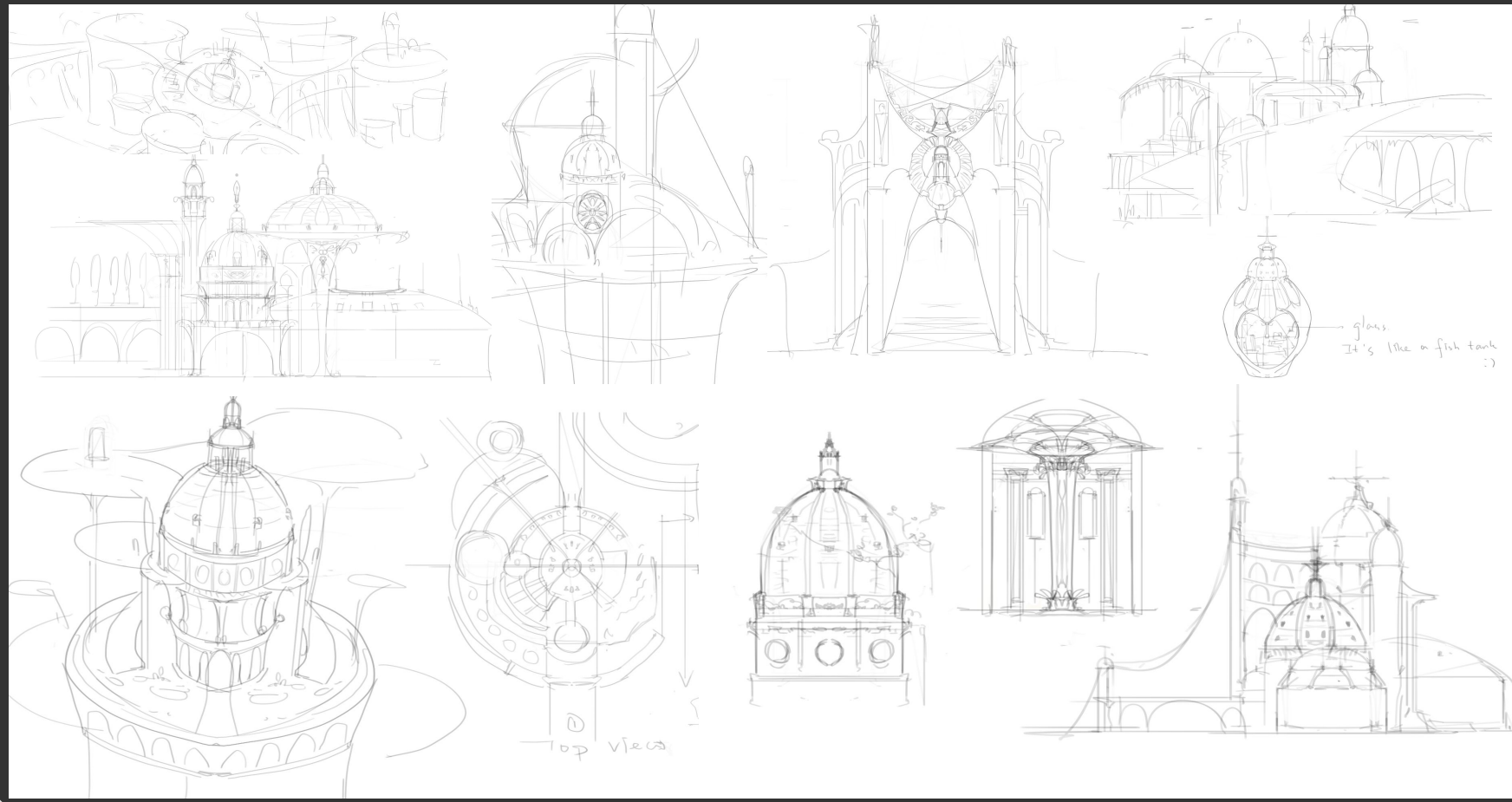
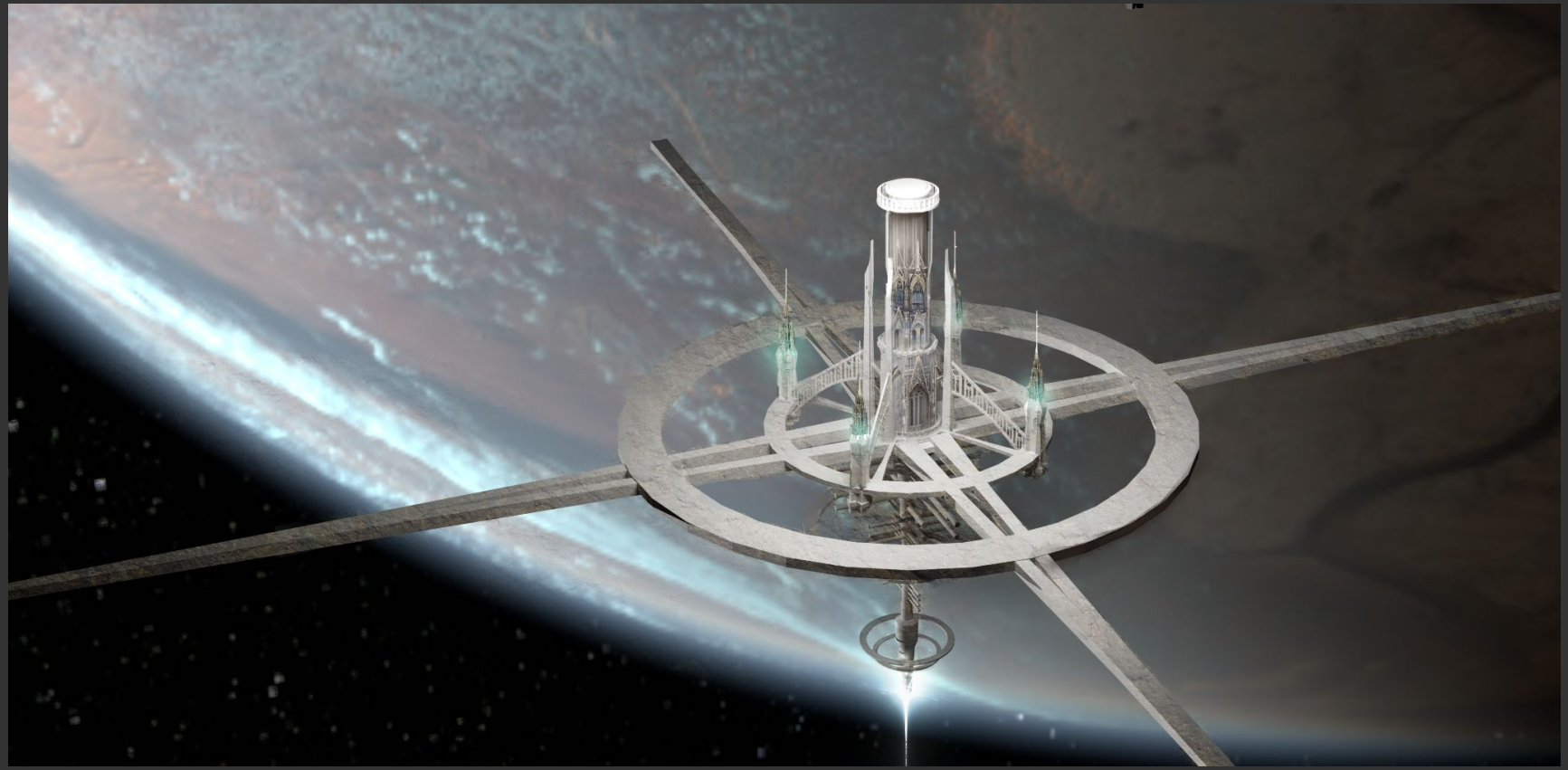
