

Computer Lab

Topic 1: Foundations

Stable Diffusion 101

Lich Academy, Summer 2024

Introduction



Introduction



Introduction

CODE INTERPRETED AT RUNTIME



COMPILED CODE



Introduction

How to install
Stable Diffusion



Python Environments
and Dependencies

Introduction

Kohya GUI
stable-diffusion-webui
comfyui
text-generation-webui
⋮



Python Environments
and Dependencies

Installation

C:\

C:\Users\professorlich

Python 3.10.6
(Automatic1111)

Python 3.11.9
(ComfyUI)

Python 3.10.11
(Kohya GUI)

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Choosing UI

Choosing UI



Automatic1111

- Oldest UI
- The Largest Community
- Customization via: **Extensions**



ComfyUI

- Steeper Learning Curve
- Excellent memory management
- Customization via: **Custom Nodes**

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Python Environments

Python Environm

Typical Instructions:

1. Install Git
2. Install Python
3. Download Repo
4. Run install script

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C:\Users\marko

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C:\

C:\Users\automatic1111

Python 3.10.6
(Automatic1111)

C:\Users\kohya

Python 3.10.11
(Kohya GUI)

C:\Users\comfy

Python 3.11.9
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C:\Users\automatic1111

C:\Users\kohya

C:\Users\comfy

Python Environments

C:\

Typical Instructions:

1. Install Git **Anaconda**
2. Install ~~Python~~
3. Download Repo
4. Run install script

Python Environm

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Python Environm

Typical Instructions:

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C:\

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py310

py311

kohya

Python Environm

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4. Run install script

C:\

C:\Users\professorlich

py310

Python 3.10.6
(Automatic1111)

py311

Python 3.10.11
(Kohya GUI)

kohya

Python 3.11.9
(ComfyUI)

Python Environm

Typical Instructions:

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C:\

C:\Users\professorlich

py310

py311

kohya

Python Environm

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2. Install ~~Python~~
3. Download Repo
4. Run install script

C:\

C:\Users\professorlich

py310

py311

kohya

```
C:\ Windows [Version 10.0.22631.3737]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>python --version
Python was not found; run without arguments to install from
> Manage App Execution Aliases.

C:\Windows\System32>
```

Typical Instructions:

