|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 序号  index | **名 prénom** | **姓 nom** | **性别**  **sex** | **年龄**  **age** | **出生日期**  **Date de naissance** | **工作单位**  **institution** | **申报留学身份 Profile pour aller en Chine** | **申报留学期限**  **Nombre de viste en Chine** | **申报留学单位（英）**  **Institution Chinois** | **申报留学专业大类**  **Faculté Générale** | **中方课题组组长**  **Responsable de groupe chinois** | **法方成员 participant de la groupe français** | **课题名称（英文）**  **Nom du projet** |
| 1 | Gérard | FORZY | Male |  |  | Lille Catholic University – FMM (Faculty of Medicine and Maieutic) | Visiting Scholar | 1 | Zhengzhou University | Medical signal treatment | WANG Liming | 4 | Research on analysis of correlation between renal metabolism and nephropathy to predict creatinine clearance in adults using Multiclass SVM and intensive single hidden layer feedforward networks |
| 2 | Laurent | PEYRODIE | Male | 47 | 1968-04-27 | Groupe HEI-ISA-ISEN et UTSB | Visiting Scholar | 1 | Zhengzhou University | Medical signal treatment |
| 3 | François | DELECOURT | Male | 50 | 1964-11-13 | Groupe hospitalier de l'institut catholique de Lille | Visiting Scholar | 1 | Zhengzhou University | Endocrinology – Diabetology |
| 4 | Zefeng | WANG | Male | 33 | 1982-01-11 | Lille Catholic University – FMM (Faculty of Medicine and Maieutic) | Visiting Scholar | 3 | Zhengzhou University | Data analysis |

**附件2："蔡元培"项目申请表**

**Partenariat Hubert Curien avec la Chine**

**Program CaiYuanpei (蔡元培) 2015-2017**

**Application Form**

**1 – Project**

|  |
| --- |
| **Title**  **Research on analysis of correlation between renal metabolism and nephropathy to predict creatinine clearance in adults using Multiclass SVM and intensive single hidden layer feedforward networks** |
| **Scientific domain (select one discipline from** **Annex 2 that best describes your project)**  **Discipline: Engineering**  **Research Field: Computer Science and Technology & Biomedical Engineering** |

**2 – Partners**

|  |  |  |
| --- | --- | --- |
|  | **French team** | **Chinese team** |
| **Project leader**  Name  Position  Address  ZIP Code  City  Phone number  Fax number  Email  Web site | **Gérard FORZY,**  **Professor, (Doyen de Faculté de Médecine et Maieutique, Groupe Hospitalier Institut Catholique Lille) Lille Catholic University**  **56 rue du port**  **59800**  **Lille**  **Tél :** **03 20 13 41 30**  [**gerard.forzy@icl-lille.fr**](mailto:gerard.forzy@icl-lille.fr)  **http://flm.icl-lille.fr/index.asp** |  |
| **Laboratory**  Name-acronym  Address  ZIP Code  City  Fax number  Web site | **UTSB (Unité de Traitement des Signaux Biomédicaux)**  **13 rue de Toul,**  **59000**  **Lille**  **0328384858**  **0328384804 ;** |  |
| **Mother Institution**  Address  ZIP Code  City  Country  Web site  Director’s or President’s Name | **56 rue du Port**  **59046**  **Lille**  **France**  **http://flm.icl-lille.fr/index.asp**  **Patrick Hautecoeur** |  |

