

# Starting from Programming

## 从编程开始

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Director of Design @ UICHCC Computer Society

**Welcome to:**

**CDS**

**Computer and Data Science**

# CDS

Computer and Data Science

计算机科学与技术

数据科学与大数据技术



※ Computer Science and Technology Programme ※

PILOs	GAs	Citizen-ship	Know-ledge	Learn-ing	Skills	Creati-vity	Communi-cation	Team-work	No. of GAs addressed by this PILO
PILO 5					2	2		1	
No. of PILOs addressing this GA	0		3	3					

4. Teaching Staff

Full-time teaching staff are recruited from all over the world. All teachers recruited and have relevant research experience. Experts or specialists in the field of Technology, with exceptional skills and experience, are also recruited.

5. Programme Structure

The Bachelor of Science (Honours) in Computer Science and Technology is a four-year programme, with considerable departure from traditional single discipline programme. courses of the main discipline, students are required to take supporting, interdisciplinary Education (GE) Courses and the Whole Person Education Experiential Learning Modules own choice. In the final year of study, students are required to undertake individual research which they can gain in-depth knowledge, develop basic research techniques, and experience of thesis preparation.

Students are expected to complete 132 units within the curriculum structure below:

Course Category	Units
Major Required Courses (专业必修课)	42
Major Elective Courses (专业选修课)	18
General Education Required Courses (通识教育核心课)	32
General Education Distribution Courses (通识教育分类选修课)	12
Whole Person Education Experiential Learning Modules (全人教育体验学习课程)	4
Free Elective Courses (自由选修课)	24
Total	132

5.1. Major Required Courses

Code	English Title	Chinese Title
COMP1003	Computer Organisation	计算机组织
COMP1013	Structured Programming	结构化编程
COMP2003	Data Structures and Algorithms	数据结构和算法
COMP2013	Object-Oriented Programming	面向对象编程
COMP2023	Software Development Workshop I	软件开发工作坊 I

※ Handbook 2017-2018 ※

Code	English Title	Chinese Title	Unit(s)
COMP3003	Data Communications and Networking	数据通讯和网络	3
COMP3013	Database Management Systems	数据库管理系统	3
COMP3023	Design and Analysis of Algorithms	算法设计和分析	3
COMP3033	Operating Systems	操作系统	1
COMP3043	Software Development Workshop II	软件开发工作坊 II	3
COMP3053	Software Development Workshop III	软件开发工作坊 III	3
COMP3063	Software Engineering	软件工程	3
COMP4004	Final Year Project I (COMP)	毕业论文 I	3
MATH1003	Linear Algebra	线性代数	3
MATH2003	Discrete Structures	离散结构	3
MATH1073	Calculus I	微积分 I	3
---	Total	合计	42

5.2. Major Elective Courses

Students are required to take 6 major elective courses (18 units). Out of the 6 major electives, at least 4 courses (12 units) should be selected from one of the following streams: Data Analytic Technology (数据分析技术) or Digital Media Communication Technology (数字媒体通信技术).

Code	English Title	Chinese Title
COMP3083	Numerical Computation	数值计算
COMP3173	Compiler Construction	编译原理
COMP3193	Cloud Computing	云计算
COMP4003	Theory of Computation	计算理论
COMP4023	Computer and Network Security	计算机和网络安全
COMP4043	Data Mining and Knowledge Discovery	数据挖掘与知识发现
COMP4053	Database System Implementation	数据库系统开发
COMP4063	Digital Media Computing	数字媒体计算
COMP4073	Distributed Computing Systems	分布式计算系统
COMP4083	E-technology Architectures, Tools and Applications	E-技术结构
COMP4093	Internet and the World Wide Web	互联网及万维网
COMP4103	Artificial Intelligence and Machine Learning	人工智能与机器学习
COMP4123	Information Retrieval and Search Engine	信息检索与搜索引擎
COMP4143	Introduction to Web Intelligence	网络智能入门
---	Digital Media Communication Technology	数字媒体通信技术
---	Numerical Computation	数值计算
---	Compiler Construction	编译原理
---	Cloud Computing	云计算
---	Theory of Computation	计算理论
---	Computer and Network Security	计算机和网络安全
---	Computer Graphics	计算机图形学

