While behind-the-scenes videos typically involve commentary from artists or actors discussing on-set experiences and techniques, VFX breakdowns focus on the layered construction of individual shots. For example, in a behind-the-scenes video for *Avatar 2* (STREAM WARS, 2022), performers describe their use of motion capture and share on-set challenges. In contrast, the VFX breakdown of *Spider-Man: Far From Home* (Movie VFX, 2019) isolates real footage, CGI layers, and 3D models to reveal the technical assembly of each scene.

Beyond technical demonstration, VFX breakdowns also served broader functions in the creative industry. They are commonly used in award submissions, marketing campaigns, and studio promotions, and are often included in artist portfolios to showcase individual or team contributions. According to a feature published by the Visual Effects Society, studios like Image Engine develop their breakdowns through collaboration between production and marketing departments, aiming to produce reels that are not only informative but also engaging and shareable (VFX Voice, 2017). Despite their growing significance in professional practice, academic research into the role, value, and production of VFX breakdowns, especially in Malaysian contexts, remains limited.



Figure 1.1

Making Of AVATAR: THE WAY OF WATER - Best Of Behind The Scenes & Visual Effects With James Cameron on YouTube



Source from STREAM WARS, 2022

Figure 1.2

Making Of OPPENHEIMER (2023) - Best Of Behind The Scenes & Set Visit With Christopher Nolan | UPI on YouTube



Source from STREAM WARS, 2023



Figure 1.3

Spider-Man: Far From Home - VFX Breakdown by ImageworksVFX on YouTube



Source from Movie VFX, 2019



1.2.3 Air Force: The Movie - Selagi Bernyawa (2022)

Air Force: The Movie - Selagi Bernyawa was released on 25 August 2022. It belongs to the genres of Action, Military, and Patriotic films (*AIR FORCE THE MOVIE: SELAGI BERNYAWA* | GSC Movies, 2022). As mentioned in the introduction, this film won three awards: Best Sound Arrangement by Charlene Ong Chye Leng, the Special Jury Award by Multimedia Film Productions Sdn Bhd, and the Best Visual Effects award by Ma Chiau Ran, Tan Ye Xuan, and Pau Tun Kai (Myinfotaip, 2022).



Figure 1.4

Poster of Air Force: The Movie Selagi Bernyawa



Source from Air Force: The Movie - Selagi Bernyawa (2022), n.d.)

Figure 1.5

The official video of the FFM Awards Ceremony for the Best Visual Effects Category on YouTube



Source from FINAS Malaysia, 2022



The VFX team behind the film, Illusion Fecit Sdn Bhd, is a Malaysian company specialising in mass media production and providing field solutions. The company is specialised in Media, Marketing, and Production, offering services ranging from corporate media and MTV production to animations and film production and distribution. They also provide expert advice on the media production pipeline (Illusion Fecit Sdn Bhd, n.d.).

This movie follows Captain Adib and Major Adnan as they protect humanitarians serving in the war-torn country of Namburi. As their plane returns home, it is unexpectedly shot down by local militants. Nine passengers manage to parachute to safety before the plane crashes. Upon learning of the incident, the Malaysian Air Force initiates rescue preparations. Adib's brother-in-law, Zafran, a Sukhoi pilot, fights to save the survivors. In the final moments before rescue, the air force successfully deploys help for the stranded survivors (*AIR FORCE THE MOVIE: SELAGI BERNYAWA* | GSC Movies, 2022).

1.3 Problem Statement

Visual effects (VFX) breakdowns have become an essential part of professional practice in the global film and television industry. These videos are widely used beyond technical demonstration—they support award submissions, marketing strategies, and studio or artist promotion. As reported by VFX Voice (2017), studios such as Image Engine invest considerable effort from both production and marketing teams to craft compelling breakdowns that not only showcase technical excellence but also enhance





studio visibility. Although the industry has long recognised the value of VFX breakdowns, as highlighted by VFX Voice (2017), which documented their use for marketing, awards, and studio promotion, academic research has not yet taken seriously to engage with these practices. The persistence of this gap, even several years later, underscores the need for scholarly attention to an area that remains professionally significant but academically overlooked.