**3 - Description of the project**

|  |
| --- |
| **National and International context**  **National context：Chronic kidney disease (CKD) is a major health problem worldwide, with dramatically rising incidence and prevalence. Patients with diabetes are particularly affected by this negative development. It is necessary to stratify CKD and estimate its progression because diabetes is leading cause of end-stage renal disease.**  **Nephropathy is also characterized by its higher prevalence and lower awareness. With the disappearing of China’s demographic dividend and the arrival of the aging society，****the high incidence of nephropathy is damaging the health of the elderly, which** **aggravates burden of medical and nursing of Chinese families.** **Recovering renal function** **or delaying the adverse change speed** **relies on capturing the unfavourable signals of renal and taking timely treatment. However, many patients lost their best time to treat nephropathy for short of prediction means. Sensitivity of renal filtration function biomarkers and precision of prediction model** **restrict the precision of diagnosing and the time for detecting abnormal renal function. Doing statistical analysis** **on the patient data is an important way to detect renal disease in time.** **The domestic medical and scientific research institutions have done a lot of experiments around indexes characterizing renal function to observe the sensitivity of index and the correlation between indexes. The main indexes include serum creatinine (SCr),** **creatinine clearance (CrCl), cystatin C (Cys C), and so on. The common used analysing tools include SPSS and Excel. While intelligent information processing technology, such as neural networks and SVM have not yet been universal.**  **International context****: The global incidence of nephropathy also shows a gradually increasing trend.** **International medical organizations and research institutions launched the first renal indexes testing instrument.** **Glomerular filtration rate (GFR) is computed with empirical formula inside the instrument on the indexes and then is used to evaluate the renal function and development of nephropathy.** **International counterparts are also confronted with the different sensitivity of renal function biomarkers, the complex correlation computation, the single analysing model and the unsatisfactory precision. Intelligent information processing technology is much more expected to be used for the renal function diagnosis.**  **In clinical practice, glomerular filtration rate (GFR) is the most important marker for evaluation of renal function. Dosages of drugs that are eliminated by glomerular filtration are often based on GFR. At present, the most reliable methods for accurate assessment of overall GFR require intravenous administration of exogenous compounds and are both cumbersome and expensive. In clinical practice, CrCl is widely accepted as a simple measure of GFR, because creatinine is freely filtered by the glomerulus and is also secreted by the proximal tubule. In the earliest methods, serum creatinine was assayed by the Jaffe reaction after deproteinization, eliminating the pseudo-chromogenic effect of proteins. Similarly, the first automated methods used dialysis membranes to prevent interference from plasma proteins. Today, although analysers use undiluted serum and plasma, it produces “protein error” a positive different of ~27 μmol/L. Because urine contains relatively little or no protein, the protein error affects only creatinine determinations in serum. Therefore, CrCl is underestimated when creatinine estimation has been stated to be compensated by the overestimation attributable to tubular secretion of creatinine. However, research confirming these statements are lacking. In compensated Jaffe methods, the values assigned to the calibrator set point are adjusted to minimize the pseudo-creatinine contribution of proteins. The result is that compensated methods produce lower creatinine values. Alternatively, the protein error can be avoided by use of enzymatic creatinine methods. Collection of timed urine for CrCl is often a major source of error. Therefore, simple formulas have been introduced to estimate GFR based on serum creatinine concentration, age, gender, body weight, and body length. These formulas thus do not require urine collections.**  **Thus, GFR could not be directly measured but is evaluated by measuring some biomarkers. SCr and CrCl have been used to estimate GFR, but the indexes tend to be affected by external factors of kidney and lose precision and sensitivity. Thus, the** **variation of renal function is not indicated precisely. As a kind of small molecular protein, Cystatin C is suitable for biomarker for measuring GFR because it is produced with constant rate and is filtered only through glomerulus. Research on correlation between SCr, CrCl and Cystatin C has been going on.**  **At present, cases for research come from different individuals, whereas the renal function diagnosis needs objectively the same individual’s GFR at different periods. In this condition, the validity and rationality of statistical inference is to be observed and verified that predicates someone’s GFR with other individuals’ measurement data. The qualitative and quantitative relationship between indexes as well as the weights of each index effect on certain nephropathy is also to be researched intensively.**  **The domestic and international cooperation will open up new channels, provide new techniques and improve medical service level for nephropathy. International cooperation not only benefits the development of medical and computer technology but also promotes cultural exchanges between East and West, and broadens horizons of each other.** |
| **Scientific and/or technological objectives**  **The following problems can be drawn from the research status, and need to be further studied and validated, and thus are identified as the research target of this project:**  **(1) Analysis and validation of indexes for their sensitivity that representing renal function status;**  **(2) Analysis and validation of correlation between indexes;**  **(3) Causal analysis of weights that certain indexes affect some disease;**  **(4) Test and analysis as well as model improvement of statistical inference with different individuals’ measurement data to evaluating renal function;**  **(5) Construction of intelligent information processing model. Multiclass SVM and Intensive single hidden layer feedforward networks (Intensive SLFN) will be constructed and be applied to the cases related to the renal function.** |
