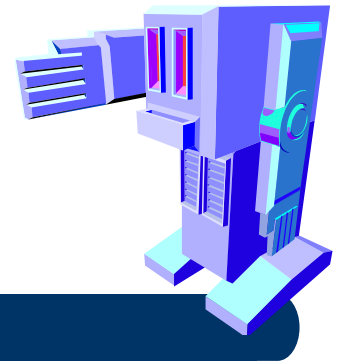


**Introduction to Computer Science with Robotics Labs**

# **About the Course and Syllabus**

关于课程和教学大纲

**Summer 2017**



**Dr. Yinong Chen**  
Arizona State University

**IoT & Robotics Education  
Laboratory**

# Day One Itinerary

- About the instructor 关于您的老师
- Syllabus discussion 教学大纲讨论
- Course objectives & outcomes  
课程目标与结果
- Formats of lectures and labs  
讲课和实验的形式
- Class and lab rules 课堂和实验的纪律
- Code of Student Conducts 学生守则

# Instructor: Yinong Chen

Joined ASU CSE in 2001

## ○ Courses Taught at ASU

CSE 101/FSE100 (Introduction to Engineering): Every semester from Fall 06 to Fall 11, Spring 16, Fall 16, Spring 17

CSE230 F11, F12, S13, F13, F14

CSE 240: Almost every semester since Fall 2001

CSE 310: SS01, F01, SS02

CSE 225/EEE225: F02, S03, F03, S04, CSE 330: S2002, SS 2003

CSE 420/598: S01

CSE 423 (Capstone) S08, F09

CSE 445/598: (Distributed Software Development) Almost every semester since 2006

CSE 446/598 (Software Integration & Eng): SS10, SS11, Sp11, SS12, SS13, Sp14, Sp16, Sp07

# Yinong Chen (陈以农)

Before joining ASU

- ❑ Taught for six years

Department of Computer Science

Wits University of Johannesburg, South Africa

- ❑ Postdoc at LAAS-CNRS, Toulouse, France
- ❑ Ph.D. from University of Karlsruhe (KIT), Germany
- ❑ Contact and more ...

<http://www.public.asu.edu/~ychen10/>

Heinrich Hertz worked at KIT from 1885 to 1888, where he discovered electromagnetic waves



Yinong Chen 陈以农

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Yinong Chen

Google Search

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# Yinong Chen

- More than 10 books
- 200 research papers, 100 of which are after 2005 in service-oriented computing
- Editor of international journals
- Chair of international conferences
- Keynote, panel talks
- Teach high school students to program robots



# 课程简介

本课程以机器人应用项目设计和编程为主导，让学生了解工程应用项目的设计过程。课程由讲课和实验两部分组成，使学生了解专业相关知识并在机器人应用项目中实践。使学生对专业感兴趣，有信心，并学会以计算思维的方法解决程序设计和应用的问题。