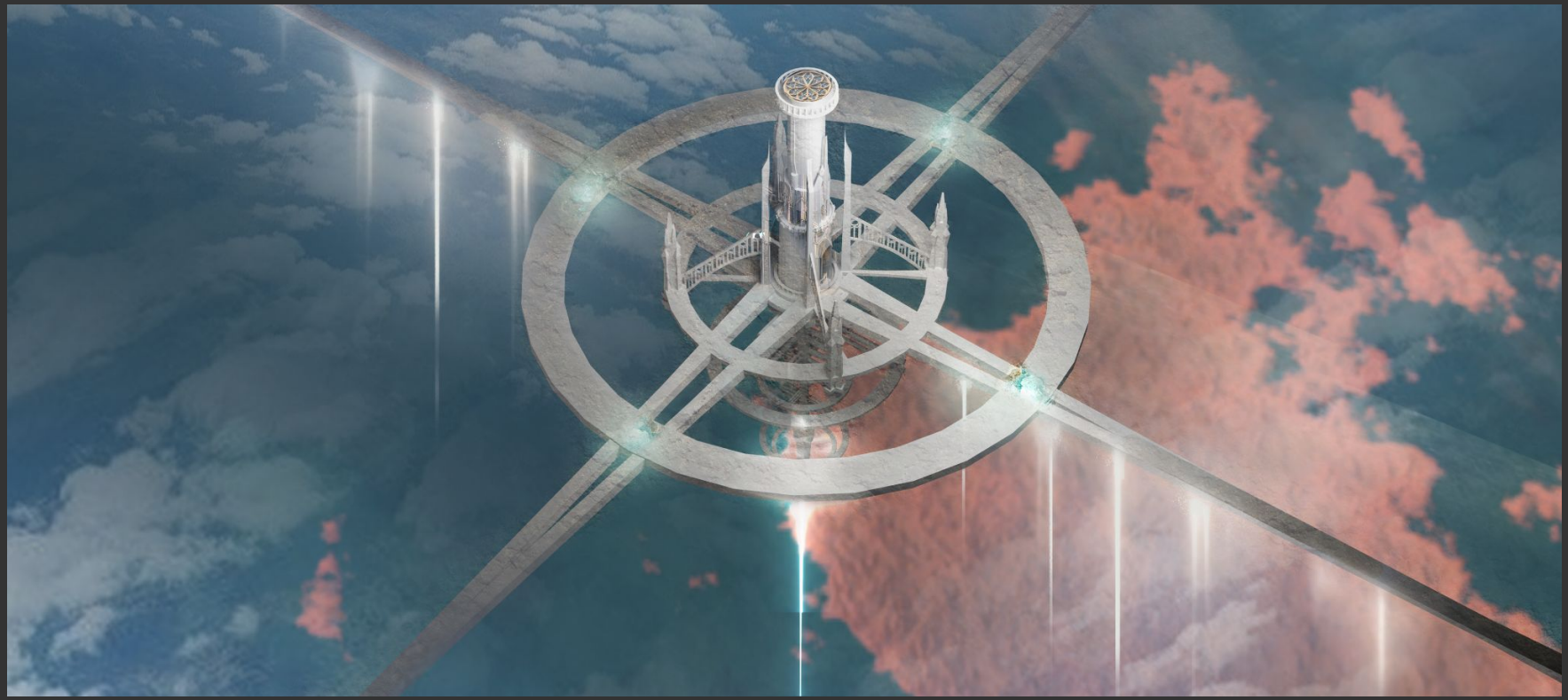
Portfolio

