



ALLEGHENY
COLLEGE

Majors,
Minors and
Research at
the
Department of
Computer and
Information
Science

Majors, Minors and Research at the Department of Computer and Information Science

STEM

What is this
department?

STEM

Research

Ind study

SE positions

Cupper Scholar

Summer research

Fall 2024

Value of an Education

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The value of a computer science education

\$.58M

lifetime earnings of a
high school graduate*



\$ 1.19M

lifetime earnings of a
college graduate*



\$ 1.67M

lifetime earnings of a
computer science major*



*Net present value today

Source: Brookings

Careers from This Education

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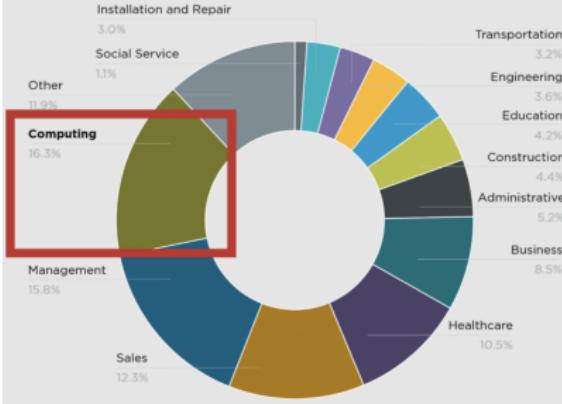
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Computing jobs are the #1 source of new wages in the United States



500,000 current openings:
These jobs are in **every** industry and **every** state, and they're projected to grow at twice the rate of all other jobs.

How to prepare for such careers?



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Four New Majors

Help Prepare For Careers in CS

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- **Computer Science (A STEM Area)**
- **Data Science (A STEM Area)**
- **Informatics**
- **Software Engineering**



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Computer Science

A STEM Area

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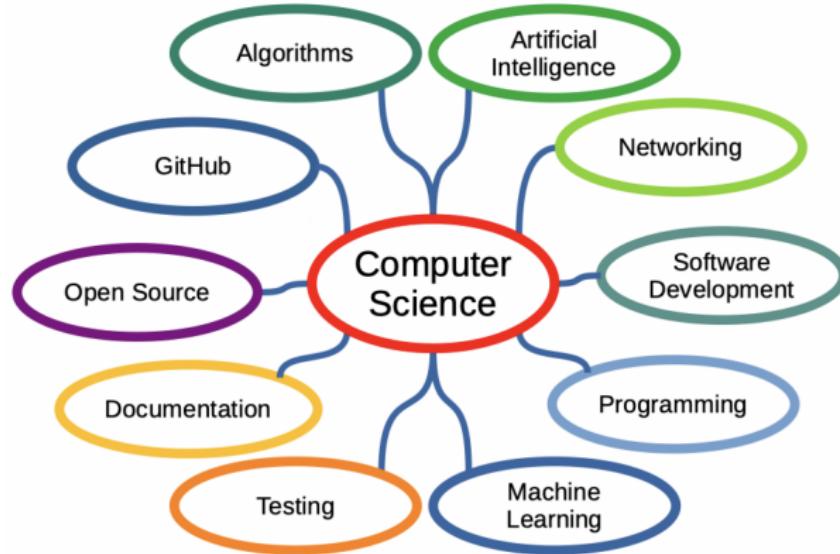
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- Computational theory and the rich interplay between computer hardware and software



Data Science

A STEM Area

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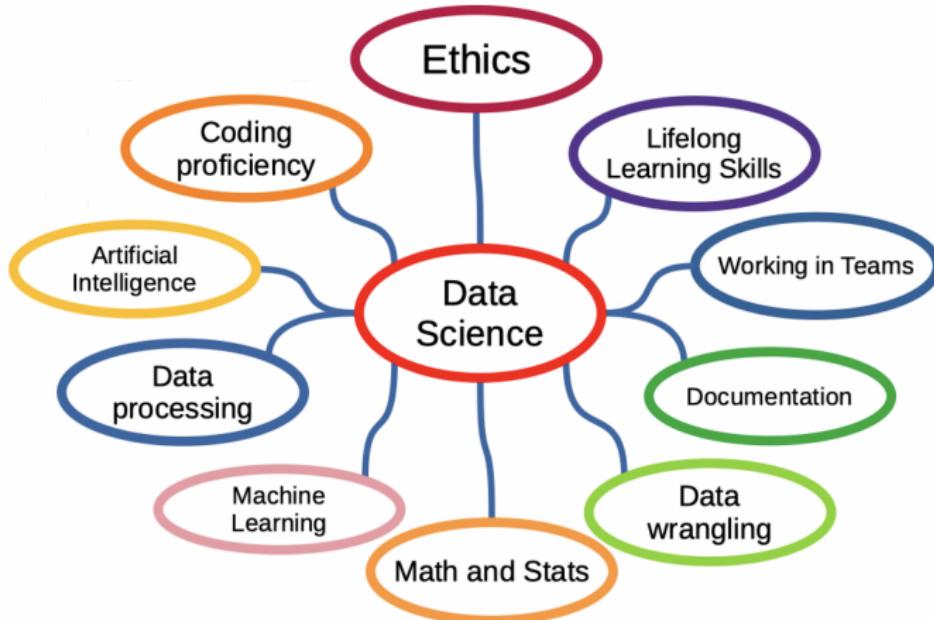
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- Integrated principles and methods to analyze data for decision making, prediction, modeling, and data management