| **Description of the project**  **The following experiments, theory analysis and model constructing will be finished in light of the research target of this project:**  **(1) Renal function sample collection and standardized.** **Sample index should include properties related to time and renal filtration performance. Property value should be converted to data type for computer processing. Missing property is** **complemented with weight analysis.**  **(2) Define the concept of sensitivity of index for model construction and computation.**  **(3) Analyse the difference of correlations of different groups of indexes and conclude normal reference values and abnormal values for diagnosis.**  **(4) Construct the causal model of renal function checking indexes with certain nephropathy and solve the model to get weights of indexes causing the disease; apply the model to test its precision and efficiency.**  **(5) Construct Multiclass SVM and Intensive SLFN for data set** **comprised of different individuals and data set comprised of the same individual but collected at different periods respectively. Compare the differences between the two models and confirm its feasibility that evaluates someone’s GFR with group of cases.** |
| **Research Methodology**  **Pattern recognition and machine learning is a class of important and advanced method to process renal function test sample intelligently to get medical diagnosis.** **Schedule for the project is arranged as follows:**  **(1****) 1/1/2015 -31/1/2015: Complete** **the business requirement investigation; write out project plan including problems to be solved, the methods and the implementation scheme.**  **(2) 1/2/2015-28/2/2015:** **Investigate the existing methods for renal function analysis;** **analyse the current research results to conclude some experience for reference for further research.**  **(3) 1/3/2015-30/4/2015: Compare the existing sample analysing methods for renal function with the intelligent information processing methods; determine input, output and the model transformation method from the original method to the intelligent information processing method to prepare for the construction of new model.**  **(4) 1/5/2015-30/6/2015: Use other cases or data set from other industry data set as an alternative to construct the intelligent information processing model including Multiclass SVM and Intensive SLFN to master the model constructing skill; test the model extensively for its availability before the renal function test sample is available.**  **(5) 1/7/2015-31/7/2015: Understand the sample structure and properties; standardize the sample when it is available.**  **(6) 1/8/2015-31/8/2015: Reconstruct** **the previously constructed model Multiclass SVM so as to make it fit for the renal function test sample. Group the sample** **according to different criterions and construct the corresponding model for application; record the precision and efficiency of model.**  **(7) 1/9/2015-31/12/2015: Summarize the above experiments and discuss; review literature; compare our results with those reported in the literature and track reason; finish the paper.** **Within which one member may go abroad for exchange once to** **communicate about the problems that the algorithm’s practical application and paper writing.**  **(8) 1/1/2016-31/3/2016: Reconstruct the previously constructed model Intensive SLFN so as to make it fit for the renal function test sample. Group the sample according to different criterions and construct the corresponding model for application; record the precision and efficiency of model.**  **(9) 1/4/2016-31/8/2016: Summarize the above experiments and discuss; review literature; compare our results with those reported in the literature and track reason; finish the paper. Within which one member may go abroad for exchange once to communicate about the problems that the algorithm’s practical application and paper writing.**  **(10) 1/9/2016-31/12/2016: Complete a patent application for** **Multiclass SVM and Intensive SLFN.**  **(11) 1/1/2017-30/6/2017: Apply the algorithms of renal function evaluation developed by the project to medical institutions; track** **the results and record; analyse performance of model; analyse the completeness of the data; analyse the rationality of the solutions; find out the factors restricting the performance of algorithms and then improve them.**  **(12)1/7/2017-31/12/2017: Summarize the research material and prepare for** **acceptance and ending the project.** |
| **Expected results**  **(1)** **Obtain the learning results and the practical results of Multiclass SVM and Intensive SLFN on the cases so as to evaluate performance of the models.**  **(2) Obtain the** **statistical inference results, GFR, from the collective samples to individual.**  **(3) Obtain the correlation between indexes for GFR.**  **(4) Obtain the weights that indexes have effect on certain nephropathy.**  **(5)** **Obtain the diagnosis effect that the learning model has on someone’s data set collected at different time if it is feasible.**  **(6) Spread models developed in the project to other cases related to nephropathy in order to get more evidence and experience about models’ application.** |
| **Mutual benefits**  **China’s university provides algorithms development and application for French as a part of application of computer technology. Whereas French provides cases about nephropathy as medical service. If necessary，both sides cooperate further with medical institutions to supplement cases that fit for the research route. Medical institutions get** **intelligent, advanced and practical software products for diagnosis, and both research institutions get resources supporting research and achievements as well as the precious friendship.** |
| **List of attached documents to be provided together with this application form . Any other information may be provided by the applicants, such as accommodation facilities of the host university, etc.**  For Researchers:  🞏 CV  🞏 list of publications related to the project (up to 10)  🞏 copy of ID card (for Chinese applicants)  For PhD students:  🞏 CV  🞏 list of publications related with the project, if any  🞏 2 recommendation letters (1 recommendation letter only for French PhD applicants)  🞏 official university transcripts (for Chinese applicants)  🞏 copy of highest degree and diploma (for Chinese applicants)  🞏 certification of study (for Chinese applicants). |