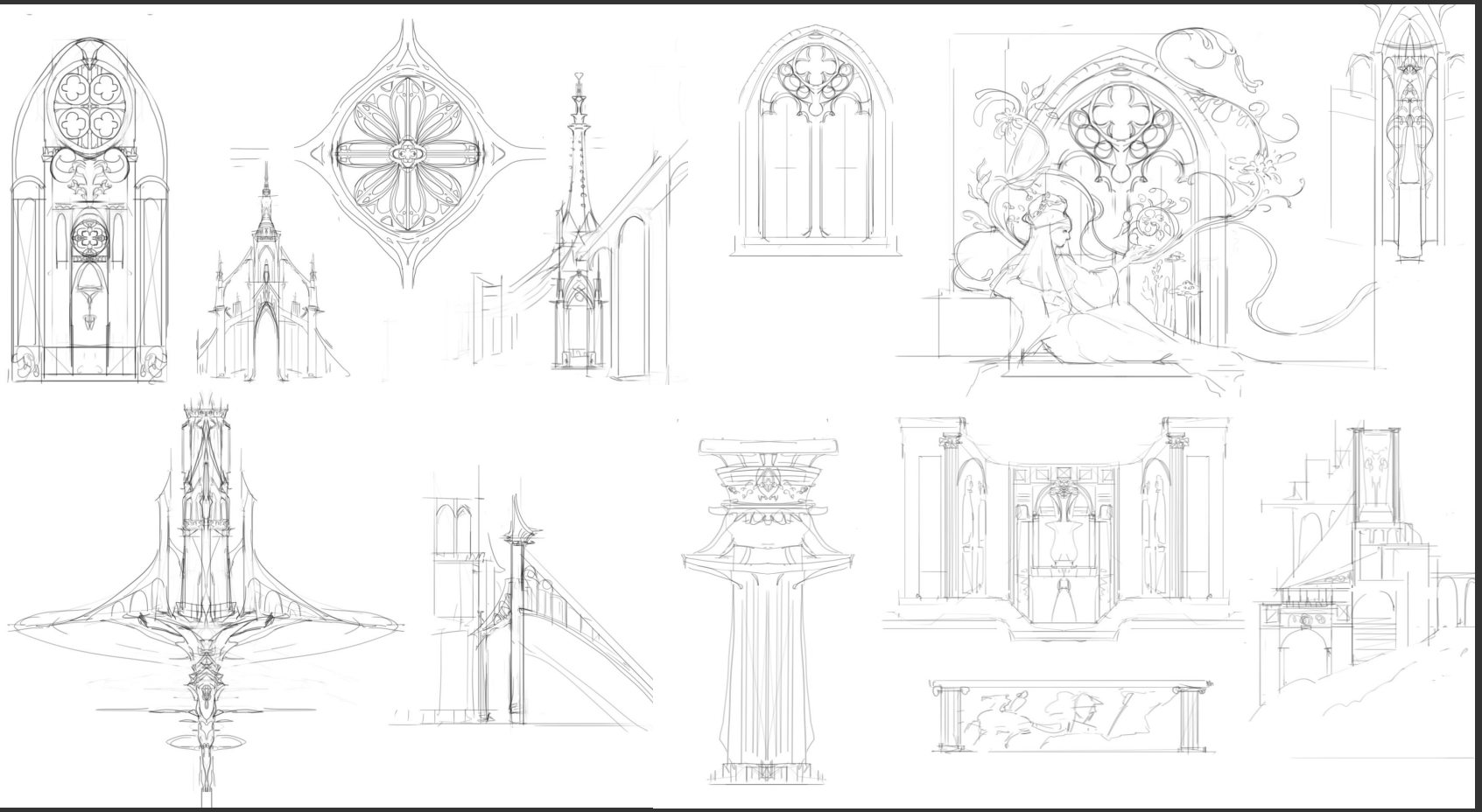
Yujie Mei (Alice)