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Informatics

Not a STEM Area

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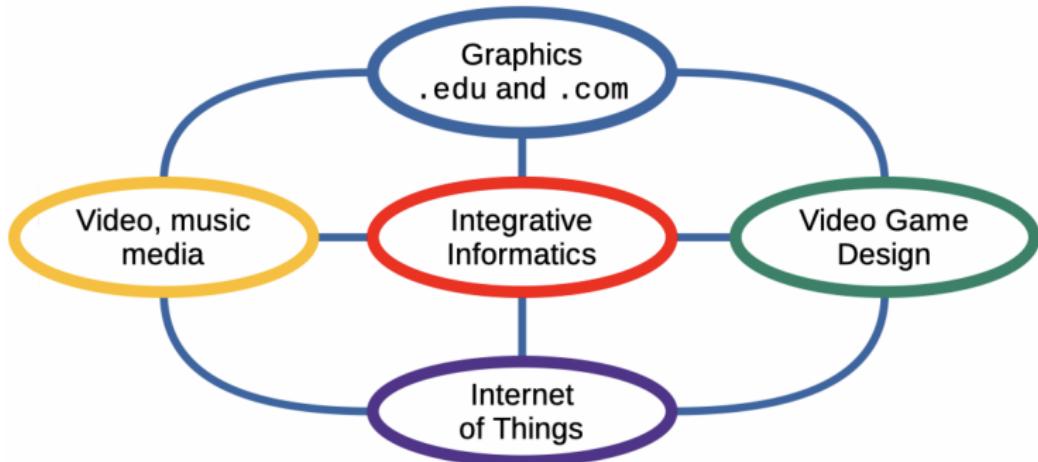
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- Critical approaches to information and technology, with an emphasis on interdisciplinary methods



Software Engineering

Not a STEM Area

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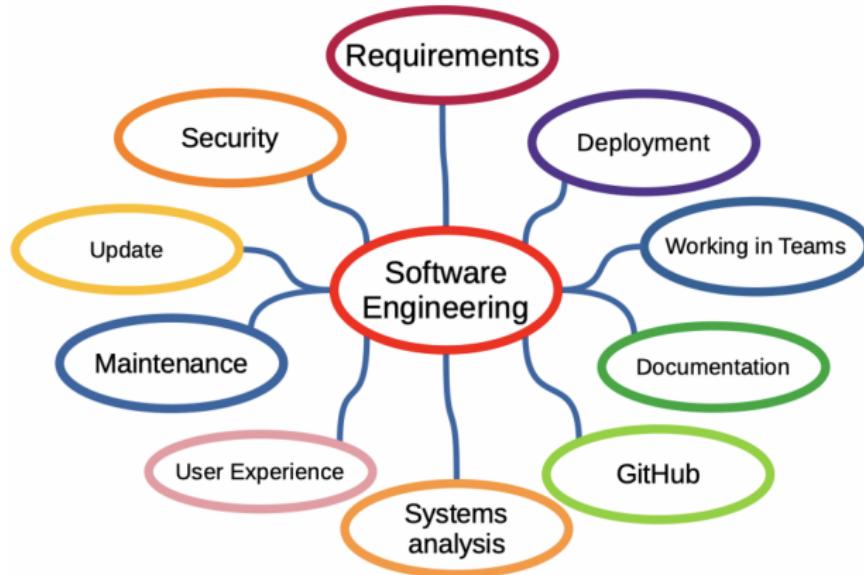
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- Gaining knowledge and skills that teams and individuals need to develop and maintain large-scale software systems

Opportunities in Research

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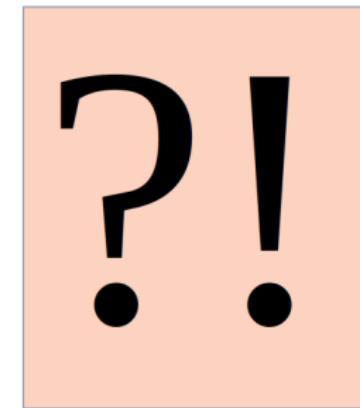
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How do students get into computing careers?

Undergraduate research experience

Research Opportunities For Students at CIS

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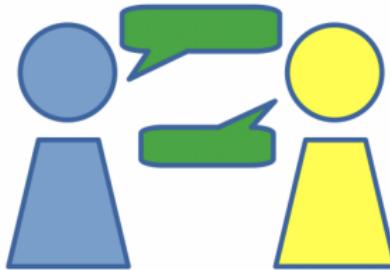
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Summer research

- Independent studies With faculty
- Software engineering positions (funded by donors)
- Cupper scholar fellow (funded by donors)
- Summer research with faculty (funded by donors)



- Let's briefly talk about these!

