



DS323: AI in Design (AIID)

Autumn 2023

Week 01 Lecture 02

Course Introduction

Wan Fang

Southern University of Science and Technology

About this course

Course Description

- The goal of this course is to build a bridge between the discipline of design and that of artificial intelligence (AI). This course is intended for design students aiming at shaping products and services powered by AI, leveraging vision-based intelligence, rigid-soft material interaction, generative design, and user interaction into user, business, and social value, promoting adoption of AI in design across disciplines.
- By the end of this course, the students should be able to communicate and collaborate with AI scientists and engineers while developing new product or service solutions with AI. The course will include field trips depending on availability and external collaborator and the contents are subject to change to fulfill the course objectives.

Learning Outcomes

1. Spot and describe opportunities to leverage AI for users, business, and social value within a given context.
2. Demonstrate ability to align user needs and guard human values within algorithmic systems.
3. Employ AI concepts in applied design practice.

The Teaching Team

- Lead Instructor: Dr. Wan Fang
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 - Office Address: Level 3, Block C1, Wisdom Park
 - Office Hours: Tuesdays between 1200 and 1400
- Teaching Assistant: Zhang Rongzheng
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- Teaching Support
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2023年	周次	一	二	三	四	五	六	日	国家节假日	重大活动	教学安排 (本科)	教学安排 (研究生)
9月	暑假	4 二十	5 廿一	6 廿二	7 廿三	8 白露	9 廿五	10 廿六	9月29日 中秋节 (9月29日休息)	9月1日-2日 秋季战略规划发展研讨会 9月8日 开学典礼 9月9日 教师节表彰大会 9月21日 纪律教育学习月动员大会	9月4日-9月10日 本科生新生入学教育周 9月8日 在校本科生返校 9月11日 本科生上课 9月11日-28日 本科生秋季学期退补选课暨导师指导周 (1-3周)	9月1日 研究生新生报到 9月4日-9月8日 研究生新生入学教育周 9月9日 在校研究生返校 9月11日 研究生上课 9月16日 研究生导师培训会 9月11日-28日 研究生秋季学期退补选课 (1-3周)
	第1周 秋季学期	11 廿七	12 廿八	13 廿九	14 三十	15 初一	16 初二	17 初三				
	第2周 秋季学期	18 初四	19 初五	20 初六	21 初七	22 初八	23 秋分	24 初十				
	第3周 秋季学期	25 十一	26 十二	27 十三	28 十四	29 中秋节	30 十六	1 国庆节				
10月	国庆周	2 十八	3 十九	4 二十	5 廿一	6 廿二	7 廿三	8 寒露	10月1日 国庆节 (9月30日-10月6日休息)	10月1日 国庆升旗仪式 10月20日 本科招生工作会议 10月30日-11月5日 《国家学生体质健康标准》测试	10月7日 上班, 不集中调补课 10月8日 上单周周五的课	10月7日 上班, 不集中调补课 10月8日 上单周周五的课
	第4周 秋季学期	9 廿五	10 廿六	11 廿七	12 廿八	13 廿九	14 三十	15 初一				
	第5周 秋季学期	16 初二	17 初三	18 初四	19 初五	20 初六	21 初七	22 初八				
	第6周 秋季学期	23 重阳节	24 霜降	25 十一	26 十二	27 十三	28 十四	29 十五				
11月	第7周 秋季学期	30 十六	31 十七	1 十八	2 十九	3 二十	4 廿一	5 廿二	11月5日-7日 2023国际咨询顾问委员会会议 11月7日-9日 2023泰晤士高等教育创新与影响力峰会 11月9日-12日 优秀中学生科技创新新体验营 11月14日 校学位评定委员会2023年第2次长聘与晋升评估会议 11月17日 校学位评定委员会会议 (第3次) 11月24日-25日 第九届秋季运动会 (24日停课一天) 11月25日 南方科技大学第三届文化艺术节开幕式 11月25日 文化艺术专家委员会2023年度会议 11月30日-12月3日 重点中学校长研讨会	11月6日-19日 本科生期中考试周 (不停课) 11月24日 第九届秋季运动会 (停课一天)	11月6日-19日 研究生期中考试周 (不停课) 11月24日 第九届秋季运动会 (停课一天) 11月-12月 博士生招生复试和录取	
	第8周 期中考试周	6 廿三	7 廿四	8 立冬	9 廿六	10 廿七	11 廿八	12 廿九				
	第9周 期中考试周	13 初一	14 初二	15 初三	16 初四	17 初五	18 初六	19 初七				
	第10周 秋季学期	20 儿童日	21 初九	22 小雪	23 十一	24 十二	25 十三	26 十四				
12月	第11周 秋季学期	27 十五	28 十六	29 十七	30 十八	1 文惠南日	2 二十	3 廿一	12月4日 第三届校园公益周 12月10日 科研工作会议 12月15日 校学位评定委员会会议 (第4次) 12月16日 校友会第二届理事会第三次会议 12月17日 校庆晚会 (迎新晚会暨南科大好声音决赛) 12月20日 校庆日 12月21日 2023年教职工代表大会 12月23日 2023年校友年会 12月29日 教育基金会第三届理事会第七次会议	12月 大学英语四、六级考试 (具体时间以广东省教育考试院通知为准)	12月 大学英语四、六级考试 (具体时间以广东省教育考试院通知为准) 12月下旬 全国硕士研究生招生考试	
	第12周 秋季学期	4 廿二	5 廿三	6 廿四	7 大雪	8 廿六	9 廿七	10 廿八				
	第13周 秋季学期	11 廿九	12 三十	13 初一	14 初二	15 初三	16 初四	17 初五				
	第14周 秋季学期	18 初六	19 初七	20 初八	21 初九	22 冬至	23 十一	24 十二				
	第15周 秋季学期	25 十三	26 十四	27 十五	28 十六	29 十七	30 十八	31 十九				

