



ALLEGHENY
COLLEGE

Research at
the
Department of
Computer and
Information
Science

Oliver
Bonham-
Carter

STEM

What is this
department?

STEM

Research

Ind study

SE positions

Cupper Scholar

Summer research

Research at the Department of Computer and Information Science

Oliver Bonham-Carter

Spring 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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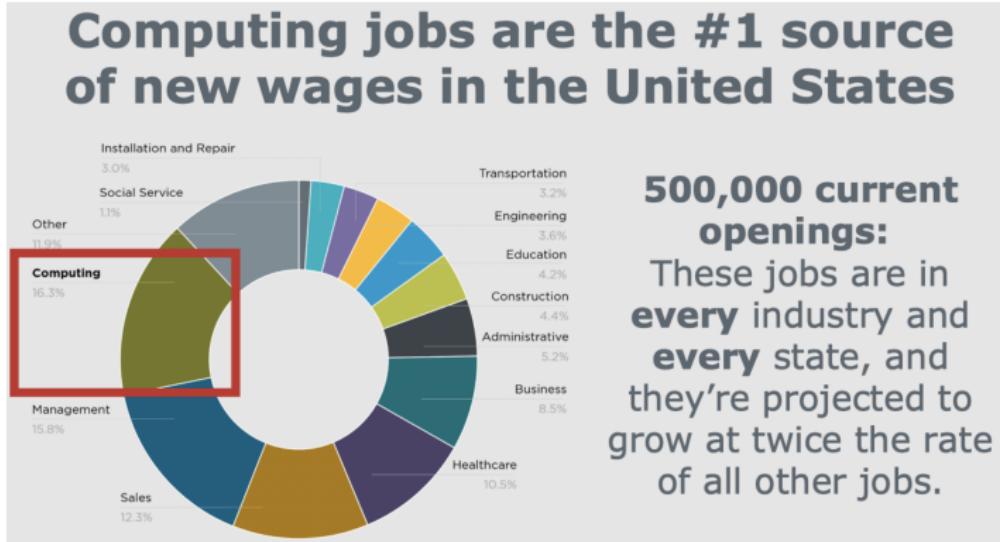
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How to prepare for such careers?

Four New Majors

Help Prepare For Careers in CS

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

Computer Science

A STEM Area

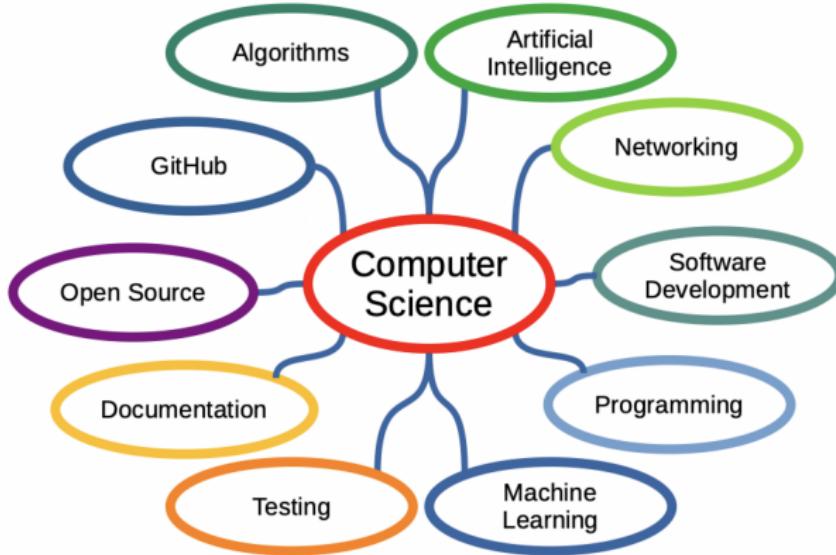
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- Computational theory and the rich interplay between computer hardware and software

