Roadmap

Smart Mirror-based Fashion AI based on Machine Learning

DATA 298 @ 2020
T8: Mavis Wang, Ililta Gebrihiwet, Xiaocen Xie, Coco Yu

# 298 A	Task	Start Date	Due Date	Status / Points
1	Find research paper(3-5), fill up the idea tables (to discuss with professor)	8/27	9/3	done
2	Complete Research Paper Tables (data + paper)	9/3	9/7	done
3	Review 1. Table with Professor (notes)		9/8 (wed)	done
4	1. Initiate Abstract draft - delegation refer to abstract - all 2. Market Research - all (define table) a. Demo (video) b. Article 3. Catalogue Research* 4. Simple intro of data requirement specifying what we need * - all a. Ex. clear textured clothing photo b. Real 3D model video from various angles (video data)	9/8	9/10	done
5	1. Abstract (T8.A2) 2. Literature Review Tables (with virtual fitting) 3. Market Research (Demo + Article) Table	9/10	9/15 (wed)	done
A2: Project Abstract **mavis**			9/17 (fri)	10pt
6	1. Rework on Literature Review 2 based on AI tasks (+ model) 2. Gather more related Dataset for training based on tasks (+ Github)	9/17	9/22 (wed)	done

	3. Review Progress Report			
7	Review 1. Progress Report	9/22	9/24 (fri)	done
A3: Progress Report 1 (meeting logs) **tiff, coco, mavis, llilta**			9/27 (mon)	5pt
8	Review 1. Comparative Platform Research (new) 2. Update Literature Review Table 3. Market Research Diagrams 4. Dataset Table Complete 1.4, 1.5 Tables and Charts (T8. Reference)	9/23	9/28 (tue)	done
9	Review 1. Evaluation Metrics Table 2. Model Comparison Table 3. Project Resource Requirements and Plan 4. Schedule Table Workbook 1 Complete at least one section + (1.4, 1.5)		10/5 (tue)	-
10	Review 1. Comparative Platform Research (new) 2. Update Literature Review Table 3. Market Research Diagrams 4. Dataset Table 5. Evaluation Metrics Table 6. Model Comparison Table 7. Project Resource Requirements and Plan 8. Schedule Table		10/6 (wed)	done
11	Finalize and review Workbook (Chapter 1 + Chapter 2)		10/9 (sat)	-
	1.1 Project Background and Execute Summary (Market Research Diagrams): **mavis** 1.2 Project Requirements: **mavis** 1.3 Project Deliverables (reference list - better format for maintenance IEEE): **coco**			

	1.4 Technology and Solution Survey: **all** (Comparative Platform Research) 1.5 Literature Survey of Existing Research: **all** (Evaluation Metrics + Model Comparison from Literature Review List/Ref) 2.1 Data Management Plan: **ililta** (Dataset type, size, source) 2.2 Project Development Methodology: **ililta** 2.3 Project Organization Plan: **tiff** 2.4 Project Resource Requirements and Plan: **tiff** (Project Resource Requirements and Plan) 2.5 Project Schedule: Schedule Table + Gantt Chart : **coco**			
A4: Workbook 1 Chatbot | wildfire ● Tables and Charts will be a collaborative effort. ● Wildfire paper contains different sections.			10/11 (mon)	10pt
12	1. Progress Report 2. Read virtual fitting paper 3. Collect required data and upload to google drive	10/19	10/26	-
A5: Progress Report 2 - **all**			10/25	10pt
13	BCNet research paper module study (try to read and understand content for each module): ● Image Encoder - mavis ● Classification - Tiff ● Skinning weight network - Ililta ● Displacement network - Coco **Tasks:** ● Investigate dataset ● Investigate models/networks	10/27	11/2	-
14	**Tasks:** Dataset - **tiff, coco** (training, testing)	11/3	11/9	-
15	**Tasks:**	11/11	11/16	done