Module Syllabus

1. AI in Design
AI capability and
case study

2. AI Product Design
AI meets design
toolkit

3. Prototyping with
AI platform

4. Final project and
Course review

Lecture + Workshop Outline

- **Wk01Lecture01**: AI in Design (AIID)
- **Wk02Lecture03**: AIID+Sound Basics
- **Wk03Lecture05**: AIID+Body Basics
- **Wk04Lecture07**: AIID+Image
- **Wk05Lecture09**: AIID+Modeling
- **Wk06Lecture10**: AIM+Design Basics
- **Wk07Lecture11**: AIM+Design Interactive
- **Wk08Workshop04**: Mid-Term Preparation
- **Wk09Lecture12**: Tech Demo with Ali 1
- **Wk10Lecture13**: Tech Demo with Ali 2
- **Wk11Lecture14**: Tech Demo with Ali 3
- **Wk12Lecture15**: Tech Demo with Ali 4
- **Wk13Workshop10**: Student Practice
- **Wk14Workshop12**: Student Practice
- **Wk15Workshop14**: Student Practice
- **Wk16Lecture16**: Course Review
- **Wk01Lecture02**: Course Introduction
- **Wk02Lecture04**: AIID+Sound Interactive
- **Wk03Lecture06**: AIID+Body Interactive
- **Wk04Lecture08**: AIID+Text
- **Wk05Workshop01**: Student Practice
- **Wk06Workshop02**: Student Practice
- **Wk07Workshop03**: Student Practice
- **Wk08Workshop05**: Mid-Term Presentation
- **Wk09Workshop06**: Student Practice
- **Wk10Workshop07**: Student Practice
- **Wk11Workshop08**: Student Practice
- **Wk12Workshop09**: Student Practice
- **Wk13Workshop11**: Student Practice
- **Wk14Workshop13**: Student Practice
- **Wk15Workshop15**: Presentation Rehearsal
- **Wk16Workshop16**: Final Presentation

Lecture + Workshop Outline

- Wk01Lecture01: AI in Design (AIID)
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- Wk04Lecture07: AIID+Image
- Wk05Lecture09: AIID+Modeling