Although the use of visual effects (VFX) has become increasingly prominent in film and television globally, academic research into VFX production remains limited, particularly in areas such as workflow, labour conditions, and the implementation of new technologies (Chabanova, 2022). This global gap in scholarly attention is especially evident in the underrepresentation of post-production processes within media and film studies. Chabanova's research highlighted the need for deeper analysis of how emerging technologies shape the practices and experiences of VFX professionals. In response, this study investigated documentation and VFX breakdown practices within the under-explored context of Malaysia's regional film industry, where such practices remain largely underdeveloped and unstandardised.

This broader research gap is mirrored in the Malaysian context, where the lack of accessible VFX documentation is particularly pronounced. An analysis of winners for Best Visual Effects and Best Special Effects at the Festival Filem Malaysia (FFM) from the 23rd to the 32nd edition, and covering films released between 2010 and 2022, revealed a striking absence of publicly available VFX breakdowns. As shown in **Table 1.1**, most award-winning films during this period relied on general "Making of" or "Behind the Scenes" videos, which typically featured limited on-set footage and



surface-level commentary, offering little insight into the actual VFX process. Among them, Seventh (2014) stood out as the only production to publish a dedicated breakdown video (Mirage Works, 2014).

Table 1.1

The FFM winning list of Visual Effects and Special Effects from the 23rd to the 32nd

FFM	Film Name, Winner and Award	Video Making-of / Behind-the-Scenes	Video VFX breakdown
23rd	Magika (2010) <ul style="list-style-type: none"> KRU Studios Sdn Bhd Award For The Best Movie 	Yes, on YouTube, the video mentioned some VFX and CGI.	No
24th	Hikayat Merong Mahawangsa / The Malay Chronicles (2011) <ul style="list-style-type: none"> KRU Studios Sdn Bhd Award For The Best Visual Effects 	Yes, on YouTube, the video mentioned some VFX and CGI.	No
25th	-	-	-
26th	Tanda Putera (2013) <ul style="list-style-type: none"> Paesona Picture Sdn Bhd Award For The Best Special Effects 	No	No
27th	Seventh (2014) <ul style="list-style-type: none"> Mirage Works Award For The Best Special Effects 	No	Yes, the video title is "Film Special Effects Production Process"
28th	Cicakman 3 (2015) <ul style="list-style-type: none"> Yusry Abdul Halim Award For The Best Visual Effects 	Yes, on YouTube, the video mentioned some VFX and CGI.	No
29th	Dukun <ul style="list-style-type: none"> Pixelpost Award For The Best Special Effects 	Yes, on YouTube	No
	Desolasi (2016) <ul style="list-style-type: none"> Skop Production Sdn Bhd Special Jury Award (Films That Apply The Use Of Visual Special Effects Are Convincing) 	Yes, on YouTube, the video mentioned VFX and CGI, and has some VFX breakdown.	No
30th	Dukun (2018) <ul style="list-style-type: none"> Pixelpost Award For The Best Special Effects 	Yes, on YouTube	No
31st	The Garden of Evening Mist (2019) <ul style="list-style-type: none"> VHQ Post Award For The Best Visual Effect 	Yes, on YouTube	No
32nd	Air Force The Movie: Selagi Bernyawa (2022) <ul style="list-style-type: none"> Ma Chiau Ran/ Tan Ye Xuan/ Pau Tun Kai Award For The Best Visual Effect 	Yes, on YouTube	No

In response, this study proposed the use of VFX breakdowns as a form of structured documentation to reveal the creative and technical workflows behind VFX



production. By reconstructing and analysing selected scenes using approaches informed by industry practice, this research aimed to address the existing gap by demonstrating a practical example of how breakdowns could be used to communicate VFX processes. While exploratory, this work offered a potential reference point for local studios, educators, and aspiring artists seeking to understand or adopt clearer documentation methods in VFX.