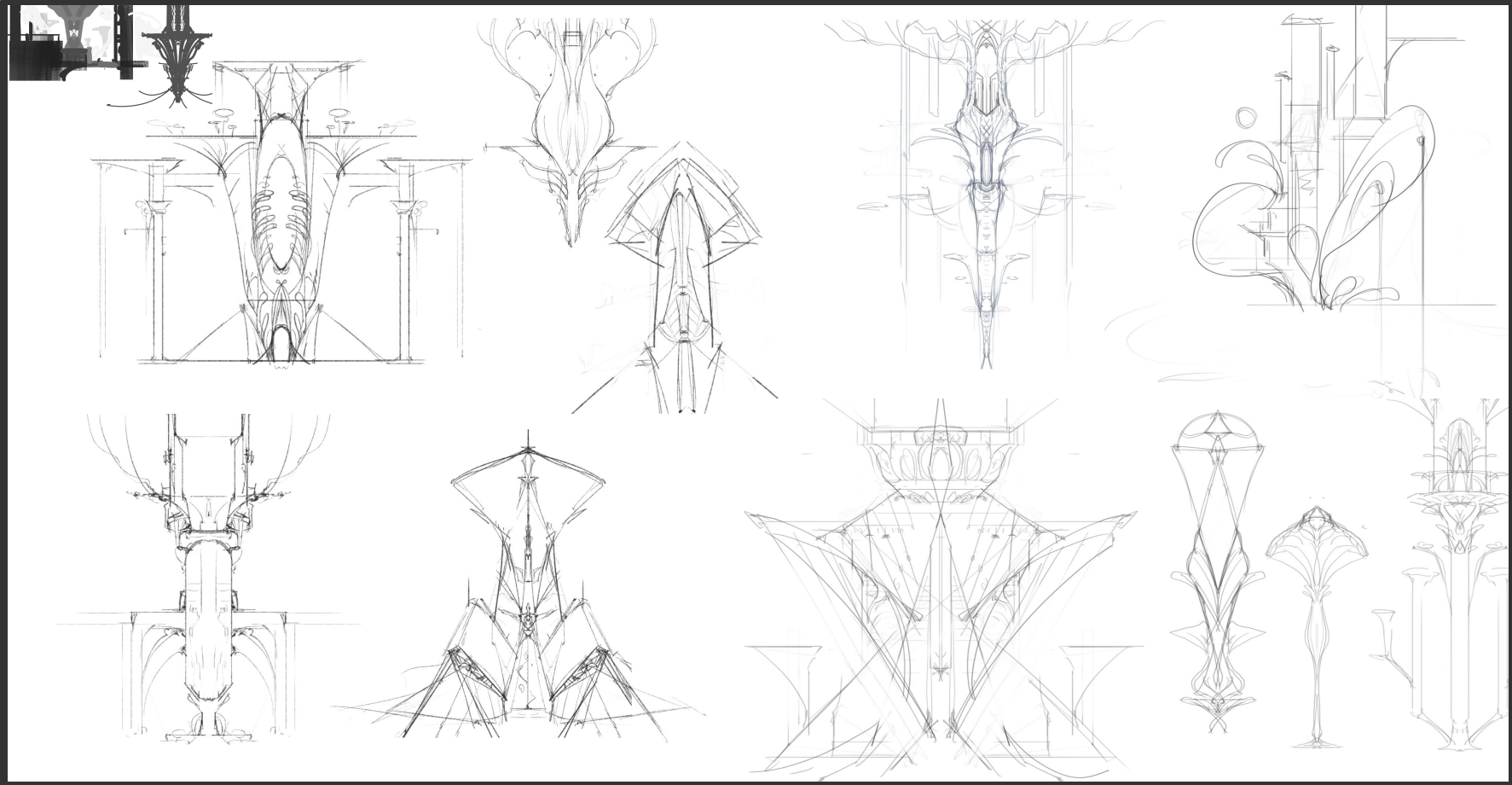
Part 1: Environment Designs


glass
It's like a fish tank
:)
Top view







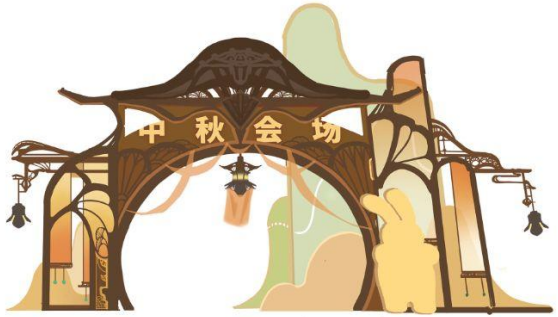


MOS

CHARACTER DESIGN

He resembles a tree druid with a humanoid form assembled from roots, bark and tough plants. His torso is composed of twisted, vines, thick bark and broken branches to resemble a human muscle structure.


中秋会场


中秋会场


中秋会场

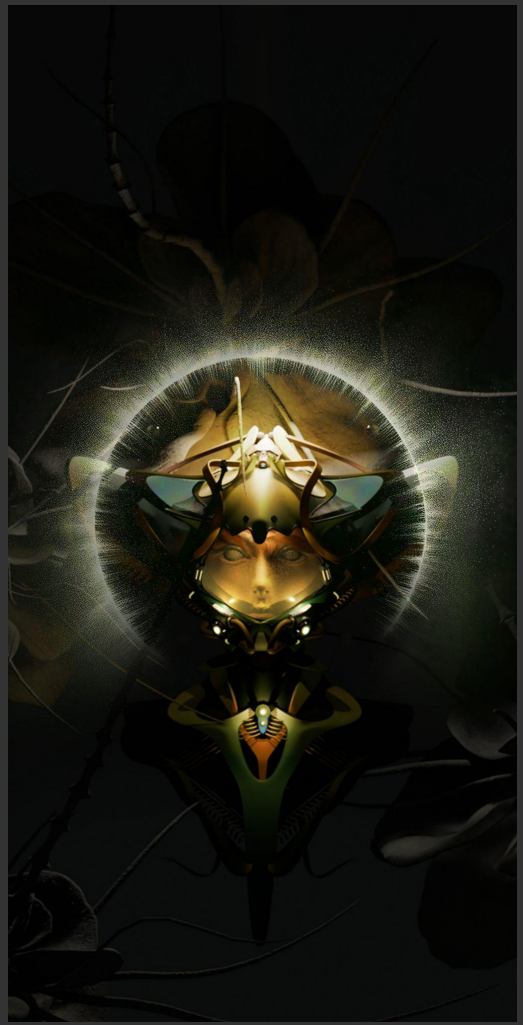

中秋会场

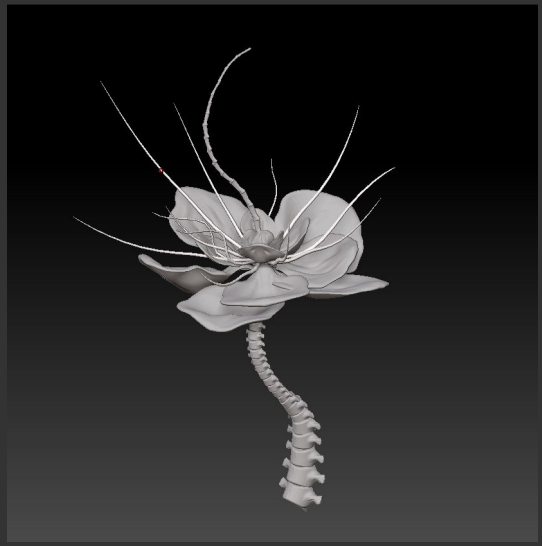

中秋会场

Part 2: 3D Modelings


Jeep
CJ - 7 Laredo
®

Bone-Form Bloom: Bionic Helmet



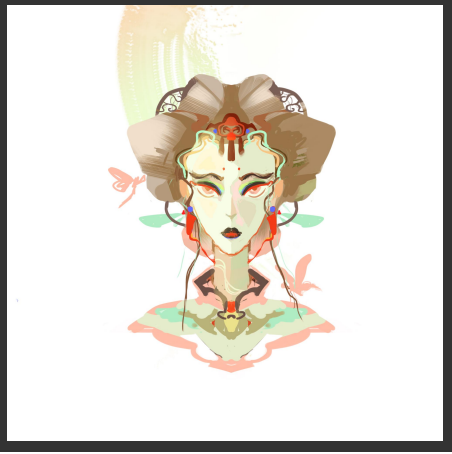


Bone-Form Bloom: Bionic Helmet

On a lush, verdant planet, the inhabitants have made botanical research the core of their civilization's development. They study existing life forms, collect specimens, and experiment to create new plant morphologies.

Through observing the structures of flowers and the skeletal forms of local fauna, they designed this helmet—a bio-inspired device capable of deceiving intelligent plants. It also serves as protection, shielding the wearer from pungent pollens and toxic secretions. With it, explorers can safely enter plant-dominated territories, gather crucial information, nd uncover the hidden treasures guarded by these sentient flora.