- Wk01Lecture02: Course Introduction
- Wk02Lecture04: AIID+Sound Interactive
- Wk03Lecture06: AIID+Body Interactive
- Wk04Lecture08: AIID+Text
- Wk05Workshop01: Practice

AI in Design
(Lectures Mainly)

- Wk06Lecture10: AIM+Design Basics
- Wk07Lecture11: AIM+Design Interactive
- Wk08Workshop04: Mid-Term Preparation

- Wk06Workshop02: Practice
- Wk07Workshop03: Practice
- Wk08Workshop05: Mid-Term Presentation

AI Product Design
(AI Meets Design)

- Wk09Lecture12: Tech Demo with Ali 1
- Wk10Lecture13: Tech Demo with Ali 2
- Wk11Lecture14: Tech Demo with Ali 3
- Wk12Lecture15: Tech Demo with Ali 4

- Wk09Workshop06: Practice
- Wk10Workshop07: Practice
- Wk11Workshop08: Practice
- Wk12Workshop09: Practice

Prototyping
with AI Platform
(Aliyun PAI)

- Wk13Workshop10: Practice
- Wk14Workshop12: Practice
- Wk15Workshop14: Final Review
- Wk16Lecture16: Course Review

- Wk13Workshop11: Practice
- Wk14Workshop13: Practice
- Wk15Workshop15: Final Review
- Wk16Workshop16: Course Review

Final Project
and Presentation

Part I on AI in Design

- **Wk01Lecture01**: AI in Design (AIID)
- **Wk02Lecture03**: AIID+Sound Basics
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- **Wk06Lecture10**: AIM+Design Basics
- **Wk07Lecture11**: AIM+Design Interactive
- **Wk08Workshop04**: Mid-Term Preparation
- **Wk09Lecture12**: Tech Demo with Ali 1
- **Wk10Lecture13**: Tech Demo with Ali 2
- **Wk11Lecture14**: Tech Demo with Ali 3
- **Wk12Lecture15**: Tech Demo with Ali 4
- **Wk13Workshop10**: Practice
- **Wk14Workshop12**: Practice
- **Wk15Workshop14**: Final Review
- **Wk16Lecture16**: Course Review
- **Wk01Lecture02**: Course Introduction
- **Wk02Lecture04**: AIID+Sound Interactive
- **Wk03Lecture06**: AIID+Body Interactive
- **Wk04Lecture08**: AIID+Text
- **Wk05Workshop01**: Practice
- **Wk06Workshop02**: Practice
- **Wk07Workshop03**: Practice
- **Wk08Workshop05**: Mid-Term Presentation
- **Wk09Workshop06**: Practice
- **Wk10Workshop07**: Practice
- **Wk11Workshop08**: Practice
- **Wk12Workshop09**: Practice
- **Wk13Workshop11**: Practice
- **Wk14Workshop13**: Practice
- **Wk15Workshop15**: Final Review
- **Wk16Workshop16**: Course Review

AI in Design
(Lectures Mainly)

Part II on AI Product Design

- Wk01Lecture01: AI in Design (AIID)
- Wk02Lecture03: AIID+Sound Basics
- Wk03Lecture05: AIID+Body Basics
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- Wk11Workshop08: Practice
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- Wk13Workshop11: Practice
- Wk14Workshop13: Practice
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AI Product Design
(AI Meets Design)

Part III on Prototyping with AI Platform

- Wk01Lecture01: AI in Design (AIID)
- Wk02Lecture03: AIID+Sound Basics
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- Wk04Lecture07: AIID+Image
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- Wk11Workshop08: Practice
- Wk12Workshop09: Practice
- Wk13Workshop11: Practice
- Wk14Workshop13: Practice
- Wk15Workshop15: Final Review
- Wk16Workshop16: Course Review

Prototyping
with AI Platform
(Aliyun PAI)

Part IV on Final Project and Presentation

- Wk01Lecture01: AI in Design (AIID)
- Wk02Lecture03: AIID+Sound Basics
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Final Project
and Presentation

Grading Structure (Letter Grading)