Further investigation into the lack of VFX breakdowns in Malaysian films revealed a deeper issue related to content ownership and copyright. Based on first-hand insights from a preliminary interview, the VFX executive producer of *The Garden of Evening Mists* (2019) confirmed that the production team could not release any VFX breakdowns or raw footage without formal approval from rights holders such as Astro Shaw or HBO Asia. This restriction reflected a broader structural problem: in many cases, VFX studios did not retain the rights to the footage they worked on due to the terms of production agreements. Sulaiman (2020) similarly noted that Malaysia's creative industry often experiences competing copyright claims, as protections are applied automatically upon project completion. These legal constraints have hindered VFX teams from sharing their work, limiting both visibility and knowledge exchange within the field.

Mongkolprasit and Arunrangsiwed (2016) further supported the importance of copyright ownership, emphasising that developing original IP projects was key to enhancing a company's reputation and ensuring long-term value in the animation and VFX industries. They also highlighted the need for aspiring professionals to build job-





relevant portfolios—an area where VFX breakdowns could serve as compelling visual evidence of skills and experience.

Another factor contributing to the lack of visibility was the frequent use of seamless or invisible VFX in Malaysian films. These effects—such as digital set extensions, compositing, or subtle environmental enhancements—were intentionally designed to blend naturally into the scene, often escaping notice by general audiences and even industry peers. Neo and Loh (2020) noted that Malaysian filmmakers commonly relied on these invisible techniques to achieve particular cinematic aesthetics. For instance, in *You Mean the World to Me* (2017), digital effects were used to recreate a historically accurate version of Penang without drawing attention to the visual manipulation. Ong (2021) added that achieving such seamless results required compositors to combine technical expertise with artistic judgment, often under the direction and approval of supervisors and directors.

However, without proper documentation or VFX breakdowns, these contributions remain hidden, making it difficult to appreciate the creative and technical work involved. This lack of visibility not only limits public understanding but also hinders the development of educational materials and local industry standards. Documenting and analysing these “invisible” effects through breakdowns is therefore essential, not only for showcasing the labour behind them but also for supporting future learning and industry benchmarking.

In conclusion, this study addressed four interrelated gaps in the field of visual effects (VFX), particularly within the Malaysian film industry: (1) the global under-





research of VFX production practices, especially regarding workflow, labour, and technology implementation; (2) the lack of accessible and structured VFX breakdowns in Malaysian cinema; (3) the legal and structural barriers that have prevented studios from sharing production materials due to content ownership constraints; and (4) the frequent use of seamless or invisible VFX in Malaysian films, which has contributed to a lack of visibility and recognition of VFX work. These gaps formed the basis of the research problem and guided the direction and objectives of this study.

1.4 Objective of the Study

The objectives of this research are as follows:

- To explore the key factors contributing to the inadequate availability and visibility of VFX breakdowns in Malaysian films.
- To document the VFX production skills, techniques, and time investment involved in an award-winning Malaysian visual effects film.
- To apply and demonstrate the VFX breakdown process in film through a structured, illustrative approach that supports technical understanding and creative analysis.





1.5 Research Question

This study is guided by three core research objectives, each of which corresponds to a set of research questions designed to investigate specific aspects of the visual effects (VFX) breakdown landscape in Malaysia.

The first objective was to explore the factors behind the inadequate availability of VFX breakdowns in Malaysian films, with attention to industry practices, legal constraints, and structural challenges. This led to the central question: What are the underlying reasons for the lack of VFX breakdowns in Malaysian films? To address this, the study also asked: What value do VFX breakdowns offer to production companies, artists, and the broader film industry? What legal, structural, and practical challenges prevent the creation and distribution of VFX breakdowns, and how can they be addressed? Additionally, the study investigated the nature of VFX used in local productions—Are the effects primarily seamless or stylised CGI? —to better understand why certain VFX work often goes undocumented or unnoticed.