	1. Final datasets 2. Find models based on module tasks 3. Complete workbook2 section ≥ 1 based on modules. (Refer to T1.A8) Final Dataset (train/val/test) - **mavis** ● Reference Person ○ FGVC7 ○ DeepFashion ● Target Cloth ○ Fashion Product (hi-res) VF Modules: 1. Garment segmentation and classification - **Tiff** 2. Human pose and shape detection and estimation - **mavis** 3. Garment warping - **Ililta** 4. Image generation - **Coco** 5. Real-time pose tracking - **mavis**			
	3. Data Engineering 3.1 Data Process **Mavis**			
	3.2 Data Collection **Mavis**			
	3.3 Data Pre-processing **Mavis**			
	3.4 Data Transformation **Mavis**			
	3.5 Data Preparation **Mavis**			
	3.6 Data Statistics **Mavis**(code/viz), **Coco**(writing)			
	4.1 Model Proposals **Iltilta / All** - NN (w/4 modules) diagram			
	4.2 Model Supports: **Coco**			
	4.3 Model Comparison and Justification **All**			
	4.4 Model Evaluation Methods **All**			
	References **All**			
A6: Workbook2			11/22	10pt

A7	Presentation • Slides: **coco** • Ch1: **coco** • Ch2: **Tiff** • Ch3: **Mavis** • Ch4: **Ililta**	12/7	15pt
Presentation Rehearsal		12/14	
Task: Refine workbook 1,2,3,4 based on Prof. Gao's comments.		12/13	done
A8: Project Report		12/13	45pt
Project Presentation		12/15	15pt

# 298B	Tasks and Deliverables	Due
A1	**WorkBook1** 4.5 Model Validation and Evaluation Results (**All**) 5.1 System Requirements Analysis (**Tiffany**) 5.2 System Design (**Coco**) 5.3 Intelligent Solution (**Mavis**) *5.4 System Supporting Environment (complete until final)*	2/14-2/28

A2	**WorkBook2** 5.4 System Support Environment (see T8.A2) ● Use this: *LIP-VVT image-cloth pairs* for testing result ● Final model (pretrained CP-VTON+) and required inputs models: human pose kpts, human parsing (**Mavis**) ● modules improvement, images testing, Video Transfer and Tracking, UI testing (**Mavis**) ● Video Processing and Pose Detection (**Mavis**) ● Garment Segmentation: (**Tiff**) ● Try-On Image Reconstruction: (**Coco**) ● Web Application: (**Ililta**) 6. System Evaluation and Visualization 6.1 Analysis of Model Execution and Evaluation Results (**Coco**) 6.2 Achievements and Constraints (**Tiff**) 6.3 System Quality Evaluation of Model Functions and Performance (**All**) 6.4 Sys Integration and Visualization (**Mavis**)	done
	Tasks: 1. Process VVT, shop, and custom videos - **mavis** 2. Process required data inputs for CP-VTON+ - **mavis** 3. Network system Integration - **mavis** ○ Input: target_cloth, ref_video ○ Output: *synth_ref_video* with *target_cloth* 4. Testing CP-VTON+ with processed data - **all** 5. Demo web app flow and UI design - **mavis** 6. Web app development (flask)	
A3	Final Report Chapter 1-7 7. Conclusion 7.1 Summary (**Mavis**) 7.2 Benefits and Shortcoming (**Ililta**) 7.3 Potential System and Model Applications (**Tiff**) 7.4 Experience and Lessons Learned (**Tiff/Coco**) 7.5 Recommendations for Future Work (**Tiff**) 7.6 Contributions and Impacts on Society (**Coco**)	5/13

	Appendix A - System Web App GUI Screenshots (**ililta**) Appendix B - Project Data Source and Management Store (**Mavis**) Appendix C - Project Program Source Library, Presentation, and Demonstration (**Mavis**)	
A4	Presentation outline 1. Intro - coco 2. Literature Tech Survey - coco 3. Data Engineering - tiff 4. ML Modeling - tiff 5. ML Evaluation and Testing Results - **mavis** 6. Web Portal Sys Dev 7. Future Work ● Github	5/16
	Other Tasks ● Slides ○ Create and select new style template - **coco** ○ Update slide* Data Engineering: refer to ***Chapter 3*** - **tiff** ○ ML Modeling: use the 4-module NN diagram - **tiff** ○ Add web app integration diagrams - **ililta** ● Demo ○ ML model integration and testing results - **mavis** ○ Web portal app video prototype - **coco**	done