Changchun University of Science and Technology

International Master Degree Program of Computer Applied Technology

(Taught in English)

1. Program Introduction

a. About Major

The computer major was established in Changchun University of Science and Technology in 1977, and it became the School of Computer Science and Technology in 1987. The schoolis one of the only 60 schools that were granted the qualification of conferring doctoral degrees in the first-grade discipline of computer science and technology in China. The school was approved to be the key discipline of Jilin Province on computer science and technology.

Currently, the school has three national research and education platforms including the Special Film Technique and Equipment National-Local Joint Engineering Center, the Pilot Computer Teaching Experiment Center and the Virtual Simulation Experimental Teaching Center of Network Security and Network Attach-Defense. Within these centers, there are 13 laboratories being located in the applied research and engineering. The school has also established long-standing cooperative relationships with some corporations and universities, such as Hitachi Medical Corporation in Japan, Okayama University, and meanwhile, the school is one of the joint graduatetraining schools of information technology within University of Shanghai Cooperation Organization.

Moreover, the school has established long-standing cooperative relationships with a number of well-known multinational and domestic corporations, such as Barco, Lenovo, 360 and so on, and has made every effort to contribute the compound talents of high-level techniques and management capabilities.

b. About Teachers

Currently, the school has a qualified and responsible teaching team comprised of 52 academic staff including 13 professors (of 25%). There are 36 members having been conferred with doctoral degrees (of 69%), 8 members being entitled with several national- and provincial-level qualifications, such as "The New Century National Hundred, Thousand and Ten Thousand Talent Project", "JilinProvince Discipline Outstanding Professor" and so on.

The teaching team assembled plenty of academic and engineering professional talents with international academic vision. There are over 60 percent of members having experienced their research work in the well-known universities at abroad, such as University of Pennsylvania (U.S.), Norwegian University of Science and Technology (Norway), etc., and 13 members having obtained their Ph.D. from some famous universities at abroad, such as University of Bordeaux (France), Tokyo Institute of Technology (Japan), etc.

c. About Cultivation Direction

Through the cultivation, the master degree candidates would gain the proficiency in fundamental theories of computer science and in development of computer application systems, the capability of independently performing special tasks in the field of computer science and technology, the qualifications for jobs of teaching courses in computer application systems and of designing and developing computer application systems.

d. About Research Specialties

- Digital media technology and application

Relying on the Special Film Technique and Equipment National-Local Joint Engineering Center, the research topics include the key techniques of filmmaking and play of special films, the solid modeling of graph and image, the generation and rendering of virtual scenes, the man-computer interaction, the intelligent surveillance, the video processing techniques, as well as the applications in the corresponding research field.

- Image processing and computer vision

Relying on the Medical imaging computation engineering laboratory of Jilin Province, the research work concretes on the methodologies of computer vision, target tracking, face detection, image retrieval, image understanding, as well as the applications in intelligent robot, Identification between Friend or Foe systems, medical imaging equipment, film and video making, and playback equipment.

- Software/ network Engineering and applications

Relying on the network database application software science and technology innovation center of Jilin Province, the research work focuses on the architecture and core composition of cloud-computing servers, the technologies of the virtualization, the cloud computing platform management, the distributed computation, the distributed storage systems, the data management, the internet of things, as well as the applications of these technologies in precision agriculture, smart city, smart campus, and GIS, etc.

e. About practice and training

The professional practices are carried out directed by the supervisors within either the research centers/platform or the companies. Generally, the content of the practice is some part of one research project, during which the students participate in the project as team members. Before the practice, the students are demanded to submit their applications and practice plan. After the practice, they are required to submit their practice report. Referring to the performance of the students during the practice process, it is examined by either the supervisor from the university or the co-supervisor in the company. Once the students pass the examination, he would get 10 credit accordingly, which will be filed by the organization providing the practice. Moreover, the students are encouraged to combine their work during the practice with their thesis in order to propose and present their contribution.

2. Entry requirements

- Non-Chinese Citizens in good health, under the age of 35;
- Bachelor degree graduates in related disciplines;
- Non-English native speakers or applicants whose medium of instruction during undergraduate level was not English are supposed to obtain IELTS 5.5. Minimum score for TOEFL (IBT) is 72. 200 for TOEFL (CBT), or 533 for TOEFL (PBT).

3.Application Materials

- Photocopy of valid passport

With name, passport number & expiration date, and photo included

- Passport photo

A recent passport-sized photo of the applicant

- Undergraduate school transcript

Notarized photocopy

- Bachelor's degree diploma

Graduation certificate in languages other than Chinese or English should be translated into Chinese or English and be certified by notarization.

- English proficiency test certificate

For example, IELTS or TOEFL, only for applicant whose native language is not English.

- Two letters of recommendation

Must be in English or Chinese. Recommendation letters prepared by university professors or associate professors, directors of the work, or authorities is a plus.

- Study plan

Study Plan in English or Chinese, in which consist of personal information, education background, working experience, learning objectives, and interested research areas.