Data Science

A STEM Area

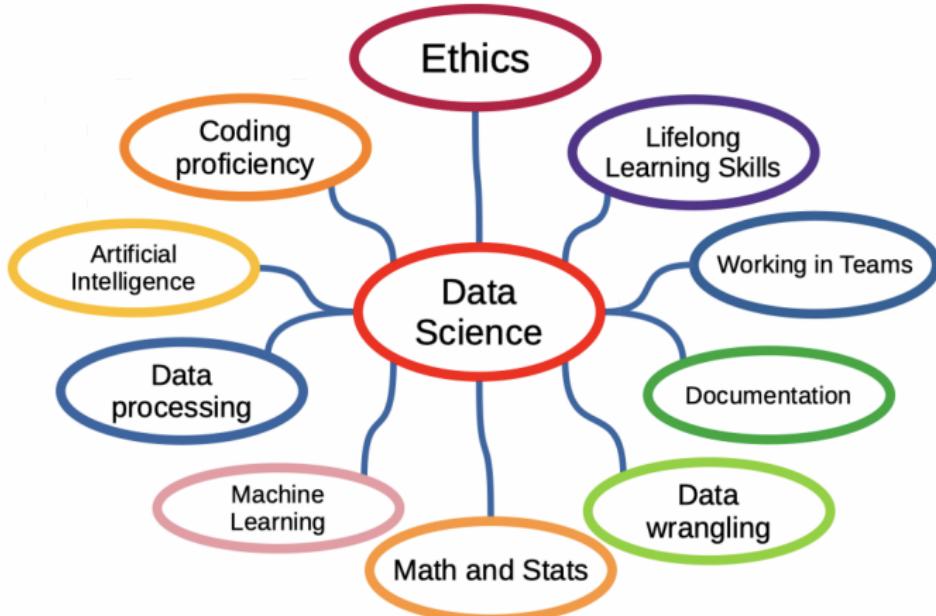
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- Integrated principles and methods to analyze data for decision making, prediction, modeling, and data management

Integrative Informatics

Not a STEM Area

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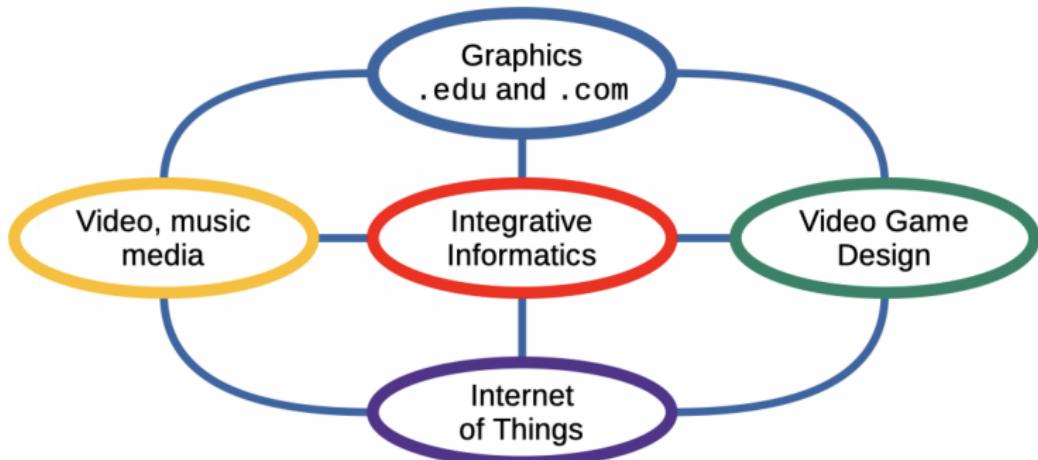
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- Critical approaches to information and technology, with an emphasis on interdisciplinary methods

Software Engineering

Not a STEM Area

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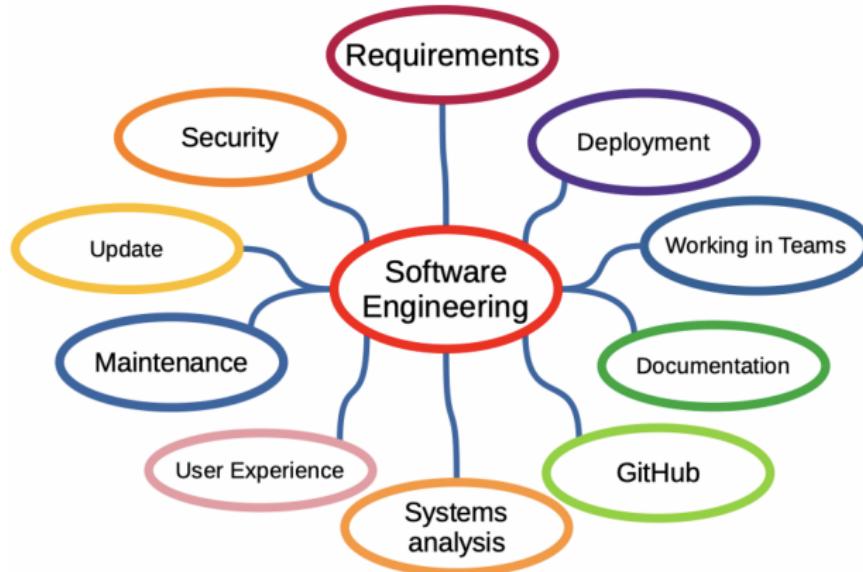
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- Gaining knowledge and skills that teams and individuals need to develop and maintain large-scale software systems

Opportunities in Research

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How do students get into computing careers?