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※ Handbook 2017-2018 ※

5.1. Major Required Courses

Code	English Title	Chinese Title	Units
COMP2003	Data Structures and Algorithms	数据结构和算法	3
COMP2013	Object-Oriented Programming	面向对象编程	3
COMP3023	Design and Analysis of Algorithms	算法设计和分析	3
DS2003	Fundamentals of Database Systems	数据库系统	3
DS2013	Data Processing Workshop I	数据处理工作坊 I	3
DS2033	Data Processing Workshop II	数据处理工作坊 II	3
DS3013	Data Processing Workshop III	数据处理工作坊 III	3
DS4003	Optimisation Methods	最优化方法	3
DS4013	Data Mining (For DS students)	数据挖掘	3
DS4023	Machine Learning	机器学习	3
DS4043	Final Year Project I (DS)	毕业论文 I	3
MATH1003	Linear Algebra	线性代数	3
MATH1073	Calculus I	微积分 I	3
MATH2003	Discrete Structures	离散结构	3
STAT2003	Advanced Statistics	高等统计学	3
STAT2013	Regression Analysis	回归分析	3
---	Total	合计	42

5.2. Major Elective Courses

Students are required to select 6 courses (18 units) from the list below. However, they are encouraged to choose more major elective courses as free electives based on their interests and plans for future development.

Code	English Title	Chinese Title	Units
COMP3083	Numerical Computation	数值计算	3
COMP3183	Financial Computing	金融计算	3
COMP4003	Theory of Computation	计算理论	3
COMP4023	Computer and Network Security	计算机和网络安全	3
COMP4053	Database System Implementation	数据库系统开发	3
COMP4063	Digital Media Computing	数字媒体计算	3
COMP4073	Distributed Computing Systems	分布式计算系统	3
COMP4123	Information Retrieval and Search Engine	信息检索与搜索引擎	3
DS4033	Text Mining and Analytics	文本挖掘与分析	3
DS4043	Introduction to Statistical Computing	统计计算	3
DS4053	Introduction to Bioinformatics	生物信息学	3
DS4005	Final Year Project II (DS)*	毕业论文 II	3
MATH1083	Calculus II	微积分 II	3
STAT3003	Survey Sampling	抽样调查	3
STAT3033	Bayesian Statistics	贝叶斯统计	3

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※ Data Science Programme ※

Code	English Title	Chinese Title	Units
STAT4003	Experimental Design	试验设计	3
STAT4013	Multivariate Analysis	多元统计分析	3
STAT4043	Categorical Data Analysis	属性数据分析	3
STAT4063	Time Series Analysis	时间序列分析	3

\* Students who continue with the final year project in the second semester of Year 4 should register Final Year Project II (DS) as a major elective during the Online Course Selection (or Course Add/Drop) period as informed by the Academic Registry.

The availability of major elective courses each semester is subject to minor changes and adjustments depending on staff availability.

5.3. General Education Programme

All students should complete 48 units of General Education (GE) Courses to fulfil the graduation requirements. The GE Programme consists of (a) 32 units of GE Required (GEC) Courses, (b) 12 units of GE Distribution (GED) Courses, and (c) 4 units of Whole Person Education Experiential Learning Modules (WPEX). Please see Appendix I for detailed information about the GE Programme.

5.4. Free Elective Courses

The 24 units of Free Electives could be used by students to (a) spend a semester abroad; (b) take a minor or (c) take more courses offered by Divisions and teaching units.

5.5. The PILOs – Major Courses Mapping Matrix

Each course offered by the Data Science Programme, either required or elective course, is designed to meet certain PILOs as listed in Table 2.

	PILOs	PILO 1	PILO 2	PILO 3	PILO 4	PILO 5
Courses						
Major Required Courses						
COMP2003 Data Structures and Algorithms		X	X	X		
COMP2013 Object-Oriented Programming		X	X			
COMP3023 Design and Analysis of Algorithms		X	X	X		
DS2003 Fundamentals of Database Systems			X		X	
DS2013 Data processing workshop I		X		X		
DS3003 Data processing workshop II		X	X	X		
DS3013 Data processing workshop III		X	X	X		
DS4003 Optimization Methods		X	X	X		
DS4013 Data Mining (For DS students)		X	X	X	X	X
DS4023 Machine Learning		X			X	
DS4004 Final Year Project I (DS)		X		X		
MATH1003 Linear Algebra		X		X		
MATH1073 Calculus I		X	X	X		
MATH2003 Discrete Structures						

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※ Computer Science and Technology Programme ※