Independent Studies With Faculty

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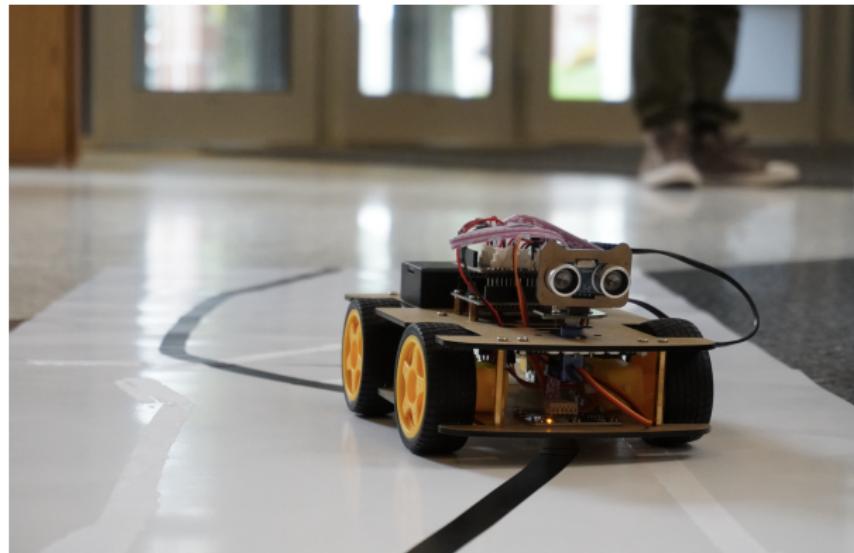
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- Classes for 2 credits
- Outcomes: tools, projects, articles, automated methods for studying data

Software Engineering Positions (funded by donors)

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- **Gatorgrade** : A tool to automate homework *manifest* checking
 - Open source project; Kapfhammer
<https://github.com/GatorEducator/gatorgrade>
- **BeagleTM**: A tool to determine parallel or associated ideas and methods in PubMed literature
 - Open source project; Bonham-Carter
<https://github.com/developmentAC/beagleTM>

Cupper Scholar Fellow (funded by donors)

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- Experience conducting research with a faculty member, often resulting in released software
 - Mentoring from alumni who support the Cupper Scholars program
 - Compensation for three to four weeks of full-time work (up to 35 hours per week in April, May, and/or June)
 - Research and career advice from mentors during the spring and/or summer academic semesters
-
- <https://www.cs.allegheny.edu/research/cupperscholars/>

Summer Research With Faculty (funded by donors)

Assistance in Choosing Courses With (hidden) Prerequisites

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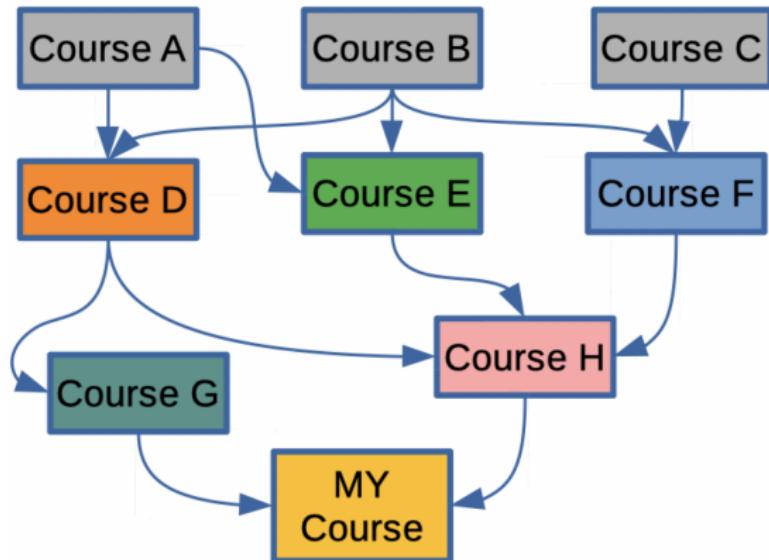
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- Web of Knowledge tool to assist in course registration
- Three students writing software during summer 2023

Fun Facts

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- CIS faculty regularly publish in top publication venues (IEEE, ACM) with students
- Many CS students produce open source tools with faculty that serve in the greater CS community
- Industrial partners for internships (Erie Insurance, NetApp and others)
- A CS alumni network to help find opportunities for students : TAB (Technical Advisory Board)
 - <https://www.cs.allegeny.edu/about/tab/>



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- And, our department hosts an *iTead* event each Friday at 2:15pm to 2:45pm (and you're all invited to join us!)
 - <https://www.oliverbonhamcarter.com/forfun/itea/itea/>