Lei Ding

Email: xiandao.airs@gmail.com   Tel: +1 408 219 4062

EDUCATION

University of California, Santa Cruz	Aug. 2022 ~ Now
Computer Science Ph.D.: Machine Learning	Santa Cruz, California, U.S.
Sichuan University	Aug. 2004 ~ July. 2007
Master: Applied Computer Technology - Computer Network	Sichuan, China
Sichuan University	Aug. 2000 ~ July. 2004
Bachelor: Software Engineering	Sichuan, China

PUBLICATIONS

- Ding Lei, Li Zhisu, Peng Jian, Shi Xianlin, Wu Wei, Jian Xiaoyu (2007). Deep research on JXME's MIDP protocol and video-sharing framework. Journal of Sichuan University: Natural Science Edition 44(4), 807-811.
- Abena AChiaa Atwereboannah, Wu Weiping, Ding Lei, Sophyanbi B. Yussif, Edwin Tenagyei. Protein-ligand binding affinity prediction using Deep Learning, 2021 18th International Computer Conference on Wavelet Active Media Technology and Information Processing (ICCWAMTIP 2021), 56.
- Wu Weiping, Ding Lei (September, 2022). Digitalization and upgrading of drug design and development by artificial intelligence. Changsha, international peptide drugs and innovation summit, oral presentation.

PATENT& SOFTWARE COPYRIGHT

- Rating of city road segments for taxi hailing based on HANA technology, US Application NO. 13/934,706 | Patent ID 81495268 | Patent Ref 120542US01, China Application NO. 20130269463.3 | Patent ID 82826027 | Patent Ref 120542CN01
- Automatic category assignment and potential topic discovery for products based on Latent Dirichlet Topic algorithm, SAP Patent Invention ID. 83839165
- Simulator of bundle clicking for validating Bandit strategies in A/B testing, US Application NO. 17/547,637 | Patent ID 83839171 | Patent Ref 210412US01
- Reinforcement Learning Model for product recommendation considering balance between product profit and customer interests, US Application NO. 17/556,238 | Patent ID 83848635 | Patent Ref 210416US01
- Software copyright in China for Practice tool v1.3 of GRE analytic writing, registration NO. 2021SR1399061, certificate NO. 8121687

WORK EXPERIENCE

SAP Upscale, SAP Labs	2017.07-Present

Senior Data Scientist and Chief Data Architect

- Conducted convergence analysis of A/B testing of product bundles (products combination) that customers show decayed interests to using Epsilon Greedy, Softmax and UCB1 Bandit Algorithms for customer behaviors' simulation.
- Discovered potential product bundles from click data of customers based on Apriori and FP-Growth algorithms.
- Analyzed product similarity and complement via Latent Dirichlet Allocation Model based on the products category tree and the text feature of products.
- Discovered potential product bundles based on product similarity, complement and key performance indicators(KPIs) such as product profit, velocity, acceleration, and exposure.
- Developed product bundle recommendation via Collaborative Filtering Algorithm based on short-term customer interests.
- Generated dynamic product bundles and recommended product items for customers using Deep Reinforcement Learning Algorithms to reach the balance between gaining product profit for merchant and fulfillment of customer interests based on product features and short-term customers' behavior data.

SAP Engagement Center on Cloud Infrastructure, SAP Labs	2015.04-2017.06

Chief Algorithm Engineer and Architect

- Conducted service exception discovery model based on Multivariate Gaussian distribution and analyzed efficiency of exception handling in the system.
- Analyzed system bottleneck and optimized the service based on payload statistics and services' dependency relationship.