- Copy of visa

Only for students who have already be in China

4. Study regulations

The course study adopts the credit system, according to which the successful master candidates must get at least 28 credit. Among the obligatory credit, there must include 10 credit get from practice session and 14 credit obtained through passing the prescribed courses.

5. Thesis regulations

The selecting title of the thesis should either originate from the practical project or have explicit engineering background. The achievement of the thesis should be valuable to the practical application, and the research problems should be challenging referring to the technical difficulty and the work load, and meanwhile the topic should be advanced. The thesis should focus any aspect of engineering research, engineering design, project planning, project management, etc. The thesis manuscript must be structured rationally, stated clearly and argued reasonably.

All the candidates could apply the defense only through passing all the courses and training as well as validating their completed thesis manuscripts

6. Main Courses

No.	Course	Hour	Credits	Allocation of courses, terms	Require or Elective
1	Basic Chinese	64	2	1	R
2	English Science and Technology Writing	32	2	1	R

3	Fuzzy Mathematics	48	2	1	R
4	Object-Oriented Principle and Technology	32	2	1	R
5	Advanced Data Structures	32	2	1	R
6	Software Verification	32	2	2	E
7	Complex Network Theory and Its Applications	32	2	2	E
8	Digital Image Processing	32	2	2	E
9	Computer Simulation and Virtual Reality	32	2	2	E
10	Computer Vision	32	2	2	E
11	Code Refactoring	32	2	2	E
12	An Introduction to Database System	32	2	2	E
13	Artificial Neural Network	32	2	2	E
14	Vocational Practice	640	10	2 - 4	R
15	Seminars for Frontier （5 times）	5	1	1 - 4	R
16	Diploma work		2	3、4	R

7. Duration

Duration：2 years

8.Scholarships

The applicants have a great chance to get the following scholarships with an overall GPA over 75 on 100 scale in undergraduate school.

• Chinese Government Scholarship

In order to promote the mutual understanding, cooperation and exchanges in politics, economy, culture, education, and trade between China and other countries, the Chinese government has set up a series of scholarship programs to sponsor international students, teachers and scholars to study and research in Chinese universities. CUST agency code is 10086. Please click below web address for more information: http://www.csc.edu.cn/laihua/scholarshipen.aspx .

• Jilin Provincial Government Scholarship

Jilin Provincial Government Scholarship- Changchun University of Science and Technology Program is a full scholarship established by Jilin Provincial Government to support Changchun University of Science and Technology to recruit outstanding international students for postgraduate studies in Jilin province, China. Applicants directly apply to Changchun University of Science and Technology. Please click below web address for more information: http://ieec.cust.edu.cn/.

长春理工大学
计算机工程国际硕士项目
（全英授课）

1. 课程简介
a. 学科简介

长春理工大学计算机专业始创于 1987 年，是目前全国具有该学科一级学科博士学位授予权的 60 所院校之一，现为吉林省重点学科。

目前培养单位拥有特种电影技术及装备国家地方联合工程中心、计算机实验教学示范中心和网络安全与网络攻防虚拟仿真实验教学中心等 3 个国家级科研教学平台，拥有 13 个专业实验室。与日本日立医疗器械株式会社、岗山大学合作建有共同研究室，是上海合作组织大学信息技术方向研究生联合培养单位。

此外，培养单位先后与 barco、联想、360 等 17 家国内外著名企业签订了合作协议或建立了联合培养基地，可以为企业培养"留得住，用得上"的复合型高层次技术和管理人才。

b. 教师队伍

学科团队现有 52 名教师，其中教授 13 人，占 25%，博士 36 人，占 69%，11 人具有国外著名大学博士学位。拥有"新世纪百千万人才工程国家级人选"、"吉林省学科领军教授"等国家和省部级人才称号教师 8 人。

学科团队是一个具有高国际化程度的教师团队。超过 60%的教师有过在美国宾夕法尼亚大学、挪威科技大学等国外著名大学的研修经历，13 位教师在法国波尔多大学、日本东京工业大学等著名大学获得博士学位。

c. 培养方向

深入掌握计算机基础理论以及计算机应用系统开发的理论、方法和技术，了解计算机应用技术的发展状况和发展趋势，具有独立担负专门技术工作的能力，能够胜任计算机应用系统的教学、科研、设计、开发等工作。

Proficiency in fundamental theories of computer science

Proficiency in development of computer application systems

Capability of independently performing special tasks in the field of computer science and technology

Qualifications for job of teaching courses in computer application systems

Qualifications for job of designing and developing computer application systems

1.研究方向 Specialties

数字媒体技术及应用

Digital media technology and its application

以特种电影技术及装备国家地方联合工程中心为基地，研究内容包括特种影片的摄制和播放关键技术、图形图像实体建模、虚拟场景生成与绘制、人机交互、智能监控、视频处理等技术，及其在相关领域中的应用。

计算机图像处理与计算机视觉

Image processing and computer

以吉林省医学影像计算工程实验室为基地，研究计算机视觉、目标跟踪、人脸识别、图像检索、图像理解等方法及其在智能机器人、敌我识别系统、医学影像设备、影视摄制和播放装备等领域中的应用。

