Introduction to CS & AI

Tao LIN

September 2, 2025

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Indeed “introduction to CS & AI” DOES NOT indicate that

we will go through all basic CS & AI materials step-by-step in this course!

If you are still unfamiliar with

[1] https://inst.eecs.berkeley.edu/~cs61a/sp22/
[2] https://sp23.datastructur.es/
[3] https://cs61c.org/fa23/

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- UC Berkeley, CS 61B: Data Structures[2].
- (Even) UC Berkeley, CS 61C: Great Ideas in Computer Architecture (Machine Structures)[3].

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- Computer systems
- Distributed systems
- Network systems
- Embedded systems
- Compiler
- Software security
- System-on-chip
- Internet-of-Things systems
- etc

Theory

- Distributed algorithms
- Cryptography and security
- Formal verification
- Computational complexity
- Information theory and coding
- Computational linear algebra
- Statistical theory
- Quantum information theory and computation
- Dynamical system theory
- Advanced probability theory
- etc

AI

- Statistical Machine Learning
- Deep Learning
- Learning theory
- Optimization for Machine Learning
- Multi-agents
- Computational photography
- Computer vision
- Virtual reality

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- Master math and CS skills

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- Practice these skills and make steady progress in your research

Course Schedule

Week	Date	Topics
1	2025. Sep. 02	How to communicate
2	2025. Sep. 09	How to do presentation
3	2025. Sep. 16	How to be a good AI researcher (I): doing research I
4	2025. Sep. 23	How to be a good AI researcher (II): productivity and career
5	2025. Sep. 30	How to be a good AI researcher (III): academic paper writing and peer reviews
6	2025. Oct. 14	Sharing the experience of writing excellent academic papers and rebuttal
7	2025. Oct. 21	Practice course I
8	2025. Oct. 28	Practice course II

How to communicate

How to do presentation

How to be a good AI researcher (I): doing research I

How to be a good AI researcher (II): productivity and career

1. Recitation

2. How to Do Research
   - More on How to Read Papers
   - 12 Resolutions for Grad Students
   - How to Manage Your Time?
   - How to Be Productive?
   - Tips for Work-Life Balance (WLB)
   - Others Career Tips

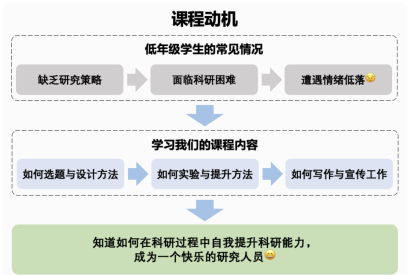
How to be a good AI researcher (III): academic paper writing and peer reviews

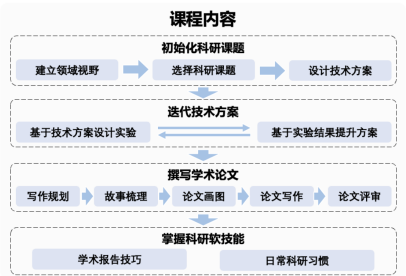
Parallel course

GAMES003: 科研基本素养

2024 年秋季学期（在线直播）

课程介绍





本课程为初学者展示了一条全面的学术研究路径，旨在引领大家以系统性的方法探索计算机视觉和图形学领域的科学前沿。我们将指导大家从建立领域视野，到选择科研课题、设计技术方案，再到设计实验、优化方案、管理论文投稿、设计论文图表、撰写论文、自我评审与rebuttal，以及学习做学术报告的技巧，覆盖了科研过程中的每一个关键步骤。课程中，我们将结合具体案例，分享科研经验，同时鼓励学生提出问题，以实现具象的科研素养教学。

具体课程内容请参见课程大纲。

https://pengsida.net/games003/

Thanks & Question Time!