叶璨铭

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教育背景

南方科技大学 2020 年 9 月至今

计算机科学与工程系 计算机科学与技术专业 （国家一流本科专业建设点）

计算机科学与工程系首届**图灵班**学生，GPA 3.86/4.00 (大三上 3.91)，系专业排名 11/203, 预计可获得推免资格。

- **专业基础课程：**计算机程序设计基础、数理逻辑导论、线性代数、高等数学、概率论与数理统计等。
- **专业核心课程：**人工智能（排名前 5，并担任学生助教)、机器学习、计算机视觉、智能机器人、操作系统、计算机组成原理、软件工程、C/C++ 程序设计、算法设计与分析、数据结构与算法分析、离散数学等。
- **获得满绩的课程：**计算机程序设计基础（担任学生助教)、数理逻辑导论、线性代数、智能机器人、软件工程、操作系统、计算机组成原理。

项目经历

基于多场景专家知识融合的多任务学习动态协作平衡推荐系统 2022 年 9 月至今

(2023 年度广东省大学生科技创新战略专项基金“攀登计划”立项)
三人组队，担任项目负责人 指导老师：张宇副教授

- 注意到企业应用推荐系统的多场景特点，研究旨在减少维护多场景推荐系统所需的计算资源，缓解冷启动问题。
- 尝试提出一种多任务模型，同时为每个推荐场景提供服务。该模型应该不仅能利用各个推荐场景共享的数据模式，还要对不同场景数据分布的差异进行建模。
- 尝试引入多目标优化的方法，解决数据分布和优化方向之间差异对模型训练的影响。

基于近红外光谱数据的古玉智能鉴别与分析 2022 年 9 月至今

(2023 年度广东省大学生科技创新战略专项基金“攀登计划”立项)
七人组队，主要负责模型构建与代码实现 指导教师：周永明讲席教授、荆志淳教授、刘江教授

- 以往研究中常用有损分析方法确定文物成分，本研究通过无损的近红外光谱信息结合人工智能技术挖掘数据深层信息。
- 基于数据建立数学模型对矿物成分和质地进行分类以及亚类聚类。
- 构建深度学习模型，还原古玉铁镁比、晶格结构等化学构成以及玉器产地、加工方法、用玉文化等考古学信息。

大学生数学建模竞赛 2022 年 2 月至 2023 年 2 月

三人组队，负责代码实现与论文写作

- 22 年 2 月美赛：时序分析支持下的最优量化交易策略探索分析
  - 建立合适的时间序列模型把握较为复杂的比特币与黄金价格走势，建立价格预测模型。
  - 实现动态规划算法事后计算理论最优交易策略。
  - 首次参加建模比赛，获得三等奖。
- 23 年 2 月美赛：通过时间序列分析与自然语言处理深入挖掘单词猜谜游戏 Wordle 的价值
  - 建立时间序列模型解释 Wordle 活跃玩家的数量变化，并预测未来趋势。
  - 为了分析 Wordle 游戏难度以便策划出题，建立猜谜次数分布的概率回归模型。
  - 使用聚类算法为游戏难度分级，并结合自然语言处理技术从谜底建立分类模型反推游戏难度分级。
  - 获得一等奖。

ASC 世界大学生超算竞赛 2023 年 3 月至 5 月

五人组队 参加第十届总决赛

- 负责完成赛题：高效训练“源”中文大语言模型。
- 基于微软 Megatron-DeepSpeed 大语言训练框架进行开发，期间为上游代码库贡献 2 个 PR 并且成功合并。
- 为框架增添对于可以减少训练通信量的高效优化器，如 1 bit Adam 优化器；增加显存优化技术如 ZeRO-Offload。
- 针对不同的并行策略（如数据并行、张量并行、流水线并行）在 4 机 8 卡（A100 GPU）上成功开展实验，有效提高训练速度 60%。
- 综合性能排名第七，获得一等奖。