Code	English Title	Chinese Title	Units
COMP4043	Data Mining and Knowledge Discovery	数据挖掘与知识发现	3
COMP4053	Database System Implementation	数据库系统开发	3
COMP4063	Digital Media Computing	数字媒体计算	3
COMP4073	Distributed Computing Systems	分布式计算系统	3
COMP4093	Internet and the World Wide Web	互联网及万维网	3
COMP4113	Computer Vision and Pattern Recognition	计算机视觉和模式识别	3
---	Other Common Major Elective Courses		
COMP3073	Introduction to Robotics	机器人技术导论	3
COMP3103	Design Patterns	设计模式	3
COMP3123	Software Testing	软件测试	3
COMP3163	Mobile Application Development	移动平台应用开发	3
COMP3183	Financial Computing	金融计算	3
COMP4003	Theory of Computation	计算理论	3
COMP4005	Final Year Project II (COMP)*	毕业论文 II	3
COMP4133	System Analysis and Design	系统分析与设计	3
MATH1083	Calculus II	微积分 II	3

\* Students who continue with the final year project in the second semester of Year 4 should register Final Year Project II (COMP) as a major elective during the Online Course Selection (or Course Add/Drop) period as informed by the Academic Registry.

The availability of major elective courses each semester is subject to minor changes and adjustments depending on staff availability.

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	PILOs	PILO 1	PILO 2	PILO 3	PILO 4	PILO 5
Required Courses						
Computer Organisation		X	X			

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# Undergraduate Handbook for 2018 CST/DS students



Major Elective Courses (专业选修课)	Units
General Education Required Courses (通识教育核心课)	42
General Education Distribution Courses (通识教育分类选修课)	18
Whole Person Education Experiential Learning Modules (全人教育体验学习课程)	32
Free Elective Courses (自由选修课)	12
	4
	24
Total	132

### 5.1. Major Required Courses

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OMP1013	Structured Programming	结构化编程	3
OMP2003	Data Structures and Algorithms	数据结构和算法	3
OMP2013	Object-Oriented Programming	面向对象编程	3
OMP2023	Software Development Workshop I	软件开发工作坊 I	1

# 编程

## Programming

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3



**Stay Curious  
& Improve your  
English**



**“I am neither clever nor especially gifted.  
I am only very, very curious”**

*–Albert Einstein*

**“I still strongly recommend you to improve your English in the summer vacation”**

*–Prof. Weifeng Su*

Django documentation | Django

https://docs.djangoproject.com/

django

Document

Django d

Everything you need

How the do

Django has a lot of

- Tutorials take you through the development. All the examples use Django 1.11.
- Topic guides discuss the various aspects of Django.
- Reference guides describe the Django API.
- How-to guides are more advanced than the reference guides.

First steps

Are you new to Django?

- From scratch: Overview
- Tutorial: Part 1: Hello World | Part 2: Django Models | Part 3: Django Views | Part 4: Django Templates | Part 5: Django Admin
- Advanced Tutorial

The model

Django provides an ORM (Object-Relational Mapping) layer below:

- Models: Introduction
- QuerySets: Making Queries
- Model instances
- Migrations: Introduction

JDK 10 Documentation

https://docs.oracle.com/javase/10/

ORACLE

Help Center

Java

< Java

Home

API Documentation

Videos

Downloadable Books

Related Resources

JDK 10 Docu

Home

Commercial Features page

Looking for a different release?

Overview

Release Notes

Migration Guide

Download the JDK

Install Guide

New Version String

Specifications

API Documentation

Language and VM

JAR

Java Native Interface (JNI)

JVM Tool Interface (JVM TI)

Serialization

Manage and Troubleshoot

Introduction · Bootstrap

getbootstrap.com/docs/4.1/getting-started/

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Webpack

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Layout

Content

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Utilities

Extend

Migration

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jQuery API Documentation

https://api.jquery.com

jQuery

write less, do more.

Download

API Documentation

Blog

Plugins

Browser Support

- Ajax
  - Global Ajax Event Handlers
  - Helper Functions
  - Low-Level Interface
  - Shorthand Methods
- Attributes
- Callbacks Object
- Core
- CSS
- Data
- Deferred Object
- Deprecated
  - Deprecated 1.3
  - Deprecated 1.7
  - Deprecated 1.8
  - Deprecated 1.9
  - Deprecated 1.10
  - Deprecated 3.0
  - Deprecated 3.3
- Dimensions
- Effects
  - Basics
  - Custom
  - Fading
  - Sliding

## jQuery API

jQuery is a fast, small, and feature-rich JavaScript library. It makes event handling, animation, and Ajax much simpler with an easy-to-use API. If you're new to jQuery, we recommend that you check out the [jQuery Learning Resources](#).

