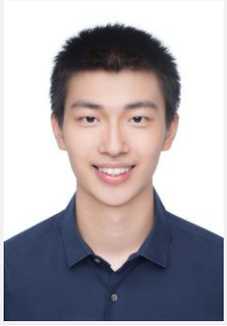

仝秉松 Bingsong Tong

西安交通大学

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教育背景

西安交通大学 *9/2021-6/2025*

- **计算机科学与技术（越杰班）**；**GPA**: 3.98/4.30（排名: 1/35（班内排名）） 91.92/100
- **主要课程:** 工科数学分析 (4.3/4.3)，线性代数 (4.3/4.3)，复变函数 (4.3/4.3)，数学物理方程(4.3/4.3)，计算机程序（面向对象）(4.3/4.3)，离散数学 (4.0/4.3)，概率统计与随机过程(4.0/4.3)，大学计算机 (4.3/4.3)数据结构与算法 A(拔尖班) (3.7/4.3)，计算机系统导论(4.0/4.3).

加州大学伯克利分校 Global Exchange Program *8/2023-5/2024*

- **课程**: Artificial Intelligence (A), Great Ideas of Computer Architecture (Machine Structure)(A-),Operating System and System Programming, Computer Security, Efficient Algorithms and Intractable Problems, Database Systems .

新加坡国立大学（计算机学院 2023 暑期学校） *5/2023-7/2023*

Artificial Intelligence of Things A- (Excellent)

实习经历

苹果电脑贸易(上海)有限公司: DMP Data-Science Intern 北京朝阳国贸三期 *7/2022-8/2022*

- **数据收集与分析**：使用 SQL 检索和处理中国地区苹果产品的销售数据，重点关注 Mac、iPad 和 iPhone。
- **模型选择**：选择 ARIMA 和 SARMAX 模型用于预测。利用这些模型预测销售趋势并制定策略。
- **报告**：准备关于模型性能和销售预测的演示和报告。

项目经验

IntelliFit: 你的智能健身伙伴

- **数据收集与处理**：使用树莓派构建电路，利用 DHT-11 传感器捕获图像并收集环境数据。使用 MediaPipe 库和 PCA 进行数据处理以提高训练效率。
- **机器学习**：使用 SVM 模型进行训练。
- **数据通信与可视化**：使用 MQTT 协议传输数据，通过不同颜色编码 LED 灯指示正确的姿势，通过蓝牙将环境读数发送给 micro:bit 开发板，并在网页上可视化数据。

PACMAN：强化学习和值迭代的 Pacman 智能体，可优化的穿越各种独特布局的的迷宫

- 使用 Q-learning 来优化确定 Pacman 智能体在不同环境 MDP 下的动作。
- 编写了一个值迭代 Pacman 智能体，使用优先扫描来计算最优 MDP 策略及其价值。

RookieDB: 数据库管理系统实现

- **B+树索引**：设计并实现了 B+树索引结构，提升了数据库查询效率。
- **表连接算法与查询优化**：实现了多种表连接算法，包括嵌套循环连接、排序合并连接和哈希连接。通过建立成本模型，生成和选择查询计划等优化了查询时间。
- **锁机制与并发控制**：实现了数据库的锁管理器，支持了多种锁的类型和锁升级策略，保证了事务 ACID 属性，同时通过合理的锁策略减少死锁概率。
- **数据恢复机制**：学习数据库恢复技术，包括日志记录、回滚和检查点技术，实现了在系统故障后的数据恢复，确保了数据库的稳定性和数据的一致性。

SecureCloud DistribuShare System: 一个端到端的加密文件共享系统

- 设计并用 Golang 语言实现了一个类似于 Dropbox 的文件共享系统，能在不安全的环境中保护用户隐私。
- **安全性**：使用 RSA 进行公钥加密和数字签名验证，并使用 CTR 分组密码结合 SHA-512 HMAC 进行数据加密，以提供用户之间安全的数据共享。

MapReduce in Rust：分布式计算实现

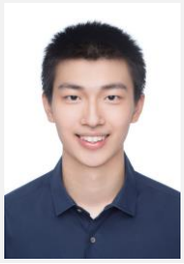
- 设计并用 Rust 语言实现了一个简化版 MapReduce 系统，实现分布式计算。
- 实现一个 Coordinator 进程，将任务分发给 Worker 进程，并处理 Worker 进程的失败问题，包括实现心跳机制和任务重新分配。

专业技能

- **计算机技术**: Python，C/C++，SQL，Rust，Golang，Java，MATLAB，x86/Risc-V 汇编语言，SPSS
- **语言能力:** 多邻国 115，六级 566，有良好的英语听说读写能力。