**4 – Equipment and people to be involved in the project**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **People involved in the project** | | | | | | |
| **French laboratory :** | | | | | | |
| **Name** | **Date of Birth (dd/mm/yyyy)** | **Position&Title** | **Purpose of visit** | | **Proposed time of stay overseas** | **PhD Thesis (for students)** |
| **Laurant peyrodie** | **24/04/1968** | **Ph.D & Professor** | **academic exchange** | |  |  |
| **Zefeng WANG** | **11/01/1982** | **Ph.D & Maître de conférence** | **academic exchange** | | **3 months/year** |  |
|  |  |  |  | |  |  |
|  |  |  |  | |  |  |
| **Chinese laboratory :** | | | | | | |
|  |  |  |  |  | |  |
|  |  |  |  |  | |  |
|  |  |  |  |  | |  |
|  |  |  |  |  | |  |
|  |  |  |  |  | |  |
| **Avaliable equipment expected to be used in the project** | | | | | | |
| **French laboratory : Personal Computer ; Professional version of Matlab ; server for clinical data base** | | | | | | |
| **Chinese laboratory : Personal Computer ; server for clinical data base; Matlab ; workstation** | | | | | | |

**5 - Other funding**

|  |
| --- |
| **Other funding obtained or requested for this project :** |
| Have you already benefited from such a bilateral program between China and France? If so , please specify. |
| Have you applied to other programs for 2010? If so, please specify. |

**6 – Further Development of the cooperation**

|  |
| --- |
| **Training by research** |
| **European perspectives** |
| **Other international perspectives** |
| **Expected or already obtained industrial outputs**  **Our previously developed Multiclass SVM, Extreme Learning Machine employing SVM technique and Intensive SLFN have succeeded in recognizing handwriting, which outperform the traditional neural network and ELM in terms of precision and model structure.** **Smart grid industry has an interest in our results, and both sides are currently trying to build a cooperation platform.** |

**7. Signature**

|  |  |
| --- | --- |
| **French Project Leader** | **Chinese Project Leader** |
|  |  |
| **Date:** | **Date:** |

**8 - REQUESTED FUNDING**

**Only scholarships, travel tickets and living allowances are covered by the program.**

**The program is scheduled over two full years, from summer 2014 to summer 2016.**

**Year 2015**

**REQUESTED FUNDING FROM FRANCE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name(s) of the French PhD student(s) for whom a support is requested** | **Number of international travels** | **Domestic travels**  **(specify the cities and stops)** | **Number of months in China (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Names and positions of the French researchers for whom a support is requested** | **Number of international travels** | **Domestic travels**  **(specify the cities and stops)** | **Number of days/months in China (for each of them)** |
| **ZEFENG WANG** | **3** | **ZHENGZHOU** | **30/months** |
|  |  |  |  |
|  |  |  |  |