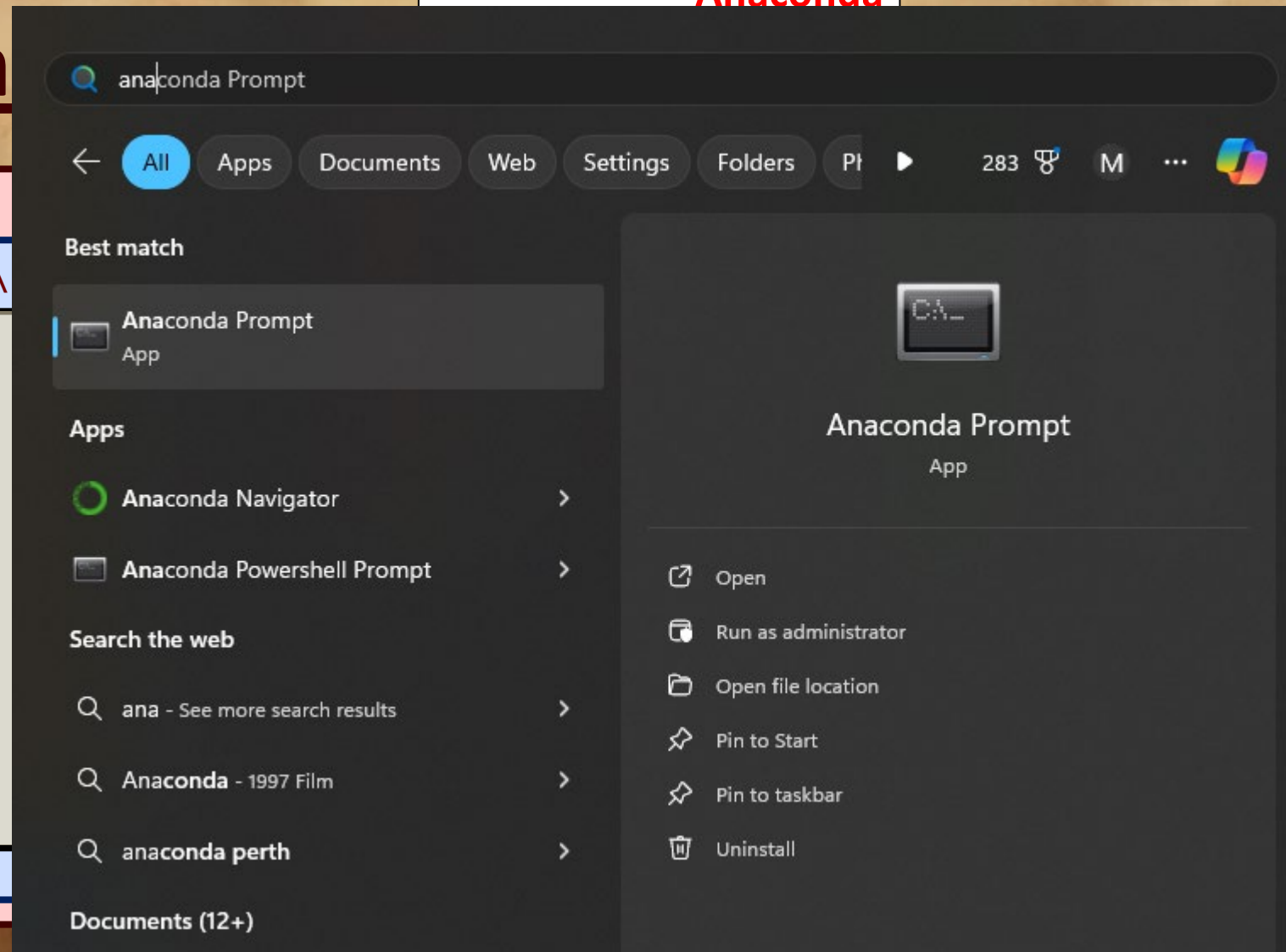
1. Install Git **Anaconda**

© Professor Lich

Python

C:\

C:\Users\



Python Environm

Typical Instructions:

1. Install Git **Anaconda**
2. Install ~~Python~~
3. Download Repo
4. Run install script

C:\

C:\Users\professorlich

py310



```
Anaconda Prompt - conda ac X + v  
  
(py310) C:\Users\professorlich>python --version  
Python 3.10.6  
  
(py310) C:\Users\professorlich>conda activate py311
```

Python Environm

Typical Instructions:

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2. Install ~~Python~~
3. Download Repo
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C:\

C:\Users\professorlich

py310

py311

kohya

Anaconda Prompt - conda ac X + v

```
(py310) C:\Users\professorlich>python --version  
Python 3.10.6
```

```
(py310) C:\Users\professorlich>conda activate py311
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```
(py311) C:\Users\professorlich>python --version  
Python 3.11.9
```

```
(py311) C:\Users\professorlich>conda activate kohya
```


Python Environm

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Python 3.10.6

(py310) C:\Users\professorlich>conda activate py311

(py311) C:\Users\professorlich>python --version
Python 3.11.9

(py311) C:\Users\professorlich>conda activate kohya

(kohya) C:\Users\professorlich>python --version
Python 3.10.11

(kohya) C:\Users\professorlich>
```

kohya

Course “Companion”

C:\

C:\Users\professorlich

py310

py311

kohya

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Course “Companion”

Course “Companion”

Topic 1: Fundamentals (Work in progress)

Python Commands

Creating **py310**

```
conda create --name py310  
  
conda activate py310  
  
conda install python=3.10.6
```



Creating **py311**

```
conda create --name py311 --yes
```



Course “Companion”

Creating **py311**

```
conda create --name py311 --yes  
  
conda activate py311  
  
conda install python=3.11.9 --yes
```



Creating **kohya**

```
conda create --name kohya --yes  
  
conda activate kohya  
  
conda install python=3.10.11 --yes  
  
conda install cuda --channel "nvidia\label\cuda-11.8.0" --yes
```



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Assignment 1

Assignment 1 (Nvidia Cards with CUDA)

Create environment for ComfyUI, specifically for 3D node pack.
Note that there are some differences from previous environments.

1. While Kohya GUI required CUDA 11.8, this repo requires CUDA 12.1
2. Unlike previous repos, this one requires xformers.

Ideally, your ComfyUI should also have ComfyUI Manager (with its dependencies), as well as 3D pack using the manager.

Note: Read repo instructions carefully!

<https://github.com/MrForExample/ComfyUI-3D-Pack>