Yizhen Yao

Shanghai, China
yzhenyao.cs@gmail.com linkedin.com/in/yizhen-yao-b6bb28317/ preordinary.github.io/

Education

M.Sc. in Computer Technology **09/2022 – 03/2025**
Department of Computer Science and Engineering, **Shanghai Jiao Tong University** Shanghai, China
GPA 3.84/4.00 **Ranking** 17/129

B.Eng. in Computer Science **09/2018 – 06/2022**
Department of Computer Science and Engineering, **Shanghai Jiao Tong University** Shanghai, China
GPA 87.42/100

Academic Experience

No-Reference Image Quality Assessment 10/2022 – 02/2023
- *Supervised by Prof. Zhenzhe Zheng*
- *Joint first authorship(first place); Under Review*
- *Keywords: Computer Vision; Image Quality Assessment*

- Developed a novel pluggable and lightweight module for No-Reference Image Quality Assessment (NR-IQA), which evaluates the quality of an image against human evaluation criteria without a reference image.
- The proposed module (PLS) compliments existing backbone neural network model solutions by simultaneously extract local and global information and amplifying critical details to improve assessment accuracy.
- Conducted tests and evaluations on six NR-IQA benchmark datasets and tested PLS with different backbone models, allows flexible generalization of existing backbone models without significant retraining while achieving competitive results.

Domain Generalization in Federated Learning 03/2023 – 08/2023
- *Supervised by Prof. Zhenzhe Zheng*
- *Joint first authorship(second place); Under Review*
- *Keywords: Federated Learning; Domain Generalization*

- Introduced a disentanglement approach to Federated Domain Generalization (FedDG), where the main objective is to generalize into unseen domains under the context of Federated Learning.
- Used a global model to extract domain-invariant features and a local model to extract domain-specific style features.
- Utilized contrastive learning for separate learning of domain-invariant and domain-specific features, designed one reconstruction loss functions for preserving information among features.
- Conducted tests and experiments on various benchmarks, demonstrating outstanding performance and even surpass most centralized DG methods.

Sublayer Skipping for Accelerating LLM Inference 03/2024 – 06/2024
- *Supervised by Research Scientist Pengfei Zuo*
- *Joint first authorship(second place); Submitted to NeurIPS, Under Review*
- *Keywords: LLM Inference; Inference Acceleration; Layer-wise Skipping*

- Developed a layer-wise skipping strategy to reduce the high computational cost and latency in large language model (LLM) inference.
- Performed comprehensive analysis on the importance of Attention and Feed Forward sublayers in transformer layers across a variety of models to devise the skipping algorithm.
- Contributed a training-free, auto-adaptive, sublayer-wise skipping method for both the prefilling and decoding phases of LLMs, demonstrating favorable inference performance over the baselines on various benchmarks and datasets.

Multi-level Checkpoint Cache for LLM Training 09/2023 – 09/2024

- *Supervised by Research Scientist Pengfei Zuo*
- *First authorship; Planned to submit to FAST'25*
- *Keywords: LLM Training; In-Memory Checkpoint; Fast Failure Recovery*

- Analyzed the memory, computation, and communication bottlenecks in current parallelized LLM training schemes and the limitations of conventional checkpoint mechanisms.
- Developed a novel multi-level checkpoint mechanism where the LLM model weights and training states are saved to memory and disk at different frequencies depending on failure risk.
- Used Megatron-Deepspeed to implement prototype, drastically reducing checkpoint overhead and fault recovery efficiency.

Industry Experience

Huawei Cloud Computing Technology Co., Ltd. Chengdu, China

Cloud Storage Innovation Lab Intern 09/2023 – 08/2024

- Implemented the above In-Memory Checkpoint mechanism into the company's deep learning training framework Mindspore.
- Conducted LLM training and checkpoint testing through bash scripts and parallel processing.
- Collaborated in a team of forty people, participating in building training environment and clusters, designing application program interfaces (API).
- Participated in drafting technical reports, invention patents, and technical white papers to communicate results with management and general public.