Zbrush Sculptures



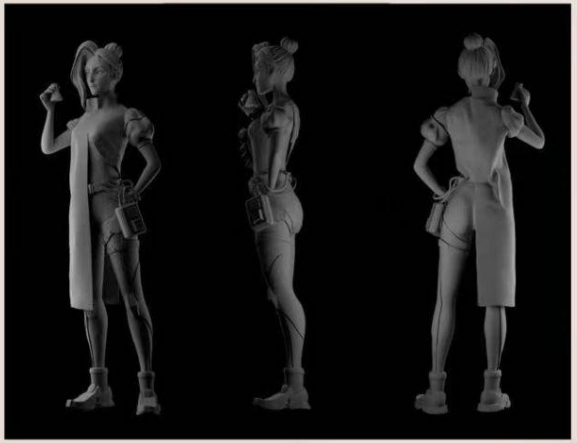
Clay Modeling and 3D Modeling

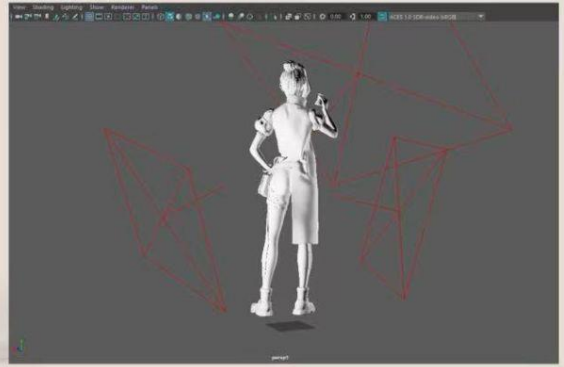
3D Modeling - Zbrush : Modeled each part manually

Clay Modeling

3D Modeling - Character

Software used : Zbrush, Maya, Substance and Marvelous Designer
Modeled each part manually





Part 3: Character Designs

Silhouettes

References

Early Sketches

Her Backstory

The main protagonist, a tribal teenage girl who is a descendant of the butterfly god. Therefore, she is able to have abilities to control butterflies' spirits in order to cure diseases.

Due to this setting, there are some butterfly elements in her clothing designs, as she is wearing cloaks and several silver jewelry in the shape of butterfly wings. Her torso, left arm and leg also resemble butterfly body structures.

Iterations

Nil

Vu

Vu - The Evil Witch

References

Her Backstory

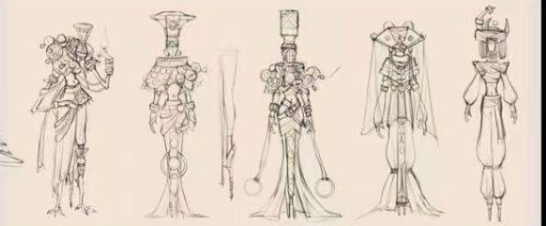
Vu, the leader of the malevolent witches in the village, holds the highest stature, possessing unique powers to manipulate poisonous insects.

Imprisoned by her own greed, she is immersed in using the creatures she created to inflict harm upon the villagers.