## 讲课部分：

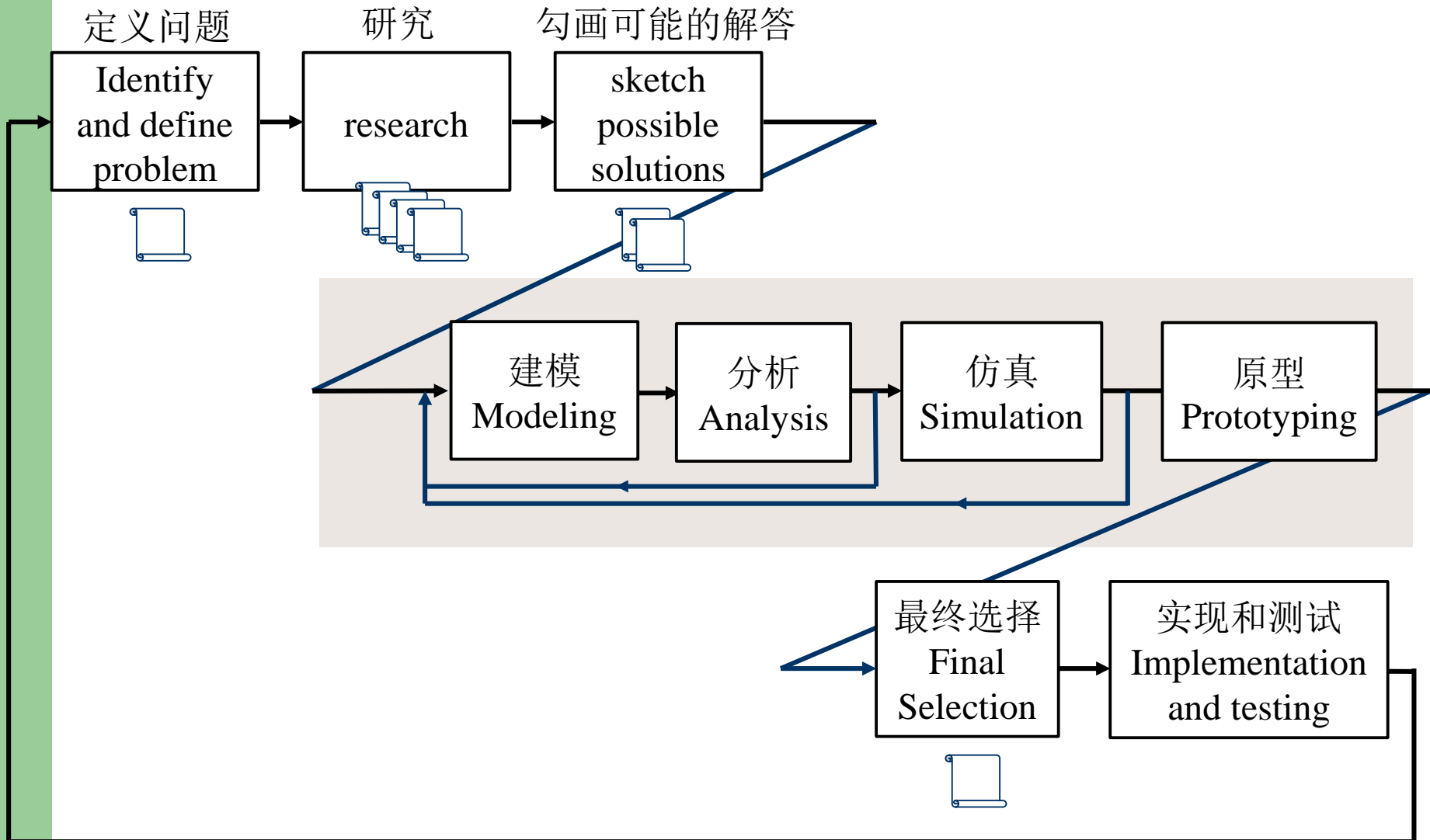
- 信息技术专业的职业和就业现状和前景、
- 机器人和物联网基础、
- 数字电路的设计、真值表模型、数字通讯基础、
- 可视化编程基础、事件驱动的编程、
- 有限状态机编程、算法基础、迷宫漫游算法，等。
- 工程伦理

## 实验部分

- 数字电路的实现、自动控制系统、自动售货机
- 机器人迷宫漫游定义、设计、建模和仿真。
- 实体机器人穿越迷宫比赛
- 团队合作、口头和书面交流、展示

# Engineering Design Process

## 工程设计过程



# Course Outcomes 学习结果

- Learn the engineering design process 学习工程设计过程
- Gain related concepts and knowledge 获取相关概念和知识
- Apply the concepts and exercise the engineering design process, 应用概念并演练工程设计过程
  - Define problem, design a solution 定义问题、设计答案
  - Modelling and analysis 建模和分析
  - Program the robot using computational thinking 用计算思维指导编程
  - Simulation and physical robot programming 仿真和实体机器人编程
- We will also learn hard skills and soft skills 我们还将学习硬技能和软技能：
  - Hard Skills: Basic programming skill, understanding computer systems, and using tools.  
硬技能：基本编程技巧，理解计算机系统和使用工具。
  - Soft Skills: Teamwork, writing report, giving presentation  
软技能：团队合作，撰写报告，展示