If you're updating to a newer version of jQuery, be sure to read the [jQuery Upgrade Guide](#). If you're using a version prior to 1.9, you should check out the [jQuery 1.9 Upgrade Guide](#).

Note that this is the API documentation for jQuery core. Other pages in the jQuery API documentation include:

- [jQuery UI API docs](#)
- [jQuery Mobile API docs](#)
- [QUnit API docs](#)

**.add()**

Create a new jQuery object with elements added to the set of matched elements.

**.addBack()**

Add the previous set of elements on the stack to the current set of matched elements.

**.addClass()**

Adds the specified class(es) to each element in the set of matched elements.

**.after()**

Insert content, specified by the parameter, after each element in the set of matched elements.

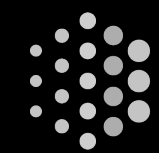
**.ajaxComplete()**

Register a handler to be called when Ajax requests complete.



**Curious**

## Technology Portals



Google AI

Medium

PCWorld  
FROM IDG

WIRED

engadget

recode

GIZMODO

TE



MacRumors  
news and rumors you care about

Techmeme

9T@5Mac

FAST@MPANY

THE VERGE

POPULAR  
SCIENCE

SCIENTIFIC  
AMERICAN

c|net

MIT  
Technology  
Review

ZDNet

Slashdot

My Personal Favorite



Techmeme

**Slashdot**

Slashdot

中文站: Solidot 科技行者



Code Portals / Forum

 **stackoverflow** ***CSDN***

 **GitHub** **segmentfault**

## **Efficient Information Spreading**

—Dr. Li Zhiyuan

## **The Limits of Computers**

—Dr. GUO Haipeng

## **Ethical Issues in IT industry**

—Dr. Sunny Jeong

## **A Short Introduction to Racket and Abstract Interpretation**

—Dr. Philippe Meunier

## **Knowledge Base: Semantic Big Data**

—Dr. Meng Rui

## **Git**

—Zhong Junru

## **Application of data science in autonomous driving**

—Dr. Xuanyuan Zhe

## **大数据时代的知识图谱**

—Dr. Jing Zhao

## **When Computer Graphics meet with Computer Vision...**

—Dr. Amy Zhang

# **CDS**

## **weekly research talks**

## **Introduction of Bitcoin and Bitcoin Mining**

—Liu Kedun

## **Smart City**

—Prof. SU Weifeng

## **Software Testing: An Unsung Hero**

—Dr. Xin FENG

1

2

3

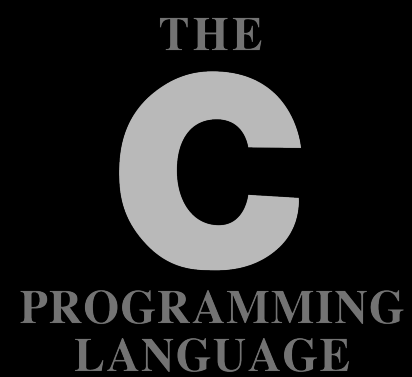
**Stay Curious  
& Improve your  
English**





**Code More**

CST



.....

DS



.....

**“In theory, theory and practice are the same. In practice, they’re not.”**

*–Yogi Berra*

# Code More

Assignment, Lab.....

Start your side projects



Search or jump to...



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[Issues](#)

[Marketplace](#)

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# Junde Yhi

Imy441900

In pursuit of absolute simplicity.

- Year 3 - Computer Science
- UICHCC Idol
- UCAS Member

Anthon Open Source Community Operating System  
(MIPS Port)

Project Xantonif



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Alienware

# Changyuan Liang

Alienware18

- Year 2 - Data Science
- UICHCC Member (also an idol)
- UCAS Member

MAAS-Openstack-UICdsVersion

uicUmbrella

UICds Website





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# Renjie Deng

DRJ31

- Year 3 - Computer Science
- UICHCC Member
- UCAS Member

[UICcst Website](#)

[UICcst Download](#)

[UICcds Wiki](#)



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## Lawrence Luo

RainySummerLuo

Student of Beijing Normal  
University - Hong Kong Baptist  
University United International  
College Member of **@UIC-PANICS**  
and **@UICHCC**.