Attendance

Examination

Project

Mid-term Project Review on AI Meets Design

- **Submit** before *Sun Nov 05 @ 23:30*
- **Present** on *Tue Nov 07 in-class*

Final Project on AI Meets Design with Aliyun

- **Final Review** on *Tue Dec 26 in-class*
- **Submit** before *Sun Jan 02 @ 23:30*

Prototyping AI with Aliyun

- **Submit** before Sun Dec 03 @ 23:30 | **Present** on Tue Dec 05 in-class
- **Tasks**
 - Use the Aliyun's Platform of Artificial Intelligence (PAI) to practice product and service design and development with AI
 - Follow the tutorials provided to prototype an AI product
 - Submit your prototype with codes, results, demos, and videos
- **Notes**
 - Stay tuned ... 😊

This project is in collaboration with Aliyun

Course Project

- Use the AI Meets Design toolkit to develop an application in solo, then use the Aliyun platform to code a working prototype with demonstrations
 - This is your “portfolio” piece that will showcase what you learned about the applications of ML/AI/DS to people using AI in design.
- Course Project
 - **Mid-term Project Presentation on AI Meets Design**
 - **Submit** before Sun Nov 05 @ 23:30 | **Present** on Tue Nov 07 in-class
 - **Final Project Presentation on AI Meets Design with Aliyun**
 - **Present** on Tue Dec 26 in-class | **Submit** on Tue Jan 02 in-class

You Choose!

- **Submit** before *Sun Nov 05 @ 23:30* | **Present** on *Tue Nov 07 in-class*
- **Tasks**
 - Students will work individually to ideate a broad set of possible product/service concepts.
 - Build a presentation (not a word), show us your process and outcomes using the AI Meets Design toolkit
 - Prepare a 7-minute presentation to share to the rest of the class.
- **Notes**
 - We provide three “seeds” to drive their vision. For each of the seeds, ideate at least 3 product/service concepts.
 - Then curate a selected set of 4 based on the following criteria:
 - 1) The need of the target customers;
 - 2) Ease of developing the system;
 - 3) Risk of errors;
 - 4) Size of the potential market.

Three Seeds

- **Seed 1: A dataset.** Gaode Map has hired you to discover new value that resides in their datasets. Their datasets include things like data on ride requests, food requests, and driver movements during and between rides. How can you generate new value for Gaode by making inferences that benefit their stakeholders or benefit organizations they do not currently interact with?
- **Seed 2: A technical capability (a patent).** You have been hired by a company that makes and holds a strategic patent on a depth camera that can recognize gestures; intentional and unintentional movements and poses people make. How can this company discover some first, best customers for this technical advance? How can they squeeze the most value possible from the investment they made?
- **Seed 3: A technical capability bounded by product form (e.g., tablet).** Your client makes apps for iOS devices. The new iPhone and iPad have “Face ID”, a face recognition capability. It appears that Apple will make this feature available to 3rd party app developers. What new apps can you envision that take advantage of this capability to deliver new value to users?

Lecture + Workshop Outline

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AI Product Design
(AI Meets Design)

Mid-term Presentation on AI Meets Design
- **Submit** before Sun Nov 05 @ 23:30
- **Present** on Tue Nov 07 in-class

AI Meets Design with Aliyun

- **Final Review** on *Tue Dec 26 in-class* | **Submit** before *Tue Jan 02 @ 23:30*
- **Tasks**
 - ~7 min Video
 - Full Code in a Zip
 - A Full Report
- **Notes**
 - Make sure to reflect the AI Meets Design methods in your report
 - Must use the Aliyun Platform to build the prototype with working demos

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- Wk12Workshop09: Practice

Final Presentation on AI Meets Design with Aliyun
 - **Final Review on Tue Dec 26 in-class**
 - **Submit before Tue Jan 02 @ 23:30**

- Wk13Workshop10: Practice
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- Wk16Lecture16: Course Review
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Final Project
and Presentation





DS323: AI in Design (AIID)

<https://ds323.ancorasir.com/>

Autumn 2023

Thank you~

Wan Fang
Southern University of Science and Technology