Big data application and algorithm optimization in SAP Nanjing Innovation Center, SAP Labs   2011.04-2015.03
Chief Algorithm Engineer and Architect

- Optimized the CONOP Program[1] based on Simulated Annealing Algorithm used to determine relative time scale of fossil records, and gave a parallelization proposal based on Monte Carlo sampling: a co-innovation project with Nanjing Institute of Geology and Paleontology[2]
- Designed the Nanjing Smart Traffic Platform and led functionality implementations, including Origin-Destination analysis, city congestion analysis, dynamic traffic zone extraction, short-term congestion prediction, fake vehicle plate number discovery and prediction of missing digitals of vehicle plate.
- Analyzed public opinions for Nanjing 12345 hotline by leveraging multi-class classification algorithms: Multilabel K-Nearest Neighbors Algorithm based on label entropy, Euclidean distance and TF-RDF measures, Bayesian classification algorithm with add-on smoothing, Multilabel classification based on Support Vector Machines(SVM)；extracted critical public security events based on dependency parsing and finished temporal relationship analysis for those events based on key rules.
- Analyzed clues for key groups with public security concerns：reason out event transition possibilities based on Floyd-Warshall algorithm and critical paths extraction in graph

Platform development and partner toolkit development for SAP Business ByDesign, SAP Labs   2007.05-2011.03
Algorithm and Application Developer

- Implemented element validation of binding between XML PDF template and data entities.
- Design and implement dynamic bird-view for visualization of graphic relationship among business entities.
- Designed and developed Business Object Description Language (BODL) and Advanced Business Scripting Language (ABSL) based on ANTLR, and integrated those two languages into Eclipse and Visual Studio plugins for SAP Partner Development Infrastructure(PDI) tool.
- Integrated Visual Studio plugins and visual editor of User Interface (UI) by an across-AppDomain communication framework that also guarantee the process security via .Net AppDomain isolation

HONOR & CERTIFICATES

- 2003 Microsoft Innovation Cup - SALT, The school team, 12th place of Mainland China, Touronline(virtual tour online)
- 2010 SAP Excellent Employee，2012 SAP High Potential Employee
- 2013 and 2014 Team Coach of Nanjing Innovation Center in SAP Innovation Competition, 1st place of China Lab
- Tianchi CIMKM AnalytiCup 2018, Cross-lingual Short-text Matching of Question Pairs, 26/1027
- Coursera Andrew Ng's Machine Learning Series(with programming assignment)，refer to certificate
- Coursera Andrew Ng's Deep Learning Series (with programming assignment), refer to certificate
- Coursera Daphne Koller's Probabilistic Graph Model 1，2，3(with programming assignment)，refer to certificate
- Coursera Geoffrey Hinton's Neural Networks for Machine Learning, refer to certificate
- Udacity Michael Littman and Charles Isbell's Reinforcement Learning (with programming assignment[3])
- UC Berkeley CS285 by Sergey Levine，refer to programming assignment

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[1] CONOP, sorting algorithm based on adjustment of pairs based on penalty function with non-convex constrained optimization, refer to https://www.paleosoc.org/assets/docs/extended-CONOP-COURSE-NOTES.pdf

[2] Collaboration with Professor Jinxuan, Fan, refer to news in Chinese Academy of Science

[3] It's my private GitHub repository. Once need to access, please contact me with email

UNIVERSITY OF CALIFORNIA SANTA CRUZ

*** U N O F F I C I A L ***

Name: **Ding, Lei**
Student ID: **2005751**

Institution Info: University of California, Santa Cruz
1156 High Street
Santa Cruz, CA 95064

Beginning of Graduate Record

2022 Fall Quarter

Program: Computer Science & Engineer
Plan: PhD in Computer Science and Engineering

Course		Description	Attempted	Earned	Grade	Points
CSE	200	Research & Teaching	3.00	3.00	S	0.000
CSE	201	Analysis Algorithms	5.00	5.00	A-	18.500
GRAD	200	Academic Writing	0.00	0.00	S	0.000
GRAD	201	Oral Communication	0.00	0.00	S	0.000
GRAD	202	Reading & Research	0.00	0.00	S	0.000
NLP	201	NLP I	5.00	5.00	A+	20.000