**REQUESTED FUNDING FROM CHINA**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name(s) of the Chinese PhD student(s) for whom a support is requested** | **Only one international travel will be funded** | **Domestic travels**  **(specify the cities and stops)** | **Number of months in France (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Names and positions of the Chinese researchers for whom a support is requested** | **Number of international travels** | **Domestic travels**  **(specify the cities and stops)** | **Number of months in France (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Year 2016**

**REQUESTED FUNDING FROM FRANCE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name(s) of the French PhD student(s) for whom a support is requested** | **Number of international travels** | **Domestic travels**  **(specify the cities and stops)** | **Number of months in China (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Names and positions of the French researchers for whom a support is requested** | **Number of international travels** | **Domestic travels**  **(specify the cities and stops)** | **Number of days/months in China (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**REQUESTED FUNDING FROM CHINA**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name(s) of the Chinese PhD student(s) for whom a support is requested** | **Only one international travel will be funded** | **Domestic travels**  **(specify the cities and stops)** | **Number of months in France (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Names and positions of the Chinese researchers for whom a support is requested** | **Number of international travels** | **Domestic travels**  **(specify the cities and stops)** | **Number of months in France (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Year 2017**

**REQUESTED FUNDING FROM FRANCE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name(s) of the French PhD student(s) for whom a support is requested** | **Number of international travels** | **Domestic travels**  **(specify the cities and stops)** | **Number of months in China (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Names and positions of the French researchers for whom a support is requested** | **Number of international travels** | **Domestic travels**  **(specify the cities and stops)** | **Number of days/months in China (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**REQUESTED FUNDING FROM CHINA**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name(s) of the Chinese PhD student(s) for whom a support is requested** | **Only one international travel will be funded** | **Domestic travels**  **(specify the cities and stops)** | **Number of months in France (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Names and positions of the Chinese researchers for whom a support is requested** | **Number of international travels** | **Domestic travels**  **(specify the cities and stops)** | **Number of months in France (for each of them)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Annex 1: INSTRUCTIONS FOR COMPLETING THE APPLICATION FORM**

**Please read the instructions carefully before completing each item.**

**Item 1 Project**

* **Scientific domain:** Select one research field from the list attached below that best describes your project, and enter it exactly as it appears in the list or select the closer one close if there is no perfect matched discipline.

**Item 2 Partners**

* **Project leader:**The Chinese project leader is expected to be no more than 50 by the time of application and hold at least an associate professor or equivalent position.

**Item 3 Description of the project (no more than 3,500 letters and spaces in total)**

* **National and International context:** Introduce the research topic. Place the project in academic or professional context by referring to major works by others on the subject.
* **Scientific and/or technological objective: Clearly define the aims of the project.**
* **Description of the project:** The experiments, studies or works to be done in each of the partner laboratories should be described in detail with reference to the people and/or equipment or facilities involved
* **Research methodology:** The main milestones and steps of the project should be defined, with their timing.
* **Expected results:**Indicate the outcomes which are expected for the project, such as publications, patents, etc.
* **Mutual benefits:** Describe how the project and the cooperation will benefit the participating Chinese and French laboratories or institutions (complementarity of the teams, mutual interest, etc.).
* **Curriculum Vitae:** For Chinese applicants, CVs should be drafted in the following format: basic information, education, positions held, publications, PhD dissertation (for PhD student only), professional activities, professional awards & fellowships.

**Item 4 Equipment and people to be involved in the project**

* **Name, Position & Title:** Specify such as Professor, Associate Professor, etc. If not, please indicate as “N/A”. For PhD students, if their names are not yet known, please indicate as “N/A”. But their names should be provided at latest in the mid-term report.
* **Purpose of visit:** Describe briefly the major activities to be carried out during the visit, such as discussions, experiments, data collection, etc.
* **Overseas duration :** Indicate thenumber of days or monthsrequested for stay in the host institution.
* **PhD Thesis:**  For PhD students, title of PhD thesis should be provided.

