

Introduction to CS & AI

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September 2, 2025



- 1 General Introduction
 - How to Become a Good AI Researcher

Table of Contents

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 - How to Become a Good AI Researcher

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 61A: Structure and Interpretation of Computer Programs¹.

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- UC Berkeley, CS 61B: Data Structures².
- (Even) UC Berkeley, CS 61C: Great Ideas in Computer Architecture (Machine Structures)³.

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Advanced CS: System, Theory, and AI

System

- Computer systems

Advanced CS: System, Theory, and AI

System

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- Distributed systems

Advanced CS: System, Theory, and AI

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- Distributed systems
- Network systems

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- Network systems
- Embedded systems

Advanced CS: System, Theory, and AI

System

- Computer systems
- Distributed systems
- Network systems
- Embedded systems
- Compiler

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System

- Computer systems
- Distributed systems
- Network systems
- Embedded systems
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- Software security

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System

- Computer systems
- Distributed systems
- Network systems
- Embedded systems
- Compiler
- Software security
- System-on-chip

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System

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

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System

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

Advanced CS: System, Theory, and AI

System

Theory

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

Advanced CS: System, Theory, and AI

System

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

- Distributed algorithms

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System

- 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

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

Theory

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- Formal verification

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

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- Cryptography and security
- Formal verification
- Computational complexity

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

Theory

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- Cryptography and security
- Formal verification
- Computational complexity
- Information theory and coding

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System

- 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

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

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- Cryptography and security
- Formal verification
- Computational complexity
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- Computer systems
- Distributed systems
- Network systems
- Embedded systems
- Compiler
- Software security
- System-on-chip
- Internet-of-Things systems
- etc

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- Distributed algorithms
- Cryptography and security
- Formal verification
- Computational complexity
- Information theory and coding
- Computational linear algebra
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System

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

Theory

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- Cryptography and security
- Formal verification
- Computational complexity
- Information theory and coding
- Computational linear algebra
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System

- 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
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System

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

Theory

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- Computational complexity
- Information theory and coding
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- Distributed systems
- Network systems
- Embedded systems
- Compiler
- Software security
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- Distributed algorithms
- Cryptography and security
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- Computational complexity
- Information theory and coding
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- Quantum information theory and computation
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System

- Computer systems
- Distributed systems
- Network systems
- Embedded systems
- Compiler
- Software security
- System-on-chip
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- Distributed algorithms
- Cryptography and security
- Formal verification
- Computational complexity
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- Quantum information theory and computation
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- Computer systems
- Distributed systems
- Network systems
- Embedded systems
- Compiler
- Software security
- System-on-chip
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- Distributed algorithms
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- Computational complexity
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- Computer systems
- Distributed systems
- Network systems
- Embedded systems
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- Distributed systems
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Advanced CS: System, Theory, and AI

System

- 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
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AI

- Statistical Machine Learning
- Deep Learning
- Learning theory
- Optimization for Machine Learning
- Multi-agents
- Computational photography

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Table of Contents

- 1 General Introduction
 - How to Become a Good AI Researcher

How to Become a Good AI Researcher

How to Become a Good AI Researcher

- Master math and CS skills

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 - how to give a great research talk
 - etc
- Practice these skills and make steady progress in your research

Course Schedule

Week	Date	Topics
1	2024. Sep. 03	Introduction to CS & AI
2	2024. Sep. 10	How to communicate
3	2024. Sep. 14	How to do presentation
4	2024. Sep. 24	How to be a good AI researcher (I): doing research I
5	2024. Oct. 07	How to be a good AI researcher (II): productivity and career
6	2024. Oct. 15	How to be a good AI researcher (III): academic paper writing and peer reviews
7	2024. Oct. 22	Sharing the experience of writing excellent academic papers and rebuttal
8	2024. Oct. 29	Practice course

How to communicate

- 1 A General Guide
 - Why Communication Matters?
 - The 7 **C**'s of Communication
- 2 How to Communicate With Your Collaborator?
 - How to Work With Your Advisor Effectively
 - How to Share Progress With Your Mentors/Collaborators?
 - How to Work With a Busy Advisor?
 - How to Work With Your Senior Advisor(s)?
- 3 How to Ask Questions The Smart Way (From CS Perspective)?
 - Before You Ask
 - When You Ask
- 4 How to Do Presentation

How to do presentation

- 1 Reminder: Principle of Effective Communication
- 2 How to Present—A General Guideline
 - A General Guide
 - Before the Talk / Preparing Your Talk
 - The Beginning of the Talk
 - The Body of the Talk
 - The End of the Talk
- 3 Others
 - How to Handle Questions in a Presentation?
 - How to Present a Line Plot?
 - How to Make a Research Poster?
 - How to Present a Poster at a Conference?
 - How to Present a Paper in Theoretical Computer Science: A Speaker's Guide for Students?

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

- 1 Course Logistics
- 2 Recitation
- 3 How to Do Research
 - The Illustrated Guide to a Ph.D.
 - 10 Easy Ways to Fail a Ph.D.
 - How to Make Steady Progress?
 - How to Keep Track With the Literature?
 - How to Read Papers?
 - How to Come up With Research Ideas?
 - How to Do Experiments?
 - How to Create More Impact
- 4 Concluding Remarks

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

- 1 How to Write a Great Research Paper?
 - A General Guideline
 - How to Write the Introduction?
 - How to Write Papers That Are Easy to Read?
 - Tips to Create a Good Table
- 2 How to Write a Rebuttal for a Conference?
- 3 Summary

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。

Thanks & Question Time!