- Year 3 - Computer Science
- UICHCC Member
- UCAS Member

MikuWeather\_Windows

PunkyGirl

ExifGPSReader

KannaBattery



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# Zhenghao Wu

ecwu

- Year 3 - Computer Science
- UICHCC Idol
- UCAS Member

UICHCC Website

How Many Of You In UIC

uicCourse

**1**

**Stay Curious  
& Improve your  
English**

**2**

**Code More**

**3**



**Interact &  
Get involve**

**Make friends with people you consider  
better and more experienced**

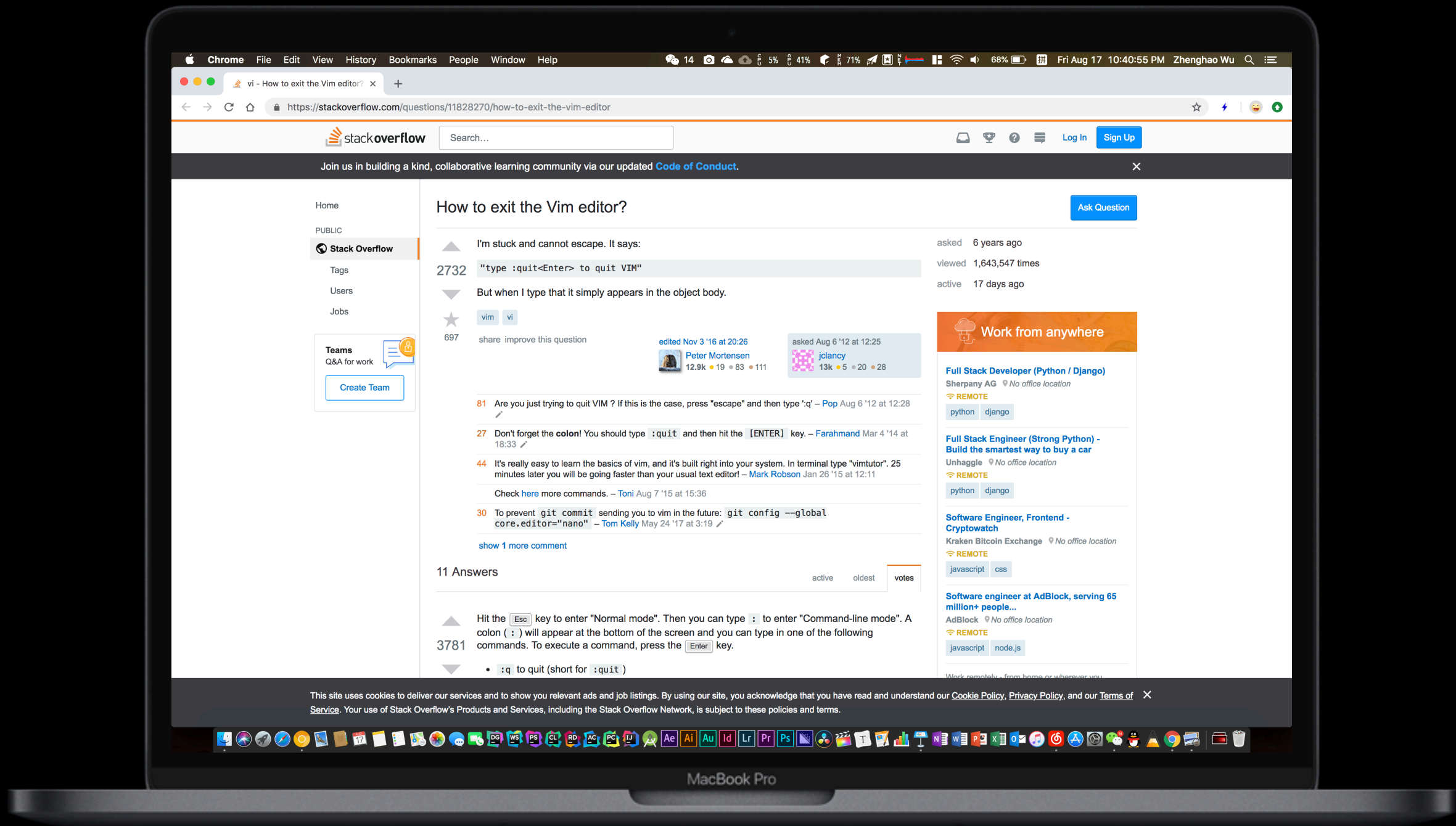
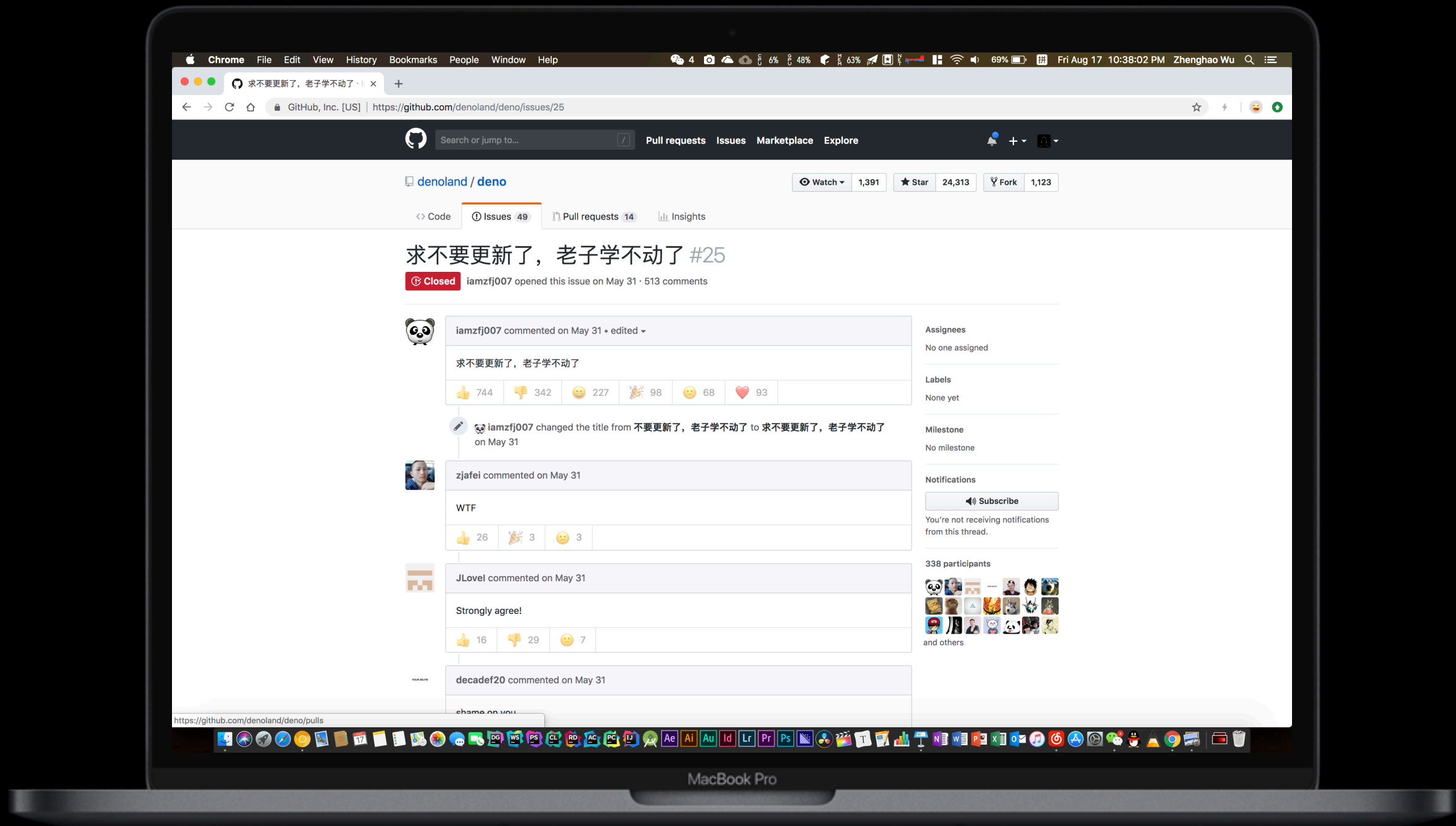