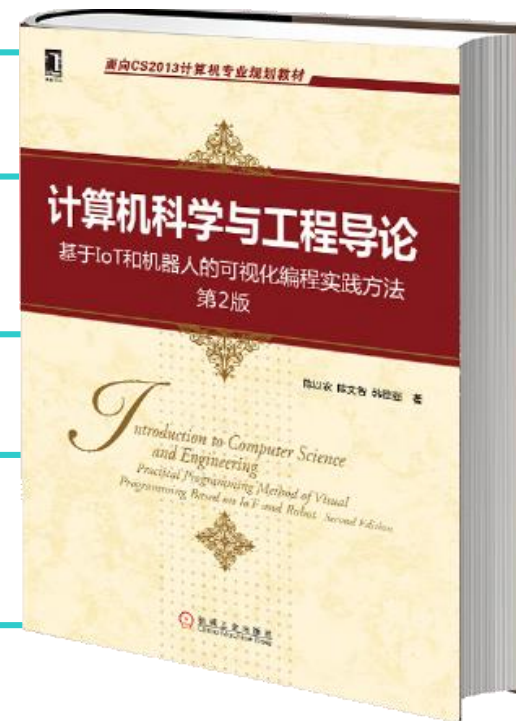


# Textbooks

❑ 计算机科学与工程导论：基于IoT和机器人的可视化编程实践方法

## ❑ Lab Manual

- 课程目标和结果
- 每周的讲课计划：  
主要的CS概念
- 每周实验计划：  
一步一步地练习  
CS概念
- 工程设计过程  
技术写作和演讲
- 机器人竞赛  
速度比赛和迷宫导航



# 理论课和实验课的参与



- 每堂课和实验课都需要每个学生参加。如果在实验室里进行其他课程的学习，学生将得到实验室的零分。
- 如果实验组的讨论与实验课不相关，参与的学生可能会被要求离开实验。

# 课堂规则和通常的礼节

- 关掉或静音你的手机；如果你的电话碰巧响了，立即停止，不要接听电话！
- 在课堂里使用计算机，仅可以用于与说讲内容直接相关的活动，例如记笔记。
- 老师讲课时同学不要互相交谈。如果你有一个需要马上解决的问题，你必须问老师。
- 在上课开始前进入教室。上课未结束不要离开教室，除非有紧急情况。

# 合作与学生守则

- You are required to cooperate with your team member on the group assignments and projects.
- The contribution and possibly the weight of individual team members must be acknowledged/specified in the work handed in for grades.
- Anything you turn in must be your (or team's) own work: You must write up your own solution with your own understanding. If you use an idea that is found in a book or other sources, or that was developed by someone outside your team, make sure you acknowledge the source and/or the names of the persons in the write-up for each problem.
- You are also encouraged to work with any member in the team or in the class to study for the tests and exams.
- The instructor and the TAs will CAREFULLY check any possible **proliferation or plagiarism**. We may also use the software tools like MOSS (Measure Of Software Similarity) to check any assignment that you submitted for grading. The university expects all students to adhere to ASU's policy on academic integrity.
- **ALL** cases of **cheating or plagiarism** will be handed to the Dean's office. Penalties include a failing grade in the class, a note on your official transcript that shows you were punished for cheating.

# Team Building



# 团队建设

- 每个团队应有三名队员参赛。特殊情况下可以两名。
- 一个好的团对会使每一个队员出好成绩
- 寻找能适应你日程安排的队友。
- 四处搜索，不要只局限于你的朋友。去认识新的同学。
- 跨专业的团对可能更有竞争力。
- 如果你没有能构建你的团队，我们会为你选择，你不能抱怨！

## “十条戒律”——团队合作的和谐准则

1. 互相帮助，使别人正确，而不是犯错误。
2. 想办法让新想法工作，而不是找理由证明该想法不会工作。
3. 如果有疑问，问清楚！不要对彼此做出消极的假设。
4. 互相帮助，赢得胜利，为团队成员的胜利感到自豪。
5. 每一个场合，都要正面地谈论你的团队和团队成员。
6. 无论情况如何，都要保持积极的心态。
7. 行动要有主动性和勇气，如同所有的事都要靠你才能成功。
8. 充满热情地做每件事，它会传导到每一个团队成员身上。
9. 把你想要东西给别人。
10. 不要失去信心。

最后，还要玩得高兴！