全国大学生机器人 Robomaster 机甲大师超级对抗赛 2020 年 9 月至 2022 年 9 月

学校机器人队 *ARTINX* 算法组成员 参加 2021 和 2022 两个赛季的比赛

- 该比赛要求各高校在一年的准备时间内开发构建一组机器人机械电路及其智能计算机控制系统，在比赛中以射击对抗的形式一决高下。
- 团队协作开发装甲板自动瞄准与跟踪系统，核心算法包括目标检测、对象跟踪、机器人编号识别、位置角度解算等。
- 负责自瞄系统在空中机器人上的部署与调优。
- 负责工程车机器人辅助取矿系统的开发，核心算法包括目标检测、自适应定位与运动规划。
- 参与升级团队的通信框架和工程规范。
- 在 200 多支队伍角逐中取得了全国赛 16 强的成绩，为校争光。

相关技能

- 熟练掌握数据结构和算法，具有扎实的计算机理论基础。
- 熟练掌握 Java、C/C++ 和 Python 编程语言，有良好的代码风格和软件工程习惯。具有独立设计和实现项目的能力。
- 熟悉常见的机器学习和深度学习框架，如 Scikit-Learn 和 PyTorch 等，具有机器学习与计算机视觉模型的开发和部署经验。
- 具备良好的英语听说读写能力，四级 595 分，六级 576 分，托福首考 95 分。具有准确流畅地阅读英语教材、课件、论文和撰写英语技术报告、论文的能力。

荣誉证书

全国大学生机器人大赛 Robomaster 2022 全国总决赛，国赛三等奖 2022 年 9 月
全国大学生机器人大赛 Robomaster 2022 东部分区赛，省赛二等奖 2022 年 9 月
全国大学生机器人大赛 Robomaster 2021 全国总决赛，国赛一等奖 2021 年 9 月
全国大学生机器人大赛 Robomaster 2021 南部分区赛，省赛一等奖 2021 年 9 月
2023 年美国大学生数学建模大赛，获得 *M* 奖 *(国际一等奖)* 2023 年 5 月
2022 年教育部-华为“智能基座”未来之星奖学金，运用华为技术进行课程创新实践，成绩前五。 2023 年 3 月
第一届南科大超算竞赛，最高性能奖 2023 年 3 月
第十届 ASC 世界大学生超算竞赛总决赛，一等奖, 超级团队奖 2023 年 5 月
2021-2022 学年校优秀学生奖学金三等奖 2022 年 11 月
2020-2021 学年校优秀学生奖学金二等奖 2021 年 11 月
2020 学年致诚书院优秀团员称号及奖学金 2021 年 5 月

社会实践

任南科大计算机系致诚书院分班班长 2022 年 9 月-至今
任南科大致诚书院学生发展中心干事 2020 年 9 月至 2021 年 9 月
任南科大开源俱乐部协作部部长 2022 年 2 月至 2023 年 2 月

Ye Canming

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Education

Southern University of Science and Technology (SUSTech), GPA:3.86/4.0 Sep. 2020 – Present

Undergraduate student in Computer Science and Engineering (CSE), expected 2024
As a student of the first **Turing Class** at SUSTech, I currently rank 11th out of 203 peer students in the department.

- **Professional basic courses:** Introduction to Computer Programming, Introduction to Mathematical Logic, Linear Algebra, Calculus, Probability and Statistics, etc.
- **Professional core courses:** Artificial Intelligence (ranked top 5 and hired to tutor the class) , Machine Learning, Computer Vision, Intelligent Robotics, Operating Systems, Computer Organization, Software Engineering, C/C++ Program Design, Algorithm Design and Analysis, Data Structure and Algorithm Analysis, Discrete Mathematics, etc.
- **Courses that got full performance:** Introduction to Computer Programming (hired to tutor the class), Introduction to Mathematical Logic, Linear Algebra, Intelligent Robotics, Software Engineering, Operating Systems, Computer Organization.

Experience

Recommendation based on Multi-task Learning Sep. 2022 – Present

Supported by the Innovation Special Fund for College students in Guangdong Province ("Climbing Plan")
Project Leader of a team of 3 people Supervisor: Prof. Zhang Yu

- Noting the multi-scenario characteristics of enterprise application recommender systems, research aims to alleviate the computational resources required to maintain multi-scenario recommender systems.
- Try to propose a multi-task model to serve each domains concurrently utilizing the common pattern shared behind the domains, while also modeling the difference as well.
- Try to introduce a multi-objective optimization method to solve the impact of differences in data distribution and optimization direction on model training.

