Zhejiang Sci-Tech University

Research Master ' s Degree Program Outline

Computer Science and Technology

081200

The program is based on master degree program of Computer Science and Technology, and it now has Institute of Computer Vision and Pattern Recognition, Institute of Computer Application, Institute of Intelligent Information Processing, Laboratory of Visual Media and Intelligent HCI, Computer Technology and Development Center. The research projects in recent years include dozens of National Natural Science Foundation projects, many key projects funded by Ministry of Science and Technology of China or Zhejiang Province, Zhejiang Provincial Natural Science Foundation of China, etc. A series of outstanding excellent academic papers are published in academic journals and conference proceedings. The program nowadays is in close cooperation with a lot of related enterprises.

The program now has advantages and aspects in the fields of computer graphics and computer-aided design, computer vision and pattern recognition, intelligent information processing, intelligent computing and intelligent system, especially in the field of computer application in textile, clothing and mechanical engineering.

I. Objectives

The goal of the program is to cultivate students to become talents with the combined abilities of engineering technology and management.

The specific aims of the program are as follows:

1. Students are with good professional ethic and professionalism, rigorous learning attitude, realistic and pragmatic working style, and also are in good health both physically and mentally.

2. Mastering the theory and the advanced technology of Computer Applications, and with the capabilities of engaging in engineering design, project implementation, project research, project development and project management independently.

3. Familiar with Chinese as to reading the technology materials brief introduction to the objectives of the program.

II. Research Areas

1.Computer Applications

A) Computer Graphics and Computer-Aided Design. This domain involves with computer

graphics, virtual reality and human-computer interaction, interactive 3D computer graphics design software, geometric modeling and computer-aided design, 3D reconstruction, artificial intelligence in CG and CAD applications, and intelligent processing of visual media, etc.
B) Computer Vision and Pattern Recognition. This domain involves with computer vision and pattern recognition, digital image processing, medical image processing, intelligent processing of clothing/textile images, intelligent processing of 3d scanning data, 3d machine vision and automation, etc.
C) Embedded System and Internet of Things. The main research of this domain is involved in embedded system, mobile computing, wireless network, the techniques on internet of things related with smart city and intelligent transportation, etc.

2.Computer Software and Theory

A) Parallel Distributed and High Performance Computing. This domain involves with GPU based high performance computing, multi-platform parallel computing, multiprocessor programming, parallel and distributed programming language and algorithm design, etc.
B) Software Theory and Applications. The main research of this domain is involved in the theory and methods related with software design, software development, software testing and software maintenance, etc.
C) Modern Database Theory and Technology. The main research of this domain is involved in the basic theory of database, design of distributed (parallel) database, software development of database management, etc.

3.Intelligent Computing and Intelligent System

A) Machine Learning and Intelligent Computing. This domain involves with machine learning and deep learning, deep learning techniques on 3d scanning data, deep learning techniques on image processing (including medical images, clothing/textile images and agricultural images), intelligent information processing, biological information processing, and natural language processing, etc.
B) Smart Wearer and Intelligent Robot. The main research of this domain is involved in wearable intelligent sensor, machine vision and intelligent systems, intelligent recommendation system, intelligent robot technology, UAV technology, automatic drive, and other related computer software and hardware technology, etc.

III. Length of Study

The normal study length for full-time research postgraduates is 3 years. Students who finish their courses ahead of schedule and attain the standards of degree conferment can, after approval, apply for the degree at an earlier time (not earlier than 3 years), while the maximum length of

schooling is 4 years.

IV. Credit Requirements

The course-learning phase of the master ' s degree program adopts credit system. Students majored in science and engineering are required to take at least 32 credits, with at least 19 credits of degree courses.