Academic Standing Effective 01/09/2023: Good Standing

			Attempted	Earned	GPA Units	Points
Term GPA	0.00	Term Totals	13.00	13.00	10.00	38.500
Transfer Term GPA		Transfer Totals	0.00	0.00	0.00	0.000
Combined GPA	0.00	Comb Totals	13.00	13.00	10.00	38.500
Cum GPA	0.00	Cum Totals	13.00	13.00	10.00	38.500
Transfer Cum GPA		Transfer Totals	0.00	0.00	0.00	0.000
Combined Cum GPA	0.00	Comb Totals	13.00	13.00	10.00	38.500

Graduate Career Totals

			Attempted	Earned	GPA Units	Points
Cum GPA:	0.00	Cum Totals	13.00	13.00	10.00	38.500
Transfer Cum GPA		Transfer Totals	0.00	0.00	0.00	0.000
Combined Cum GPA	0.00	Comb Totals	13.00	13.00	10.00	38.500

End of *** U N O F F I C I A L ***

The Official Transcript of Sichuan University

四川大学学生成绩证明

Name Ding Lei   **Gender** Male   **Major** Software Engineering   **Duration of Studies** Sept. 2000 to July 2004
姓名 丁磊   性别 男   专业 软件工程   学习期限   2000.9 – 2004.7

Courses 课程名称	The 1st academic year (2000-2001) 第一学年					
	1st semester 第一学期			2nd semester 第二学期		
	credit 学分	exam 考试	check 考查	credit 学分	exam 考试	check 考查
Basics of Computer Application 计算机应用基础	5	63				
Advanced Mathematics 高等数学	3	89		3	92	
Military Theory 军事理论	2	92				
Physical Education 体育	1.5	92		1.5	88	
Marxist Philosophy 马克思主义哲学	3	80				
Inorganic Chemistry 无机化学	3	86				
Situation and Policy 形势与政策	0.25	87		0.25	90	
Foreign Language 外语	3.5	72		3.5	79	
Military Training 军事训练	2	67				
Moral Education 思想道德修养				2	92	
Human Anatomy 人体解剖学				3	91	
Medical Microbiology 医学微生物				3	88	
Physiology 生理学				2	94	
Marxist Political Economy 马克思主义政治经济学				3	83	
Medical Immunology 医学免疫学				1.5	93	
Organic Chemistry 有机化学				4	90	

Ding Lei 丁磊

Courses 课程名称	The 2nd academic year (2001-2002) 第二学年					
	1st semester 第一学期			2nd semester 第二学期		
	credit 学分	exam 考试	check 考查	credit 学分	exam 考试	check 考查
Principles of Management 管理学原理	3	94				
Accounting 会计学	3	93				
Pharmaceutical Industry Production Management 医药工业企业生产管理	4	85				
Foreign Language 外语	3.5	77				
Pharmaceutical Chemistry 药物化学	5	90				
Basics of Law 法律基础	2	76				
Physical Education 体育	1.5	84		1.5	80	
Experiments of Chemistry 化学实验	1.5	79				
Situation and Policy 形势与政策	0.25	96		0.25	75	
History of Medicine 医学史	1	80				
Appreciation of Foreign Literary Masterpieces 外国文学名著欣赏	1	D 及格				
International Economy and Politics 国际经济政治	1	D 及格				
Mathematical and Physical Methods 数学物理方法				3	91	
Discrete Mathematics 离散数学				4	91	
Digital Electronic Technology 数字电子技术				4	87	
Assembly Programming Language 汇编语言				2	84	
Course Design of Assembly Programming Language 汇编语言课程设计				1	C 中	
C Programming Language C 语言程序设计				3	77	
Analog Circuits 模拟电路				4	99	