Intelligent archaeology of ancient jade based on near-infrared spectral data Sep. 2022 – Present

Supported by the Innovation Special Fund for College students in Guangdong Province ("Climbing Plan")
Participant in a group of 7, acting as the machine learning programmer Instructors: Prof. Zhou Yongming, Prof. Jing Zhicun, Prof. Liu Jiang

- Noticing the side effect of middle infrared analysis, our research prefers to apply non-destructive near-infrared spectral analysis on ancient jade relics with AI technology used for Archaeological Information Discovery.
- Classify the jades into clusters according to their mineral composition and texture characteristics mined from NIR spectral data.
- Construct a deep learning model to restore the chemical composition of ancient jade such as iron/magnesium ratio, lattice structure, and archaeological information such as jade origin, processing method, and jade culture.

The Mathematical Contest in Modeling Feb. 2023

Participant of a team of 3 people acting as the data miner and experiment designer

- 2023 MCM: Mining the value of word guessing game Wordle by Natural Language Processing and Machine Learning.
  - Constructed a time series model to explain the changes in the number.
  - Established a Probabilistic Regression Model of Wordle guessing times of given a given problem in order to help estimate the difficulty for guessing the word.
  - Clustered difficulty into several levels and build a NLP model to classify the difficulty from the word.
  - Awarded as the Meritorious Winner (First Prize).

ASC Student Supercomputer Challenge Mar. – May. 2023

Participant of a team of 5 people

- Responsible for training large language model on supercomputer.
- Leveraged the Microsoft Megatron-DeepSpeed Framework and submitted 2 bug fix PRs that have been merged.
- Added new features such as 1-bit Adam Optimizer and 1-bit Adam to the framework.
- Conducted experiments to investigate the effectiveness of parallel strategy on 8 A100 GPUs successfully and reached a speedup of 60%.
- Awarded as first prize for exceptional performance in the competition.

Robomaster 2021 and 2022 National Super Match Sep. 2020 – Sep. 2022

Member of the vision algorithm group

- The competition requires young engineers from different majors work together to build a fleet of robots within one year's preparation time, and then compete with other universities' robot by MOBA shooting game.
- Developed an automatic aiming and tracking system for armor plate. The core algorithms included object detection, object tracking, robot number recognition etc.
- Responsible for deployment and fine-tuning of automatic aiming system on the aerial robot.
- Responsible for the development of the auxiliary ore mining system on the engineering robot. The core algorithms include target detection, adaptive positioning and motion planning.
- Won the top 16 in the national competition among more than 200 teams.

SKILLSET

- Proficient in data structure and algorithm, having a solid theoretical foundation of computer.
- Proficient in Java, C/C++ and Python programming languages, with good coding style and software engineering habits. Able to independently design and implement projects.
- Familiar with common machine learning and deep learning frameworks such as Scikit-Learn and PyTorch, and experienced in machine learning and computer vision model development and deployment.
- Fluent English listening, speaking, reading and writing skills, scored 595 in CET-4, 576 in CET-6 and 95 in TOEFL. Able to read English textbooks, course-ware, papers and write English reports and papers accurately.

HONORS AND AWARDS

3rd Prize, Award on Robomaster 2022 National Super Match	Sep. 2022
2nd Prize, Award on Robomaster 2022 Provincial Super Match	Sep. 2022
1st Prize, Award on Robomaster 2021 National Super Match	Sep. 2021
1st Prize, Award on Robomaster 2021 Provincial Super Match	Sep. 2021
3rd Prize, 2022 Mathematical Contest in Modeling	May. 2022
1st Prize, 2023 Mathematical Contest in Modeling	May. 2023
3rd Prize, 2022 Ministry of Education - Huawei "Intelligent Base" Scholarship	Mar. 2023
highest performance award, 2022 SUSTech Supercomputer Competition	Mar. 2023
First Prize and Group Competition Champion, 10th ASC Student Supercomputer Challenge	May. 2023
3rd Prize, University Merit Student Scholarship for exceptional performance	Nov. 2022
2nd Prize, University Merit Student Scholarship for exceptional performance	Nov. 2021
Outstanding League Member Award of Zhicheng College of SUSTech	May. 2021

SOCIAL ACTIVITIES

Monitor of CS Class of Zhicheng College	Sep. 2022 – present
Member of Student Development Center of Zhicheng College	Sep. 2020 to Sep. 2021
Minister of Collaboration Department of Open Source Club, SUSTech	February 2022 to February 2023