The second objective focused on analysing the techniques, skills, and time requirements involved in the creation of VFX in award-winning Malaysian films. Accordingly, the research asked: Which VFX techniques were used in these films, and how were they applied across pre-production, on-set, and post-production stages? This inquiry was further supported by sub-questions that examined: What were the time requirements and skill demand at each phase of the VFX pipeline? And how did these projects reflect the evolving capabilities and standards of the Malaysian VFX workforce?





The third objective centred on practice-based research, specifically the illustration and reconstruction of VFX breakdowns as a method for visualising production processes. This raised the question: Can illustrated or reconstructed VFX breakdowns effectively represent industry standards and communicate the production process? To explore this, the study asked: How can reconstructed breakdowns visually convey the technical and creative workflows involved in VFX? and how are these reconstructions perceived by industry professionals in terms of accuracy, clarity, and relevance?

Together, these questions formed the foundation of the research design and guided the overall direction of the study.



1.6 Theoretical Framework of Research

This study was supported by several theoretical frameworks that helped contextualise the findings. These included the concepts of cultural capital, knowledge sharing and visualisation, and legal-contractual perspectives. Together, these frameworks allowed the research to bridge creative industry practices, educational communication, and intellectual property considerations. A more detailed explanation of these frameworks is provided in Chapter 2.





1.7 Importance of Research

This research was significant for several reasons. First, it contributed to addressing the global academic gap in VFX research, particularly in the area of VFX breakdowns, which remained underrepresented in scholarly literature. By capturing expert insights and identifying the key factors that influenced the production of VFX breakdowns, this study provided a structured understanding of their value for studios, artists, and the industry as a whole. In doing so, the research highlighted both the benefits of VFX breakdowns and the challenges that hindered their creation, offering potential solutions that could inform future practices and academic discourse.

Second, the study addressed the lack of accessible VFX documentation in Malaysia by providing a detailed analysis of the VFX workflow in an award-winning local film. Using *Air Force The Movie – Selagi Bernyawa* as a case study, this research documented the pre-production, on-set, and post-production techniques used to achieve visual effects, including software usage, time consumption, and process flow. By doing so, it offered a foundation for future statistical and comparative studies of Malaysian VFX practices, potentially enabling the development of a more comprehensive understanding of the nation's VFX preferences and production standards over time.

Third, this study contributed original empirical data to the academic literature by analysing VFX techniques applied in films recognised for excellence at the Malaysia Film Festival (FFM). In addition to documenting workflow insights, the research introduced a practice-based approach through the creation of illustrated or reconstructed VFX breakdowns that followed recognised industry standards. These



breakdowns were designed in alignment with professional practices and were evaluated by industry experts, ensuring their relevance and credibility. As such, they served not only as educational tools but also as benchmarks for transparency and professional communication within the Malaysian VFX field. This approach enhanced the visibility of local VFX craftsmanship and provided a replicable framework for future practice and pedagogy.

1.8 Operational Definitions

This section defines key terms used throughout the thesis. Given the overlapping use of production-related terminology in the Malaysian film industry, these definitions aim to ensure clarity and consistency.

Table 1.2

Operational Definitions Table

Term	Definition
Visual Effects (VFX)	Digitally created or enhanced imagery integrated into live-action footage, including compositing, CGI, matte painting, simulation, and tracking. This study focuses on digital post-production effects, excluding practical on-set effects.
VFX Breakdown	A visual deconstruction of a shot or sequence showing stages such as background plates, CGI, and lighting passes. Used for promotion, education, or archival purposes.
Behind-the-Scenes (BTS)	Informal footage showing off-camera activities like set building or actor preparation. May briefly show VFX, but not in technical detail.
Making Of	A structured video showing the filmmaking process. Only those with explicit VFX content are considered relevant in this study.
Filmmaker	Primarily refers to the film director overseeing artistic vision. Some interpreted it as the VFX director, but this thesis uses the conventional meaning unless otherwise stated.