## Code Portals



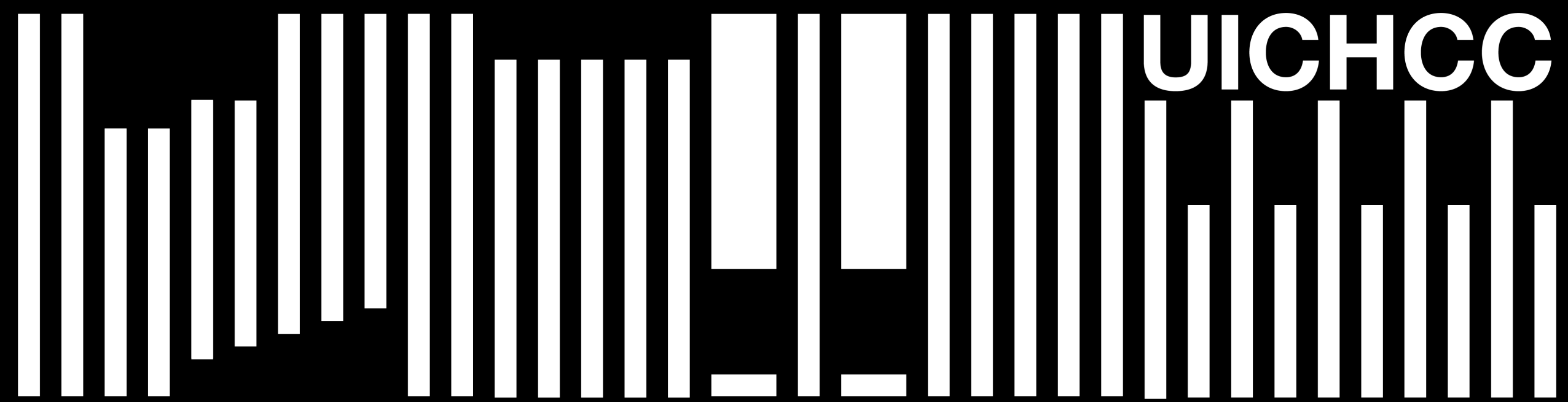
## Code Portals





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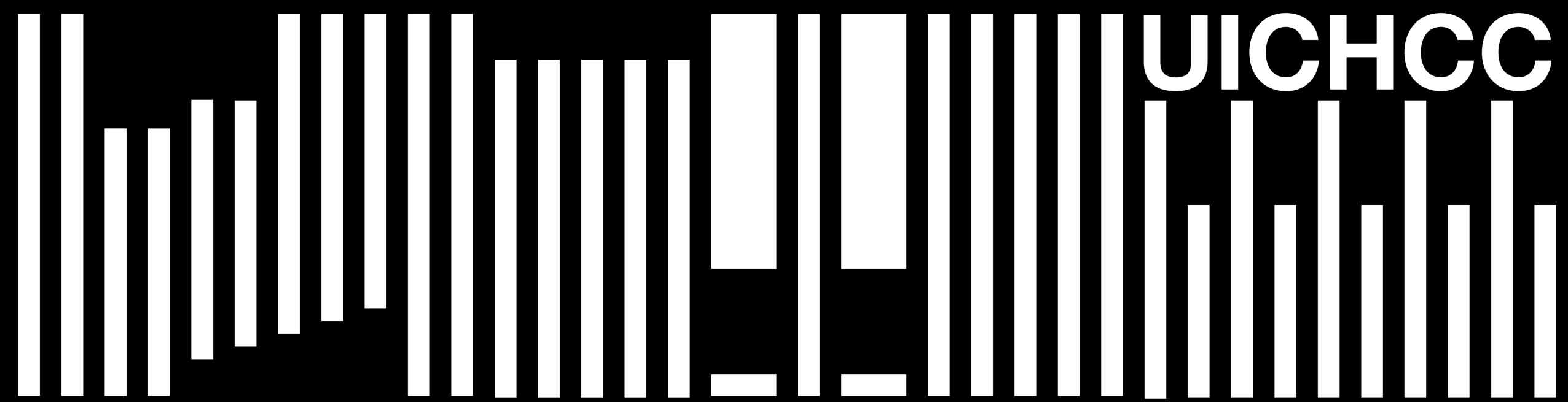


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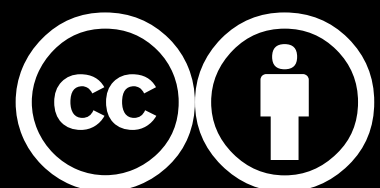
计算机俱乐部 <https://uichcc.com>



1. 扫码添加机器人
2. 私聊 “hcc”
3. 加入 HCC Staging 群

# Thank you.

- UICHCC Computer Club: <https://uichcc.com>
- UICcst: <https://uiccst.com>
- UICds: <https://uicdatascience.com>



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