网络工程及应用软件
Engineering of software and network
以吉林省网络数据应用软件科技创新中心为基地，研究云计算服务器端架构、核心组成技术、虚拟化技术、云计算平台管理技术，分布式计算技术、分布式存储技术、数据管理技术、物联网技术等、以及这些技术在精准农业、智慧城市、智慧校园和地理信息系统等领域中的应用。

d. 实习实训

专业实践由导师指导下在学校培养平台或企业进行。一般来说，实践内容为实践平台所承担的研发项目中的一部分，学生以项目成员的身份参与到实践项目的开发中。专业实践前，须提交专业实践申请与计划，专业实践结束后，撰写实践报告。实践过程由导师或联合导师进行考核，合格后获 10 学分，交培养单位备案。鼓励研究生将专业实践与学位论文相结合。

2. 入学要求
a. 非中国公民，身体健康，35 岁以下。
b. 具有本科毕业以上的学历，此前所学专业是机械相关专业。
c. 母语不为英语者需新 TOEFL（IBT）成绩不低于 72 分，或 TOEFL（CBT）成绩不低于 200 分，或 TOEFL（PBT）成绩不低于 533 分，或 IELTS 成绩不低于 5.5，或有英语为大学学习期间工作语言的相关证明。

3. 申请资料
a. 有效护照的复印件，包含有姓名、护照号码、有效期和照片。
b. 与护照照片一致的照片 1 张。
c. 本科阶段全部课程成绩单，经过公证的复印件。
d. 本科毕业证书复印件。中英文以外文本的证书还需提供公证过的中文或英文翻译件。
e. 英文水平测试证书。即英语非母语申请者提供如 TOEFL 或 IELTS 成绩证书。
f. 个人简历。中文或英文书写，包括个人信息、教育背景、工作或实习经历、取得成就等。
g. 推荐信 2 封。中文或英文书写，副教授或相当于副教授专业技术职称或以上者的推荐。
h. 来华学习和研究的计划（不少于 800 字）。用中文或英文书写。
i. 如申请者已在华，请提供 Visa 复印件。

4. 课程要求

硕士生的课程学习实行学分制，总学分不少于 28 学分，其中包括实践环节 10 学分，必修课程 14 学分。

5. 论文要求

论文选题应直接来源于生产实际或具有明确的工程背景，其研究成果要有实际应用价值，拟解决的问题要有一定的技术难度和工作量，选题要具有一定的理论深度和先进性。学位论

文的形式可以是工程研究、工程设计、工程规划、工程管理等。论文要求选题有明确的工程应用背景，论文工作有一定的技术难度或理论深度，论文成果具有一定的先进性和实用性；论文写作要求概念清晰，结构合理，层次分明，文理通顺，版式规范。

完成所有培养环节并通过学位论文送审者，申请学位论文答辩。

6. 主要课程

序号	课程 Course	学时 Hour	学分 Credits	开课学期 Allocation of courses，terms	备注 Require or Elective
1	基础汉语 Basic Chinese	64	2	1	R
2	科技英语写作 English Science and Technology Writing	32	2	1	R
3	模糊数学 Fuzzy Mathematics	48	2	1	R
4	面向对象原理与技术 Object-Oriented Principle and Technology	32	2	1	R
5	算法设计与算法分析 Advanced Data Structures	32	2	1	R
6	软件验证 Software Verification	32	2	2	E
7	复杂网络理论及其应用 Complex Network Theory and Its Applications	32	2	2	E
8	数字图像处理 Digital Image Processing	32	2	2	E
9	计算机仿真与虚拟现实 Computer Simulation and Virtual Reality	32	2	2	E
10	计算机视觉 Computer Vision	32	2	2	E
11	代码重构 Code Refactoring	32	2	2	E
12	关系数据库概论 An Introduction to Database System	32	2	2	E
13	人工神经网路 Artificial Neural Network	32	2	2	E
14	专业实践 Vocational Practice	640	10	2 - 4	R
15	学术活动与报告（5 次） Seminars for Frontier（5 times）	5	1	1 - 4	R
16	学位论文 Diploma work		2	3、4	R

7. 学制

学制：2 年

8. 奖学金支持

本科成绩平均分在 75 分（按百分制计算）以上的申请者有机会获得以下奖学金。

1.中国政府奖学金：

为增进中国人民与世界各国人民的相互了解和友谊，发展中国与世界各国在政治、经济、文化、教育、经贸等领域的交流与合作，中国政府设立奖学金，资助世界各国优秀学生、教师、学者到中国的大学学习或开展研究。长春理工大学的学校代码为 10086。详细信息请看 http://www.csc.edu.cn/laihua/scholarshiplist.aspx?cid=93

2.吉林省政府奖学金：

"吉林省政府奖学金项目"系吉林省政府提供的全额奖学金，用于长春理工大学直接遴选和招收优秀的外国青年学生来华攻读硕士研究生学位。申请者直接向我校申请。详细信息请看：http://ieec.cust.edu.cn/