Term	Definition
Documentation / VFX Documentation	The recording of workflows, decisions, and visual assets during VFX production, including technical notes and render layers. Includes reconstructed scenes used for academic analysis.
Post-production	The phase after filming included editing, sound design, colour grading, and VFX. Most breakdowns are created during this stage.
Practice-Based Research / Visual Practice	A method of inquiry that generates knowledge through creative practice. In this study, reconstructed breakdowns are part of the research method.
Scene Reconstruction	Recreating selected shots using documentation, layering, and visual analysis to examine VFX structure, especially where official breakdowns are unavailable.
Festival Film Malaysia (FFM)	A national film award by FINAS that recognises achievements in Malaysian cinema, including Best Visual Effects. Used to select case study films.
Client	The entity commissioning VFX work (e.g., production company or director) often controls the visibility of breakdowns due to branding or legal concerns.
Audience	Film viewers included students, professionals, and the general public. Their awareness influences how breakdowns are received and valued.
Studio / Post-production Team / Post House	The company or team responsible for producing VFX during post-production. Includes supervisors, artists, and coordinators.
Pre-production	The planning stage before filming includes script breakdowns and storyboarding. Early VFX input improves breakdown readiness.
On-set	The filming phase, where data like green screens and lighting references are collected for accurate compositing.
Computer-Generated Imagery (CGI)	Digitally created visuals such as 3D models, simulations, or digital doubles. A core part of VFX was often highlighted in breakdowns.
Seamless VFX	Subtle enhancements such as sky replacements or digital cleanups that blend naturally into footage and are often underrecognised without documentation.

1.9 Study Limitations

This study investigated the challenges associated with producing VFX breakdowns through expert interviews and an in-depth case analysis of *Air Force The Movie: Selagi Bernyawa* (2022), winner of the Best Visual Effects award at the 32nd Festival Filem Malaysia. The research examined key techniques, tools, and labour practices involved in VFX production and documented these through illustrated breakdowns intended to support education, training, and industry understanding.





Several limitations must be acknowledged. First, access to proprietary film materials and raw assets was restricted due to copyright agreements and production confidentiality. As a result, certain breakdowns were limited in technical depth. Second, the case study focused on a single film, which, while analysed in detail, may not fully represent the diversity of practices across the broader Malaysian VFX industry. Third, time constraints and limited participant availability affected the range of perspectives gathered through qualitative interviews.

These limitations suggest that the findings should be interpreted with caution. Nevertheless, the instruments and methods used in this study offer a transferable framework for future research or documentation efforts related to VFX production in Malaysia.



1.10 Summary

This chapter introduced the background, focus, and rationale for investigating the underrepresentation of VFX breakdowns in Malaysian cinema. It outlined the significance of the study in relation to both the local VFX industry and academic research, particularly with respect to transparency, education, and workflow documentation. The chapter also presented the problem statement and identified key gaps in current practice and knowledge, supported by examples from Malaysian film awards and relevant literature. The research objectives and questions were formulated to guide the inquiry, and the study's limitations were clarified to establish realistic expectations and boundaries.





To strengthen the academic foundation of the research, relevant theoretical frameworks—such as cultural capital, knowledge sharing, and legal-contractual perspectives—were introduced. These frameworks inform the interpretation of findings and link the study to broader discourses in media production, intellectual property, and the creative industries.

The following chapters build upon this foundation. Chapter 2 reviews relevant literature to contextualise the study, while Chapter 3 outlines the research methodology. Chapters 4 and 5 present and discuss the research findings, leading to conclusions and recommendations for future practice and research in VFX documentation.