获奖情况

- 2021-2022 年度国家励志奖学金。
- 2021-2022 西安交通大学钱学森书院优秀学生。
- 2022-2023 西安交通大学钱学森书院优秀学生。
- 2021-2022 西安交通大学钱学森书院优秀共青团员。
- 第十四届全国大学生数学竞赛省二等奖。
- 第九届互联网+大学生创新创业大赛主赛道陕西省金牌。
- 第九届互联网+大学生创新创业大赛红旅赛道陕西省金牌。
- 数学建模美赛 successful 奖。



Bingsong Tong

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EDUCATION

Xi'an Jiaotong University *9/2021-6/2025*

- Expexted Degree: Bachelor in Computer Science (Academic Elite Class); GPA: 3.98/4.30（Rank: 1/35） 91.92/100
- Core Courses and Scores: Mathematical Analysis for Engineering (4.3/4.3), Calculus (4.3/4.3), Linear algebra (4.3/4.3) , Complex functions (4.3/4.3), Mathematical Physics Equations (4.3/4.3), Computer Programming (4.3/4.3), Discrete Mathematics (4.0/4.3), Probability and Statistics Random Processes (4.0/4.3), Computer Programming (4.3/4.3), Data Structure and Algorithms (3.7/4.3), Introduction to Computer Systems (4.0/4.3).

University of California, Berkeley（Global Exchange Program) *8/2023-5/2024*

Courses: Artificial Intelligence (A), Great Ideas of Computer Architecture (Machine Structure)(A-),Operating System and System Programming, Computer Security, Efficient Algorithms and Intractable Problems, Database Systems .

National University of Singapore (Summer Workshop 2023 by the School of Computing) *5/2023-7/2023*

Artificial Intelligence of Things A- (Excellent)

INTERNSHIP

Apple China Beijing: DMP Data-Science Intern *7/2022-8/2022*

- Data Collection and Analysis: Retrieved and processed sales data for Apple products in China using SQL, focusing on Macs, iPads, and iPhones.
- Model Selection and Application: Collaborated on selecting the ARIMA and SARMAX models for forecasting. Utilized these models to predict sales trends and plan strategies.
- Reporting: Prepared presentations and reports on model performance and sales forecasts for management.

PROJECT

IntelliFit: Smart AIoT Fitness Companion in National University of Singapore

- Data Collection & Processing: Built circuits with Raspberry Pis, captured images, and collected environmental data using DHT-11 sensors. Processed data using the MediaPipe library and PCA for training efficiency.
- Machine Learning: Trained with SVM model
- Data Communication & Presentation: Transmitted data using MQTT protocol, indicated correct posture through color-coded LED lights, sent environmental readings to micro:bit via Bluetooth, and visualized data on web pages.

PACMAN: Reinforcement Learning and Value Iteration Agent that Optimally Traverses Various Maze Layouts

- Incorporated Q-learning to optimize the Pacman agent's actions for different environment MDPs
- Programmed a modified value iteration Pacman agent that computes the optimal MDP policy and its values using prioritized sweeping.

RookieDB: A Bare-bones Database Implementation

- B+ Tree: Designed and implemented the B+ tree index structure, which enhanced the efficiency of database queries.
- Join Algorithms: Implemented nested loop, sort-merge, and hash joins. Developed transaction management models.
- Locking Management: Deployed a lock manager supporting various lock types and escalation strategies to ensure transactions' ACID properties and reduce deadlock risks.
- Data Recovery: Studied database recovery techniques, including logging, rollback, and checkpoint technologies, and implemented data recovery after system failures to ensure database stability and data consistency.

SecureCloud DistribuShare System: An End-to-End Encrypted File-Sharing System

- Design & Implement: a file sharing system similar to Dropbox that protects user privacy through Golang.
- Safety: Used RSA for public key encryption and digital signature verification, and CTR Block Cipher mode with SHA-512 HMAC for data encryption to provide secure data sharing between users.

SKILLS

- *Computer Skills*: Python, C/C++, Java, Golang, Rust ,SQL,MATLAB,SPSS, x86/Risc-V Assembly Language
- *Language Skills*: DET 115, CET-6 566. Fluent in English.

AWARDS

- National Inspirational Scholarship.
- Second Prize of the 14th National Mathematics Competition for College Students in Shannxi
- China College Students' 'Internet+' Innovation and Entrepreneurship Competition Shaanxi Province Gold Award
- Outstanding Student of Qian Xuesen Honors College at Xi'an Jiaotong University
- Successful Participant in 2023 Interdisciplinary Contest In Modeling