Awards and Honors

First Class Academic Scholarship, Shanghai Jiao Tong University, 2000 USD/years. 09/2022 – 09/2024

Huawei Scholarship, 1333 USD. 12/2023

Merit Student of Shanghai Jiao Tong University. 03/2024

Languages and Skills

Programming Language: Python, C++, C#, Matlab, Bash

Tools and Packages: Pytorch, git, docker, Numpy, Pandas, SciKit Learn, Unity

Languages: Chinese (Native), English (Professional)

Extracurricular

Oxford Prospects Summer Programmes, Grade A- 08/2023

China Basic Psychological Counselor, Chinese Institute of Psychology 12/2023

Monitor of Class 5, Department of Computer Science 09/2022 – 09/2023

Pupils Teaching Volunteer, Sunflower Association 02/2023 – 06/2023

UNDERGRADUATE TRANSCRIPT

NAME	Yao Yizhen	GENDER	Male
STUID	518030910185	CLASS	F1803302
COLLEGE	School of Electronic Information and Electrical Engineering	MAJOR	Computer Science and Technology MINOR English

ACADEMIC YEAR:2018-2019

CODE	COURSES	CREDIT	GRADECODE	SEMESTER	TYPE
CS154	Thinking and Approach of Programming	3	95	1	major
EN062	College English II	3	70	1	major
MA077	Linear Algebra	3	83	1	major
MA080	Calculus I	6	86	1	major
ME210	Engineering Practice	3	89	1	major
PE001	Physical Education I	1	84	1	major
PH902	Universe and Human Beings	2	90	1	major
TH000	Cultivation of Ethics and Fundamentals of Law	3	81	1	major
TH004	Military Theory	1	78	1	major
TH020	Circumstance and Policy	0.5	B+	1	major
CA001	General Chemistry	2	81	2	major
CA044	College Chemistry Lab	1	86	2	major
CS149	Data Structure	3	89	2	major
DR002	Seal Cutting	2	93.9	2	major
EI203	Fundamental Circuit Theory	4	95	2	major
EI204	Basic Circuit Lab.	2	91	2	major
EI901	Science and Technology Innovation (Part 1)	2	84	2	major
EN063	College English III	3	66	2	major
MA081	Calculus II	4	85	2	major
ME116	Introduction to Engineering	3	84	2	major
PE002	Physical Education II	1	89	2	major
PH001	Physics I	4	83	2	major
PH028	Physics Lab. I	1	85	2	major
TH020	Circumstance and Policy	0.5	A-	2	major
TH028	Modern Chinese History	3	84	2	major
XP004	Social Cognitive Practice in the New Era	2.0	P	2	major
BM016	Health Education	2	94	3	major
CH927	Introduction to Modern Chinese Poetry	3	93	3	major
FS013	Food Nutrition and Health	2	92	3	major
SO922	Environment and Human Beings	3	93	3	major
TH010	Military Training	3.0	P	3	major

ACADEMIC YEAR:2019-2020

CODE	COURSES	CREDIT	GRADECODE	SEMESTER	TYPE
CS241	Problem solving and Practice	3.0	91	1	major
EM215	Theoretical Mechanics	4.0	88	1	major
LO901	Reasoning Logic and Developing of Thinking Capacities	2	94	1	major
MA119	Probability and Statistics	3.0	93	1	major
MA238	Discrete Mathematics	3.0	95	1	major
PE003	Physical Education III	1.0	89	1	major
PH002	University Physics (A) II	4.0	87	1	major
PH029	University Physics Experiments II	1.0	83.30	1	major
TH007	Basic Theory of Marxism	3.0	82	1	major
TH020	Circumstance and Policy	0.5	A	1	major
CS145	Experiments in Computer Organization	2.0	82.00	2	major
CS214	Algorithm and Complexity	3.0	94	2	major
CS307	Operating Systems	3.0	80	2	major
CS308	Compiler Principles	3.0	85	2	major
CS356	Project Workshop of Operating System	2.0	92	2	major
CS359	Computer System Architecture	3.0	92.00	2	major
CS499	Mathematical Foundations of Computer Science	3.0	83	2	major
EI209	Computer Organization	2.0	91	2	major
EN058	English Reading and Writing I	3	74	2	minor
EN229	Audio-visual-spoken English I	3	W	2	minor
PE004	Physical Education IV	1.0	99	2	major
TH020	Circumstance and Policy	0.5	87	2	major
TH029	Introduction to Mao Zedong's Thoughts and Theoretical System of Socialism with Chinese Characteristics	3.0	86.71	2	major