Undergraduate research experience

Research Opportunities For Students at CIS

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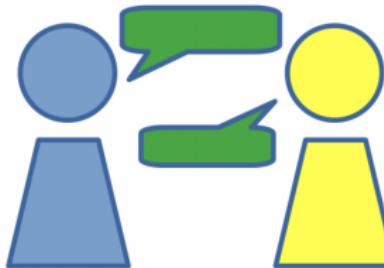
Ind study

SE positions

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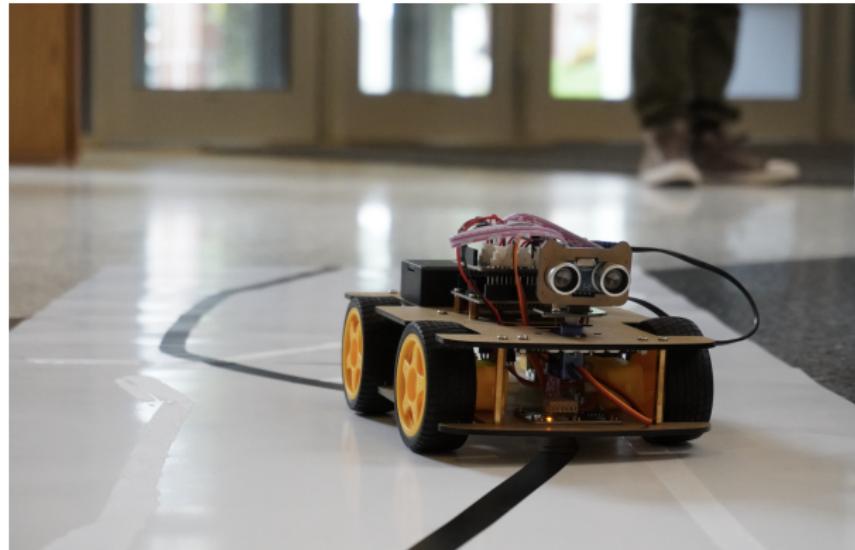
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- Classes for 2 credits
- Outcomes: tools, projects, articles, automated methods for studying data

Software Engineering Positions (funded by donors)

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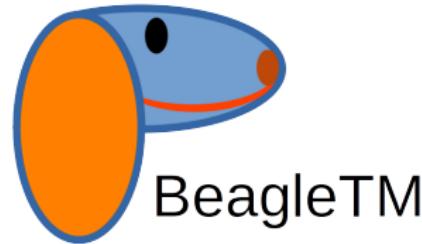
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- **Gatorgrade** : A tool to automate homework *manifest* checking
 - Open source project; Kapfhammer
<https://github.com/GatorEducator/gatorgrade>
- **BeagleTM**: A tool to determine parallel or associated ideas and methods in PubMed literature
 -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

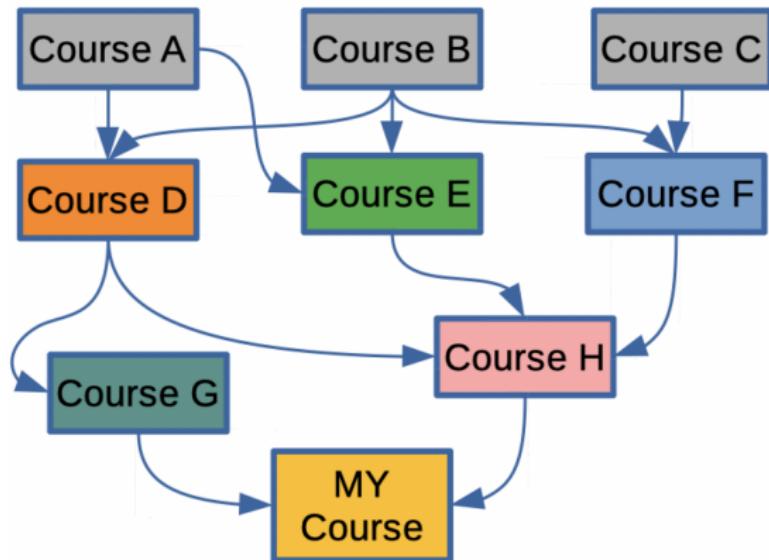
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- Web of Knowledge tool to assist in course registration
- Three students writing software during summer 2023

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