Refined line work

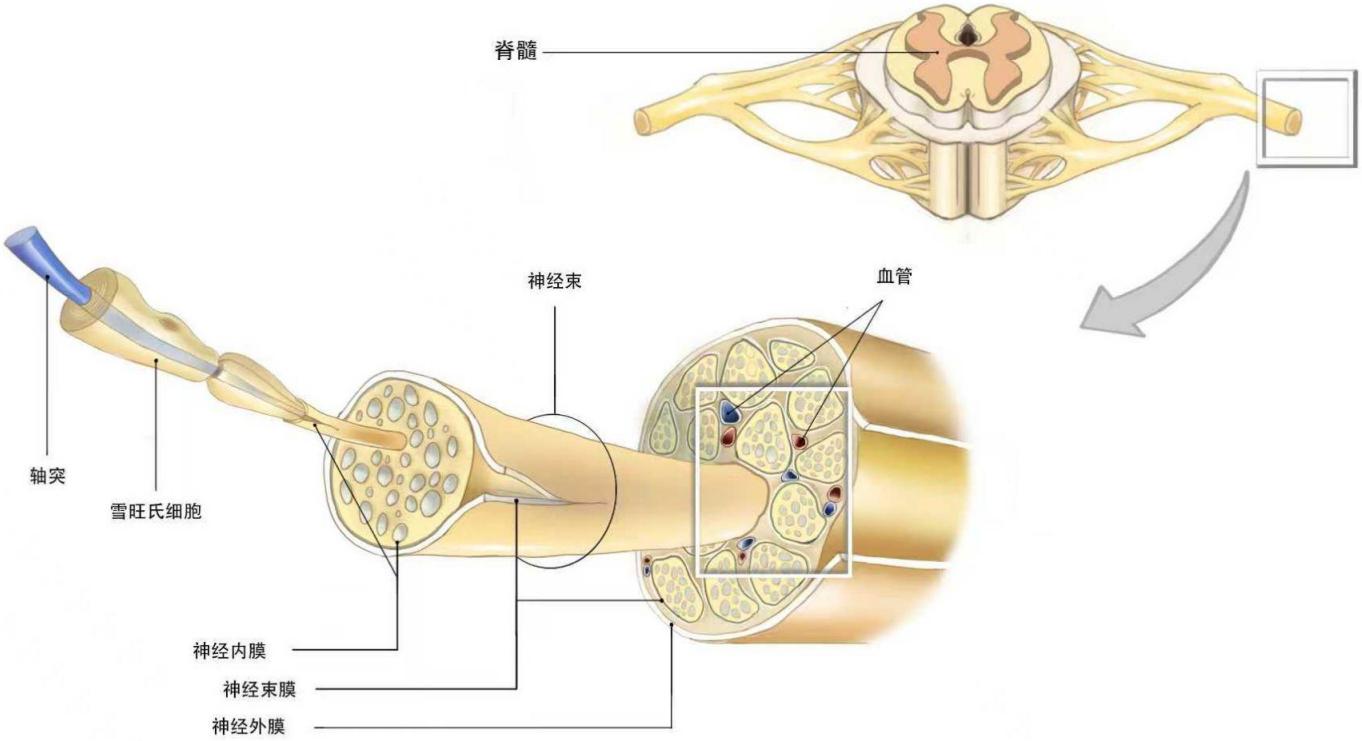
Silhouettes

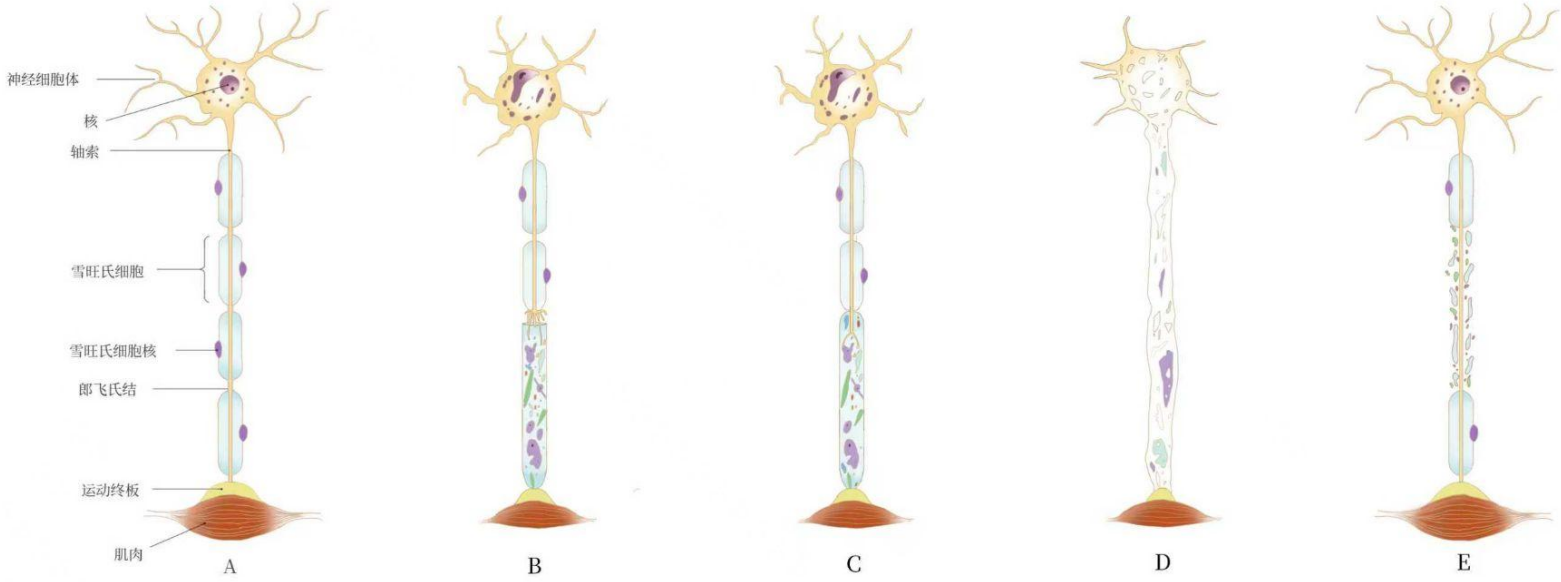
Sketche explorations



Part 4: Medical Illustrations

周 围 神 经 结 构 示 意 图





周围神经损害的病理类型

A. 正常; B. 沃勒变性; C. 轴突变性; D. 神经元变性; E. 节段性脱髓鞘

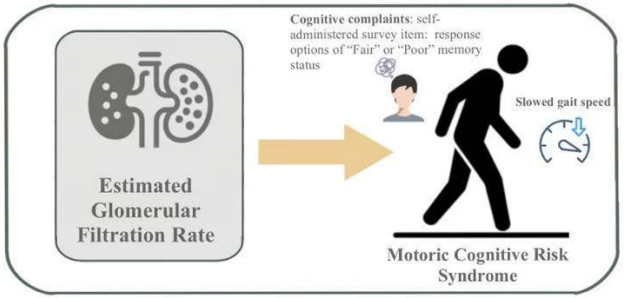
Longitudinal Association Between Estimated Glomerular Filtration Rate and Motoric Cognitive Risk Syndrome: Evidence from the CHARLS

Participants

The China Health and Retirement Longitudinal Study(CHARLS)

Utilized cohort data spanning 2011-2015

2097 participants included in the analysis



Key Findings

-MCR incidence rate: 13.97%

- Significant linear relationship between eGFR and MCR.

- Interaction analysis showed that age and fasting blood glucose (FBG) significantly modified the correlation between eGFR and MCR (*P* for interaction < 0.05).

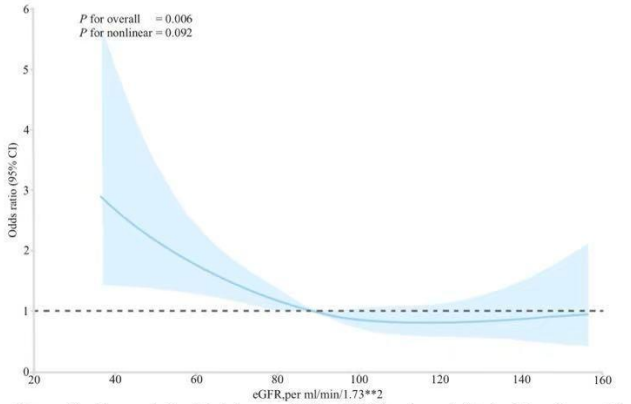


Figure. The linear relationship between eGFR and MCR using restricted cubic spline model.

Logistic regression analyses of eGFR and MCR

eGFR (ml/min/1.73m2	Model	
	Model 1	Model 2
≥90	Ref.	Ref.
60-89	1.210(0.9229,1.576)	1.372(0.959,1.964)*
<60	2.001(1.340,2.989)***	2.173(1.265,3.732)**
Per 10 units decrease	1.075(1.022,1.131)**	1.100(1.018,1.189)*

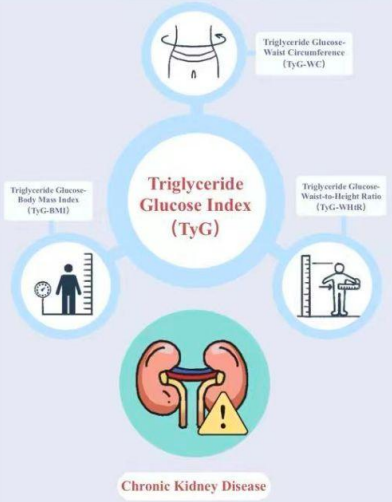
* :$P < 0.01$,** :$P < 0.05$,*** :$P < 0.001$

Model 1: Crude model.

Model 2: Adjusted for gender, age, marital status, education, night time sleep, smoking, drinking, self-rated health, hypertension, diabetes, heart disease, dementia, medical insurance, pension insurance, FBG, TC, TG, HDL, LDL, CRP, Hb, UA.