ACADEMIC YEAR:2020-2021

CODE	COURSES	CREDIT	GRADECODE	SEMESTER	TYPE
CS240	Computer Ethics	2.0	93	1	major
CS339	Computer Network	3.0	92	1	major
CS410	Artificial Intelligence	3.0	89	1	major
EI313	Science and Technology Innovation (Part 3-D)	2.0	93	1	major
FL2201	College English II	3.0	76	1	major
IP012	Participation in Research Program	2	B	1	major
IS307	Introduction to Cryptology and Information Security	3.0	87	1	major
SE305	Database System Technology	3.0	74	1	major
CS022	The Principle of Database Systems	3.0	91	2	major
CS0502	Introduction to Computer Science	3	98.5	2	major
CS238	Virtual Reality and Augmented Display	3.0	92	2	major
EE458	Software Engineering	3.0	82.00	2	major
EI327	Science and Technology Innovation (Part 4-I)	2.0	93	2	major
CS431	Professional Practice	2.0	A	3	major

ACADEMIC YEAR:2021-2022

CODE	COURSES	CREDIT	GRADECODE	SEMESTER	TYPE
BS101	Undergraduate Project (Thesis)	4.0	B+	2	major
IS407	Modern Cryptography	2	88	2	major
MT318	Forum on Materials Engineering	2	92	2	major

NOTE1-MARK"△"Means the Course Failed NOTE2-MARK"↗"Means Credit Transfer Course NOTE3-P(Pass)F(Fail) NOTE4-MARK "W"Means The course has been withdrawn NOTE5-The sheet should be stamped to be official

Semester 1 means fall semester Semester 2 means spring semester

Semester 3 means summer semester

Registar:

Registration & Students'Affairs Center

Shanghai Jiao Tong University

http://jwc.sjtu.edu.cn

2024/03/20

上海交通大學 SHANGHAI JIAO TONG UNIVERSITY

TRANSCRIPT FOR GRADUATE STUDENT

Date of Issue: Mar. 20, 2024

Name: Yao Yizhen
Gender: Male
Nationality: The People's Republic of China
Date of Birth: Jan. 13, 2000
Student ID: 122033910190
Enrollment Date: Sept. 2022
Study Program: Full-time Professional Master
Supervisor: ZhengZhengzhe
School: School of Electronic Information & Electrical Engineering
Major: Computer Technology
Remarks:

	COURSE TITLE	CREDIT	GRADE	SEMESTER
	Big Data Processing Technologies	3	B	2023 Spring
	Neural Network Theory and Application	3	A+	2023 Spring
☆	Machine Learning	3	A+	2023 Spring
	Network Security Fundamentals	2	A	2023 Spring
☆	English for Academic Purposes	2	B+	2023 Spring
	Laboratory Safety Education	0.5	P	2023 Spring
	Academic Seminars	2	P	2023 Spring
	Professional Practice	1	P	2023 Spring
☆	Blockchain Technologies	3	A+	2022 Fall
☆	Computational Complexity	3	A-	2022 Fall
☆	Advanced Topics on Internet of Things	3	A+	2022 Fall
☆	Advanced Database Techniques	3	A-	2022 Fall
☆	Scientific Writing, Integrity and Ethics	1	A	2022 Fall
☆	Theory and Practice of Socialism with Chinese Characteristics in the New Era	2	A-	2022 Fall
☆	Introduction to Dialectics of Nature	1	A	2022 Fall
☆	Optimization Method	3	A+	2022 Fall

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Total Credits	Credits for GPA	Cumulative GPA	Degree-Specific Requirements	Completion Date	Grade
35.5	24	3.84/4.0			
Degree Conferred					
Conferral Date					
Thesis Title					

* Courses marked with ☆ are used for calculating GPA while those with ※ are free elective.
** The Transcript should be stamped to be official.
*** Refer to the back page for descriptions.