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Ding Lei 丁磊

Courses 课程名称	The 3rd academic year (2002-2003) 第三学年					
	1st semester 第一学期			2nd semester 第二学期		
	credit 学分	exam 考试	check 考查	credit 学分	exam 考试	check 考查
Physical Education 体育	2	84				
Software Programming Tools 软件开发工具(语言工具)	2	85				
Professional Foreign Language 专业外语	2	80				
Introduction to Mao Zedong Thoughts 毛泽东思想概论	2	88				
Microcomputer Technology 微型计算机技术	4	69				
Software Engineering 软件工程	3	75		3	89	
Object-oriented Programming 面向对象程序设计	3	86				
Data Structures and Algorithms Analysis 数据结构与算法分析	5	89				
Principles of Computer Composition 计算机组成原理	5	90				
Situation and Policy 形势与政策	0.25	90		0.25	82	
Computer Graphics 计算机图形学				2	91	
Software System 软件体系结构				2	89.6	
E-commerce 电子商务				2	A 优	
UNIX Operating System UNIX 操作系统				2	95	
Computer Network 计算机网络				3	93	
Operating System 操作系统				3	90	
Scientific Foreign Language Writing 科技外语写作				2	A 优	
Deng Xiaoping Theory 邓小平理论概论				2	84	
Principles and Application of Database 数据库原理及应用				3	91	

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Ding Lei 丁磊

Courses 课程名称	The 4th academic year (2003-2004) 第四学年					
	1st semester 第一学期			2nd semester 第二学期		
	credit 学分	exam 考试	check 考查	credit 学分	exam 考试	check 考查
Methodology of Software Programming Tools 软件开发工具方法学	2	C 中				
Advanced API 高级 API（讲座/实验）	2	86				
UML Tools Practice UML 工具实践（讲座/实验）	2	B 良				
Project English Document 项目英文文档（实验）	2	B 良				
Course Design of Data Structure and Algorithm Analysis 数据结构与算法分析课程设计（讲座/实验）	2	B 良				
System and Information Security Technology 系统与信息安全技术	2	A 优				
Compiling Theory 编译原理	3	78.2				
Portal Design 门户网站设计（ASP、JSP、PHP）	2	85.3				
Course Design of Database 数据库课程设计	2	A 优				
WEB Technology Development WEB 技术开发（实验）	2	A 优				
Situation and Policy 形势与政策	0.25	89		0.25	89	
Intellectual Property and Law of Information Technology IT 知识产权与法律				1	87	
Graduation Practice 毕业实习				2	A 优	
Graduation Design 毕业设计				14	A 优	
CET-4 国家外语四级				4	69.5	
CET-6 国家外语六级					73.5	

Note: The Scoring Systems are:

1. A = excellent   B = good   C = fair   D = pass   E=failed;
2. Above 60 is passing, 100 is full mark;
3. Q=Qualified or U=Unqualified.

The Archives of Sichuan University
四川大学档案馆

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学士学位证书

（普通高等教育本科毕业生）

丁磊 ，男，
1981 年10月生。自2000
年9 月至2004 年7月
在 四川大学
软件工程 专业
完成了四年制本科学习计划，业已毕业。
经审核符合《中华人民共和国学位条例》
的规定，授予 工 学学士学位。