Association Between Triglyceride-Glucose Index and Its Weight-Related Adjustment Index and New-Onset Chronic Kidney Disease in Middle-Aged and Elderly Chinese: A Nationally Representative Prospective Cohort Study

Triglyceride Glucose Index and Chronic Kidney Disease



Research

China Health and Retriement Longitudinal Study(CHARLS)
Utilized cohort data spanning 2011-2015

Participants included in final analysis N=3,253
Participants Age≥45

Data Investigation and Analysis

Table 2. Association of TyG and modified TyG indices with chronic kidney disease

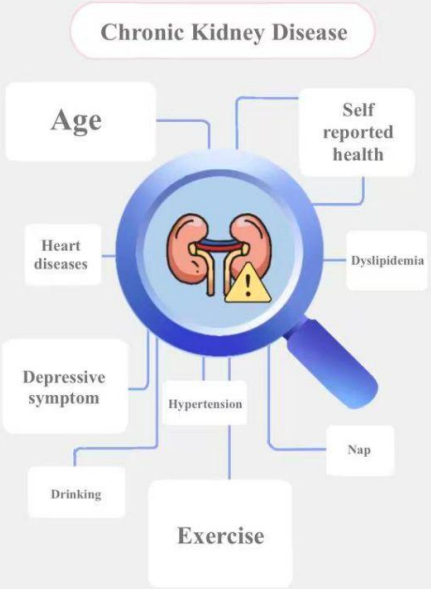
Index	OR(95%CI)				P for trend
TyG					
	Quartile 1 (6.64-8.23)	Quartile 2 (8.23-8.60)	Quartile 3 (8.60-9.02)	Quartile 4 (9.02-11.99)	
Model 1	Ref.	0.979(0.647,1.482)	1.412(0.960,2.075)	1.763(1.217,2.556)**	<0.001
Model 2	Ref.	0.989(0.647,1.513)	1.432(0.941,2.178)	1.604(1.018,2.527)**	0.020
TyG-WC					
	Quartile 1 (325.88-656.57)	Quartile 2 (656.57-733.33)	Quartile 3 (733.33-820.78)	Quartile 4 (820.78-1225.00)	
Model 1	Ref.	0.999(0.664,1.503)	1.220(0.824,1.806)	1.820(1.263,2.625)**	<0.001
Model 2	Ref.	0.995(0.655,1.512)	1.179(0.771,1.804)	1.509(1.357,2.381)*	0.045

Note: *, P < 0.05; **, P < 0.01; ***, P < 0.001; OR, odds ratio; CI, confidence interval; TyG, Triglyceride-glucose Index; TyG-BMI, Triglyceride-Glucose-Body Mass Index; TyG-WC,Triglyceride-Glucose-Waist Circumference Index; TyG-WHtR, Triglyceride-Glucose-Waist-to-Height Ratio.
Model 1: Crude model.
Model 2: Adjusted for age, gender, marital status, education level, hypertension, heart disease, smoking, drinking, physical activity, life satisfaction, self-reported health, arthritis or rheumatism,HDL-c, LDLc, PLT, BUN, CRP, HbA1c, UA.

Key Findings:

1. There was a significant linear association between TyG, TYG-WC and chronic kidney disease.
2. Sex, alcohol, platelet modified TyG and the relationship between the new-onset chronic kidney.
3. Uric acid modified TyG-WC, TyG-WHtR associated with chronic kidney disease.

Development and Validation of a Machine Learning-Based Risk Prediction Model and Web-Based Calculator for Chronic Kidney Disease in Chinese Middle-Aged and Elderly Adults



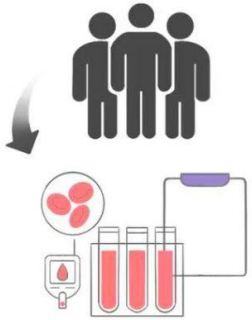
Association between kidney function and biological age: a China Health and Retirement Longitudinal Study(CHARLS)

Analyzed Data from waves 1 (2011) and 3 (2015) of CHARLS:

- the number of people in the sample: 20,956

Involved 11,209 participants aged ≥ 45 years:

- without kidney disease: 10,689 cases
- diagnosed with kidney disease: 520 cases



Blood samples drawn from the Chinese Center for Disease Control and Prevention (China CDC):

- Serum creatinine (Scr) was measured

3.4 SHAP Analysis

To explain the black-box problem of ML models, SHAP visualization, including bar plots, swarm plots, and force plots, is done. The results are shown in Figure 7. Figure 7B presents the feature importance ranking from highest to lowest: age, depressive symptom, exercise, self-reported health, heart disease, dyslipidemia, drinking and nap. Figure 7A visually illustrates the contribution of the nine risk factors to CKD using SHAP values. Color gradient represents the strength of the feature values, the y-axis is the feature importance ranking, and the x-axis is SHAP values. Figures 7C and 7D display two randomly selected individual cases; dark red and orange colors indicate the extent to which a predictor decreases or increases the predicted risk, and the length of the bars reflects the magnitude of this effect.

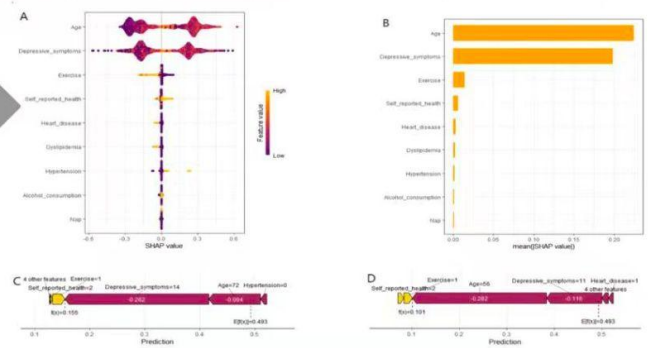
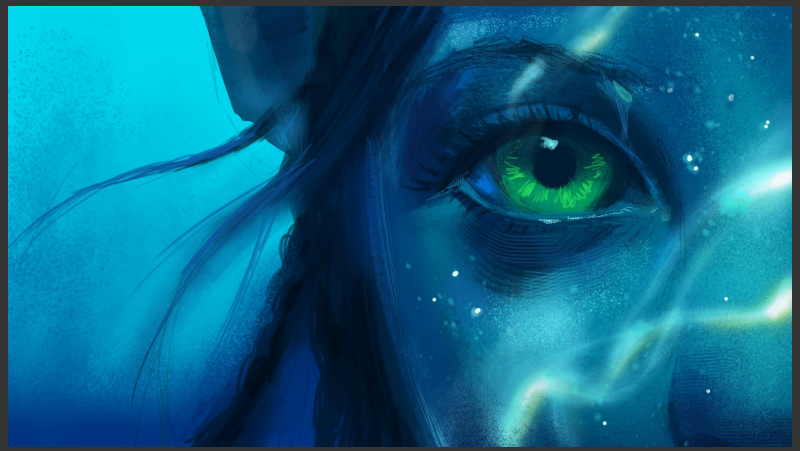