**Item 5 Other funding**

* **Other funding obtained or requested for this project**: such as PRA and PFCC, support from national programs (NSFC, MOST, ANR, etc….)

**Item 6 Further Development of the Cooperation**

* **Training by research:** Give a brief description of the skills, abilities, or specialties the student(s) is (are) expected to attainupon completion of the project.
* **European perspectives/Other international perspectives: Is this project in connection with any other European and/or international program, or could it be the starting point for a European or international project ?**

**Item 8 Requested Funding**

* Number of days or months to be spent in the partner country by each PhD student or researcher, together with the number of international plane tickets and domestic travels (domestic airways or railways)

**Annex 2 : LIST OF DISCIPLINES AND FIELDS**

|  |  |  |
| --- | --- | --- |
| **No.** | **Discipline** | **Research Field** |
| 1 | Philosophy | Philosophy |
| 2 | Economics | Theoretical Economics |
| 3 | Applied Economics |
| 4 | Law | Law studies |
| 5 | Social sciences | Politics |
| 6 | Sociology |
| 7 | Ethnology |
| 8 | History |
| 9 | Education | Pedagogy |
| 10 | Psychology |
| 11 | Exercise and Sports Sciences |
| 12 | Art & Humanities | Chinese Language and Literature |
| 13 | Foreign Language and Literature |
| 14 | [Journalism and Communication](app:ds:journalism%20and%20communication) |
| 15 | Art |
| 16 | Science | Mathematics |
| 17 | Physics |
| 18 | Chemistry |
| 19 | Astronomy |
| 20 | Geography |
| 21 | Atmospheric Science |
| 22 | Marine Science |
| 23 | Geophysics |
| 24 | Geology |
| 25 | Biology |
| 26 | Systems Science |
| 27 | History of Science and Technology |
| 28 | Engineering | Mechanics |
| 29 | Mechanical Engineering |
| 30 | Optical Engineering |
| 31 | Instrument Science and Technology |
| 32 | Material Science and Engineering |
| 33 | Metallurgical Engineering |
| 34 | Power Engineering |
| 35 | Electrical Engineering |
| 36 | Electronic Science and Technology |
| 37 | Information and Communication Engineering |
| 38 | Control Science and Engineering |
| 39 | Computer Science and Technology |
| 40 | Architecture |
| 41 | Civil Engineering |
| 42 | Hydraulic Engineering |
| 43 | Surveying and Mapping |
| 44 | Chemical Engineering and Technology |
| 45 | Geological Resources and Geological Engineering |
| 46 | Mineral Engineering |
| 47 | Petroleum and Natural Gas Engineering |
| 48 | Textile Science and Engineering |
| 49 | Light Industry Technology and Engineering |
| 50 | Traffic Engineering |
| 51 | Naval Architecture and Ocean Engineering |
| 52 | Aeronautical and Astronautical Science and Technology |
| 53 | Nuclear Science and Technology |
| 54 | Agricultural Engineering |
| 55 | Forestry Engineering |
| 56 | Environmental Science and Engineering |
| 57 | Biomedical Engineering |
| 58 | Food Science and Engineering |
| 59 | Agriculture | Crop Science |
| 60 | Horticulture |
| 61 | Utilization Science of Agricultural Resources |
| 62 | Plant Protection |
| 63 | Zootechnics |
| 64 | Veterinary Science |
| 65 | Forestry |
| 66 | Fishery Science |
| 67 | Medical Science | Preclinical Medicine |
| 68 | Clinical Medicine |
| 69 | Stomatology |
| 70 | Public Health and Preventive Medicine |
| 71 | Traditional Chinese Medicine (TCM) |
| 72 | Integrated Traditional Chinese and Western Medicine |
| 73 | Pharmacy |
| 74 | Science of Chinese MateriaMedica |
| 75 | Management | Management Science and Engineering |
| 76 | Business Administration |
| 77 | Agricultural and Forestry Economics and Management |
| 78 | Public Administration |
| 79 | Library and Information Science |