Dean: Gui Lin

Graduate School
Shanghai Jiao Tong University

说　　明

学期：

上海交通大学每学年开始于9月，结束于次年8月。2011年（含）起每学年包含两个标准学期（秋季学期、春季学期）和一个夏季学期，其中标准学期有教学周16周，夏季学期有4周。2011年前每学年包含两个学期，各有教学周18周。

学分与学时：

2011年（含）起，16学时 = 1学分；2011年前，18学时 = 1学分。

考核与记分方式：

1） 2016年9月及以后入学的研究生课程考核成绩采用A+至F的十一级记分制或者“通过/不通过”，具体参照附表。在此之前入学的研究生课程成绩采用原记分方式，同时由学校出具的中英文成绩单中成绩绩点的计算方法也采用原有方式，具体参照附表。

2） 平均绩点 = Σ（绩点 • 学分）/Σ学分，记入平均绩点统计的课程清单由各学科在制定培养方案时确定。

EXPLANATORY NOTES

Academic Calendar:

The academic calendar of Shanghai Jiao Tong University operates on the semester system, which runs from September to next August. One academic year contains two standard semesters (fall semester and spring semester) and one summer semester since 2011 (inclusive). The standard semester contains approximately 16 weeks of instruction, and 2 weeks of final examinations. The summer semester contains 4 weeks. Before 2011, one academic year had two semesters each with 18 weeks of instruction.

Credits and Instruction:

From the school year of 2011 (inclusive), one credit corresponds to 16 instruction hours. Before the school year of 2011, one credit corresponded to 18 instruction hours.

Grading Systems:

1） Effective for graduate students enrolled after Fall 2016 (inclusive), the grade points for graduate courses adopt the 4.0 scale. For graduate students enrolled before Fall 2016, the 3.3 scale was used. Please refer to the table below for detailed information.

2） Grade Point Average (GPA) = ∑ (point·course credit) / ∑course credit. Courses and corresponding course credits used for GPA calculation is decided by the respective schools/departments.

新记分体系（2016年秋季起） New 4.0 Scale (From Fall 2016)				原记分体系（2016年秋季前） Previous 3.3 Scale (Before Fall 2016)		
百分制	等级制(Grade)	绩点(Points)	说明	百分制	等级制(Grade)	绩点(Points)
95,100	A+	4.0	优秀（Excellent）	96～100	A+	3.3
[90,95)	A	4.0		90～95	A	3.0
[85,90)	A-	3.7		85～89	A-	2.7
[82,85)	B+	3.3	良好（Good）	80～84	B+	2.3
[78,82)	B	3.0		75～79	B	2.0
[75,78)	B-	2.7		70～74	B-	1.7
[71,75)	C+	2.3	一般（Fair）	67～69	C+	1.3
[67,71)	C	2.0		63～66	C	1.0
[63,67)	C-	1.7		60～62	C-	0.7
[60,63)	D	1.0	及格（Pass）	<60	D	0
<60	F	0	不及格（Fail）	/	通过（Pass）	N/A
/	P	N/A	通过（Pass）	/	不通过（Fail）	N/A
/	F	N/A	不通过（Fail）	/	/	/

电子成绩单验证网址 For verification of the electronic transcript, please visit: https:/www.chsi.com.cn/cjdyz/index

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地址：上海市东川路800号 （Address:800 Dongchuan Road, Shanghai 200240, P.R.China） 电话 (TEL): +86-21-34205105