Figure 7. Interpretability analysis of the LightGBM model. (A) SHAP dendrogram of features of the LightGBM model. (B) Importance ranking plot of features of the LightGBM model. (C, D) Interpretability analysis of two independent samples.

Conclusions

By taking advantage of CHARLS 2011 and 2015 data, this paper uses ML to identify and conduct relevant analysis about the risk factors relating to chronic kidney disease in Chinese midlife and elderly population, confirming the superior predictive performance of LightGBM model. The SHAP analysis solved the “black box” problem of the ML model and made it usable. Then this model’s result is turned into an online calculator, which makes it easy for people to know that they might get CKD and think about ways to not get the disease. Healthcare workers and others get help from these ideas. It has important meanings for the early discovery and intervention of the CKD risk of Chinese middle and older age and for the formulating effective and targeted public health strategies.

Part 5: Sketchbooks



Sketchbooks



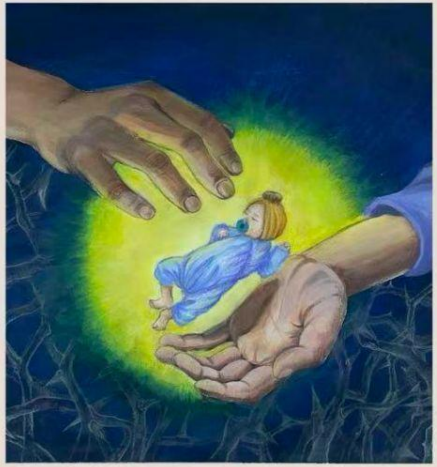


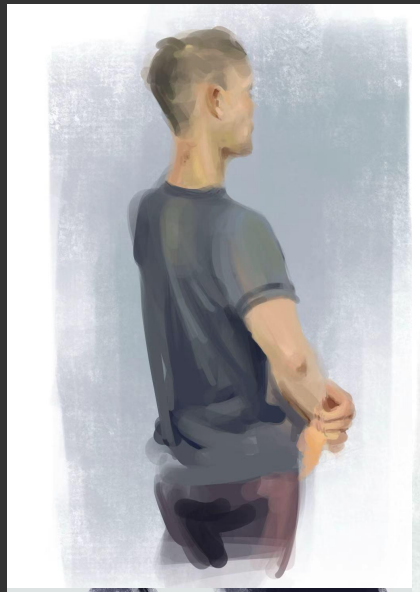
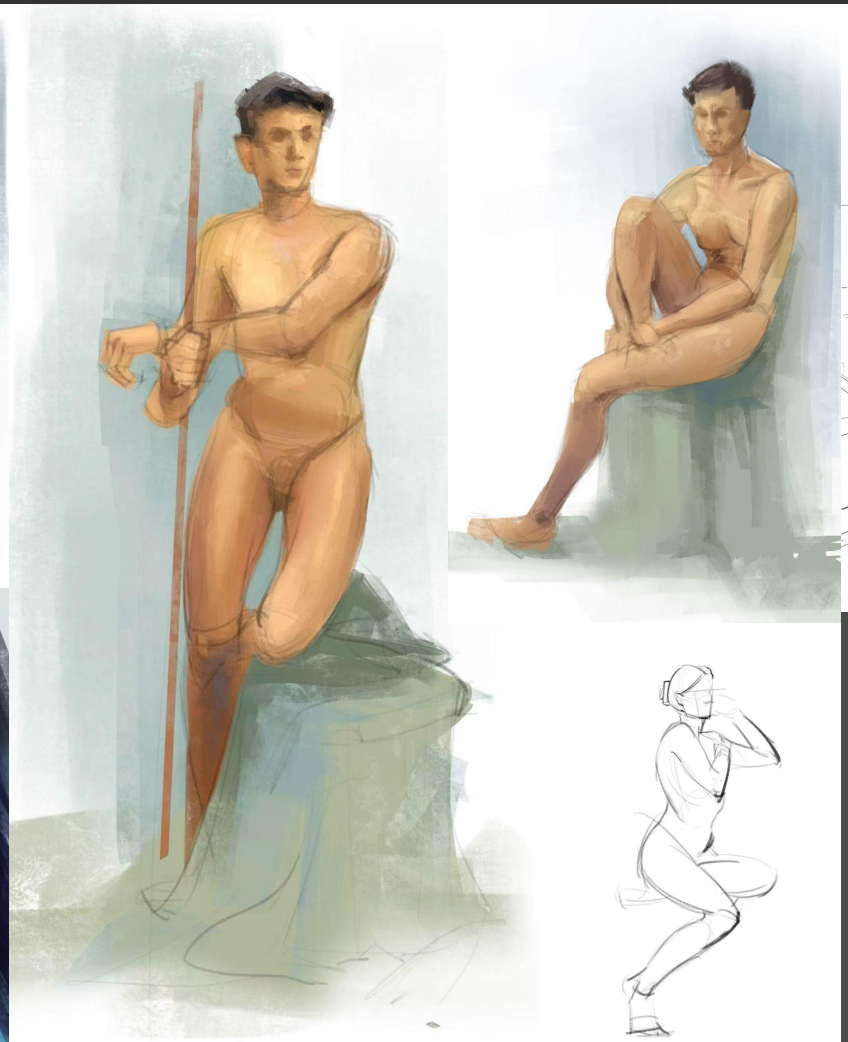










Thanks for Watching!