四川大学
学位评定委员会主任 谢和平

二〇〇四年七月 日

证书编号：106104045481
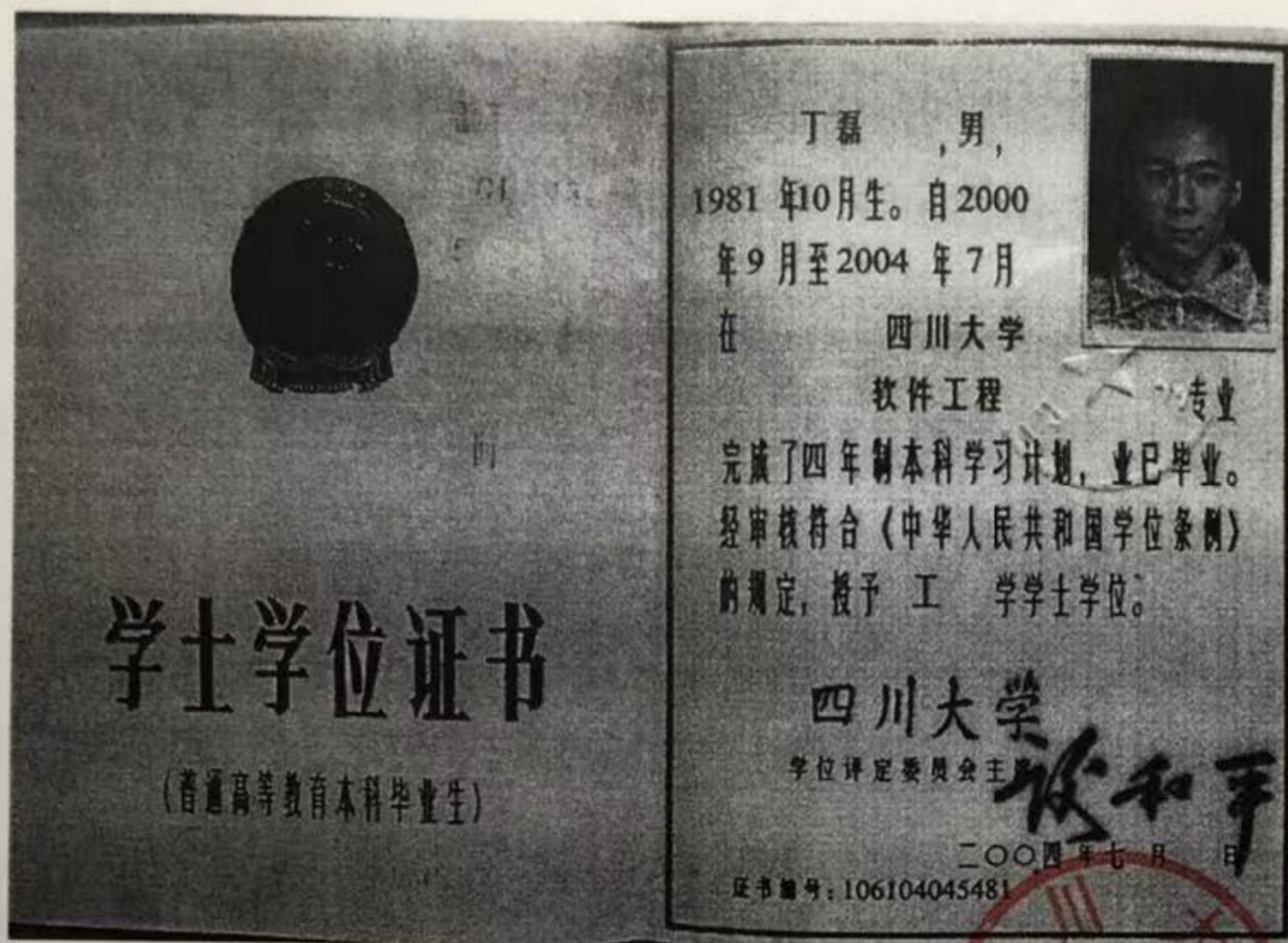
SICHUAN UNIVERSITY

THIS IS TO CERTIFY THAT

Ding Lei

Male, born in October 1981, majored in Software Engineering in this university from September 2000 to July 2004. Having completed the four-year undergraduate program, he is hereby allowed to graduate.

Having been checked in accordance with the Stipulations of the Academic Degree Regulations of the People's Republic of China, the student is duly granted the degree of Bachelor of Engineering.

Chairman of Academic Degree Committee *Xie Heping*

July 2004

Certificate number 106104045481

普通高等学校

毕业证书

学生 丁磊　　　　性别 男、

一九八一 年 十 月　　日生，于

二〇〇〇年 九月至二〇〇四 年 七月在本校

普通全日制　软件工程

专业 四 年制 本科学习，修完教学

计划规定的全部课程，成绩合格，

准予毕业。

校　长：

校　名：四川大学

二〇〇四年 七月　日

四川大学制

学校编号：　106101200405005481

SICHUAN UNIVERSITY

THIS IS TO CERTIFY THAT

Ding Lei

Male, born in October 1981, majored in Software Engineering

in this university from September 2000 to July 2004. Having completed

the four-year undergraduate program and passed the examinations, he is

hereby allowed to graduate.

President *Xie Heping*

July 2004

Diploma number 106101200405005481

The Official Transcript of Sichuan University for Graduate Student

四川大学研究生成绩证明

Name Ding Lei   **Gender** Male   **Major** Computer Applied Technology
姓名 丁磊   性别 男   专业   计算机应用技术

Duration of Studies Sept. 2004 to June 2007
学习期限   2004.9 –2007.6

Courses 课程名称	Hours 学时	Credit 学分	Grade 成绩	
			Exam 考试	Check 考查
The First Foreign Language (English) 第一外国语（英语）	200	4	78	
Professional English 专业英语	40	2	84	
Theory and Practice of Scientific Socialism 科学社会主义理论与实践	36	1	83	
Natural Dialectics 自然辩证法	54	2	75	
Database Theory and Technology 数据库理论与技术	72	4	80	
Basics of Modern Mathematics 现代数学基础	72	4	93	
Computer Network 计算机网络	72	4	86	
Unix Software Development Environment Unix 软件开发环境	54	2	95	
Multimedia Technology 多媒体技术	72	3	85	
Object-oriented Programming 面向对象程序设计	54	3	91.	
Teaching Practice 教学实践		2		Q 合格
Analysis and Design of Information Systems 信息系统分析与设计	72	4	78	

Note: The Scoring System are:

1. A= excellent   B = good   C = fair   D = pass   E = failed;

2. Above 60 is passing, 100 is full mark;

3. Q=Qualified or U = Unqualified.

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四川大学档案馆

丁磊　系　四川崇州人，一九八一年十月二十五日生。在我校计算机应用技术学科（专业）已通过硕士学位的课程考试和论文答辩，成绩合格。根据《中华人民共和国学位条例》的规定，授予　理学　硕士学位。

四川大学
校　长
学位评定委员会主席

证书编号　10610320070026 35

SICHUAN UNIVERSITY

THIS IS TO CERTIFY THAT

Ding Lei

From Chongzhou, Sichuan Province, born on October 25, 1981, majored in Computer Applied Technology and passed the examinations and his thesis defense for the Master's Degree.

Having been checked in accordance with the Stipulations of the Academic Degree Regulations of the People's Republic of China, the student is duly granted the degree of Master of Science.

President

Chairman of Academic Degree Committee　*Xie Heping*

June 30, 2007

Certificate number 10610320070026 35

硕士研究生
毕业证书

研究生丁磊　　性别 男，
一九八一年十月二十五日生,于二〇〇四
年 九 月至二〇〇七年六月在
计算机应用技术　专业
学习,学制 三年,修完硕士研究生培
养计划规定的全部课程, 成绩合格,
毕业论文答辩通过,准予毕业。

校　长: 谢和平

四川大学制

二〇〇七年月二十日

No. 0012873

编号: 106101200702003105

SICHUAN UNIVERSITY

THIS IS TO CERTIFY THAT

Ding Lei

Male, born on October 25, 1981, majored in Computer Applied Technology from September 2004 to June 2007. Having completed the three-year graduate program and passed the examinations and his thesis defense, he is hereby allowed to graduate.

President　*Xie Heping*

June 30, 2007

Diploma number 106101200702003105