V. Curriculum

Course Classification		Course Code	Course Name	Hour/ Credit	Semester			Notes	
					I	II	III		
Degree courses	General degree courses	FL10015	The Outline of China*	36/2	√			(Entirely in English)	
		CC10009	Basic Chinese (I)	54/3	√			(For beginners of Chinese language among foreign graduate students)	
		CC10010	Basic Chinese (II)	36/2		√		(For beginners of Chinese language among foreign graduate students)	
		FL10026	English Writing of Academic Paper	16/1	√				
		IF10001	Education on China's National Conditions for International Students A	16/1	√				
	Major-related degree courses	IE11030	Modern Computer Networking*	48/3	√				
		IE11031	Software Engineering*	48/3		√			
		IE11032	Modern Operating Systems*	48/3		√			
		IE11033	Object Oriented Analysis and Design*	48/3		√			
		SC11055	Numerical Analysis*	48/3	√				
Non-degree courses			All optional courses in the university curriculum are open to students of this program.						
Additional courses									For students without an equivalent bachelor ' s degree

Others	Academic Seminar	/1	separated
	Academic Report	/1	separated
	Practical Training		Students are required to take at least 2 weeks practical training, participate in at least one social investigation, and write relevant report. Normally the training should be completed in the first academic year.
	Thesis Proposal		The 3rd semester
	Thesis Writing		The 3rd-6th semester

C=Compulsory, O=Optional

* Students can decide whether to take this optional course or not according to their different research area.

VI. Dissertation Requirement

Dissertation is an important part of training graduate students. It is a comprehensive training for graduate students to master scientific research or assume specialized technical work. And it is also the main step to develop their innovation ability and the ability to the discovery of the main problems and their analysis and solving skills with the comprehensive use of the knowledge. Graduate students should participate actively in the research project of their tutors and choose the subject with important academic value and application value. Dissertation should have new insights. In order to ensure the quality of the paper, it is required that:

1. Master's degree thesis must have new ideas on certain aspects of the theory, method, technology, or solve practical problems in engineering and technology by using the existing theory and the latest achievements in computer science and technology and have certain theoretical significance and application value academically.

2. The direction of research is to be determined after their entrance to the university under the guidance of their tutor and the identify research topic is to be determined by through access to documents, data and survey, and in the third semester (generally in 9th ~ 10th weeks) to complete the thesis proposal. And the thesis proposal should be reported on the meeting of the thesis proposal of the computer science discipline and the related disciplines on the subject of research scope, significance and value, the aims of solving the problem, research program and the research progress, and a feasibility study should be conducted before the project is approved. Thesis proposal should be organized uniformly by the interdisciplinary professional guidance committee.

3. Dissertations must be completed independently under the guidance of the tutor. The graduates, who finish the paper in advance, after his or her application and the approval of the

tutor, academic degree committee of the college and the postgraduate department, can carry on the dissertation defense in advance.

4. Dissertations should have clear concepts, reasonable structure, concise text, reliable data, clear diagrams and formal formats, well arranged, which can reflect that the postgraduates have broad theoretical foundation, strong ability to work independently and good style of study.

5. For the subject cooperated with others or the work proceeded on the previous basis, the undertaken work by the authors should be clearly pointed out.

6. The postgraduates apply to for thesis debate only after completing the training plan, obtaining the required credits with qualified grades. The requirements of publication should be reached in accordance with the《Implementation of Zhejiang Sci-Tech University for the Publication Requirements of Graduate Students during the Study》.

7. The thesis should be reviewed by two senior professional and technical experts (excluding instructors) in the related field. The defense committee is composed of 3-5 senior professional and technical experts related to the academic and technical domain field. Only one of the instructors can be a member of the dissertation committee.

8. Dissertations must use computer editing and output. See the specific format reference 《Zhejiang Sci-Tech University Postgraduate Dissertation Specification》.

VII. Teaching Format

The training modes for Master Degree post-students adopts the combination of course study and academic research as to make post-students to require solid foundation and specific domain knowledge as well as the methods and ability for academic research. The guidance way for Post-students is combination of guiding by instructors personally and training by members of the related group.

VIII. Graduation & Degree Conferment

Students who attain the standards of graduation, having completed the required courses, passed the examinations within the study duration, passed the Chinese Proficiency Test (HSK) and obtained the Level 3 Certificate and successfully defended their thesis will be awarded the graduation certificate; those who attain the standards of academic degree conferment and are approved by the university academic degree evaluation committee, will be conferred the corresponding degree.

Signature of Program Director:

Signature of Director of School Academic Degree Committee:

Date: