The University Senate of Michigan Technological University

Proposal 07-26

Recommendation: The College of Computing requests to establish a Department of Data Science

Submitted by the College of Computing

The College of Computing is proposing adding a third department to the college with the name “Department of Data Science”. The proposal from the college is attached to this proposal and is the result of extended conversations among the faculty, staff and administration of the College of Computing. The proposal from the college is to be shared with the Board of Trustees for their consideration with the goal of the new department becoming a formal entity on July 1, 2026.

The Senate Constitution describes the roles and responsibilities of the University Senate in this area as:

> b. The Senate has the responsibility to review, make recommendations, initiate, and participate in the formulation of policy and procedures in these areas:
>
> > 1. Academic organization, including the establishment or elimination of schools, colleges, or departments, and the reorganization of the academic structure.

This Senate proposal provides the opportunity for the University Senate to fulfil the roles and responsibilities described in the constitution.

PROPOSAL

To: Andrew Storer, Provost and Senior Vice President for Academic
Affairs Cc: Computing Council
From: Dennis Livesay, Dave House Dean of Computing
Date: November 24, 2025
Re: Establishing a Department of Data Science within the College of Computing

ABSTRACT

Data science is one of the fastest growing job areas in nearly all industries, with universities responding accordingly. Based on the interdisciplinary nature of the field, data science programs are historically collaborations across multiple units, especially computing and math/statistics. As the field matured, it evolved into a standalone discipline with an established canon of knowledge, precepts, and professional standards. The College of Computing identified data science as a key part of our growth strategy several years ago, and has embraced this disciplinary view. We have been gathering the assets to support these goals since, and are now ready to propose creation of the **DEPARTMENT OF DATA SCIENCE**. The proposed department will unify our data science and informatics programs and faculty, which are currently spread across our other two departments. Moreover, it will allow us to clearly establish an identity for data science at Michigan Tech, accelerating growth and faculty hiring. The new department will maintain our three-pronged emphasis on computing, statistics, and domain knowledge, and continued collaboration with other units. It should also be stressed that this plan also benefits our existing departments. The Department of Computer Science will be able to focus on their disciplinary core, and - more importantly - the Department of Applied Computing will be able to define a cohesive theme for the first time. As such, there is overwhelming support for this proposal across the College of Computing.

INTRODUCTION

Depending on the reference, the term data science originated in the 60s or 70s; however, it didn't really take hold till much later. Some cite William Cleveland's article in 2001 as being the real birth of the discipline.[1] Since then, data science has evolved into a standalone discipline, albeit one that stays true to Drew Conway's description from 2013 (Figure 1). The breadth and interdisciplinary nature of the field is its defining essence and a strength, yet it also presents significant challenges due to the integration of several distinct disciplines. Nevertheless, the field of data science is growing quickly, with the US Bureau of Labor Statistics expecting the number of data science jobs to increase by more than a third between 2023 and 2033.[2] This is much faster than average expected growth, and looking forward, that pace is expected to accelerate in the age of AI.

[1] Cleveland WS (2001). Data Science: An Action Plan for Expanding the Technical Areas of the Field of Statistics. *International Statistical Review*, 69(1): 21-26.
[2] https://www.bls.gov/ooh/math/data-scientists.htm

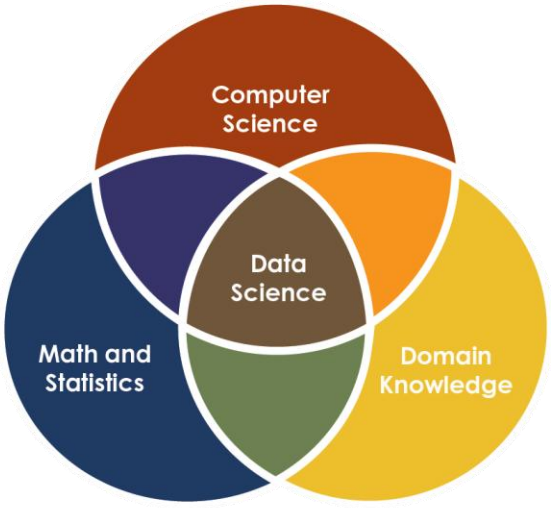

Figure 1. High-level description of the discipline of data science, which combines computing, statistics, and domain knowledge. Note that this Venn diagram, and countless others like it, are based on Drew Conway's original diagram from 2013. While an effective high-level description of the field, the diagram is incomplete with common critiques related to missing skills in business, communication, and teaming.[3]

On the flip side, the difficulties of interdisciplinarity are significant, which arise from lack of a shared experience, understanding, and knowledge base, all of which challenge data science education. Data science programs that are overseen by interdepartmental collaborations find it difficult to have a fully integrated and balanced curriculum. Moreover, there are also pragmatic issues for universities that frequently arise from lack of a dedicated data science unit. Put simply, *when everyone owns it, no one owns it*, meaning there isn't a dedicated responsibility center that is focused on growing data science enrollment and research. In the absence of that responsibility center, universities struggle to ensure that they have the faculty, resources, and academic programs to stay abreast of this rapidly changing field. In response, universities are increasingly creating units dedicated to data science as a standalone discipline, including data science colleges (i.e., UVa) and departments within computing colleges, iSchools, and engineering colleges.

Our MS in Data Science was established in 2014. From conception, the program was an interdisciplinary effort including faculty from several different units, including Computer Science, Electrical & Computer Engineering, Mathematical Sciences, Business, and Information Technology. The program was housed in the Graduate School, which had the advantage of promoting its interdisciplinary nature. However, our program also suffered from the lack of a clear responsibility center. With enrollment falling behind our peers, we moved the program to the College of Computing in 2022. The program retains its interdisciplinary nature, but we took on the responsibility of shepherding it; *since then, enrollment more than tripled*. However, this was never meant to be the end of the story; rather, it was simply the first step – of several – to embrace data science as a standalone discipline. A summary of key accomplishments are listed below in Table 1

In addition to accelerating growth by embracing data science as a standalone discipline, a second important justification is that *creating the new department promotes efficiencies in teaching and faculty hiring*. Our data science programs and faculty currently reside in the Department of Computer Science (CS), whereas our health informatics (HI) programs and faculty are in the Department of Applied Computing (AC). Increasingly, we are positioning HI as biomedical data science, with many key programmatic tenets and techniques shared across both, especially as related to AI. For example, last year we hired a new health informatics faculty member who will also be able to support our DS programs. While we have done an

[3] The data science Venn diagram: http://drewconway.com/zia/2013/3/26/the-data-science-venn-diagram. Image source: https://www.datascience-pm.com/data-science-vs-software-engineering/

admirable job of working across units, distinct curricula committees, faculty expertise, and course scheduling responsibilities have made doing so extremely difficult.

Table 1. Recent efforts at Michigan Tech to grow data science and address it as a standalone discipline

AY 22-23

- Appointed director of data science initiatives
- Data Science MS administratively moved to CC
- Modularized the Health Informatics MS

AY 23-24

- Received the DataSENSE NSF-NRT grant
- Launched Data Science BS
- Upgraded the director-level leadership position to an Associate Dean
- DS working group to explore the feasibility of creating a new department
- Hired DS assistant teaching professor
- Hired DS academic advisor

AY 24-25

- College retreat discussing DS department
- Biomedical DS faculty hire
- Data Science faculty hire in CS
- Foundations of AI graduate certificate

AY 25-26 (ongoing)

- Create Department of Data Science
- Create minor(s) in AI
- Artificial Intelligence BS

AY 26-27 (planned)

- Artificial Intelligence MS
- Data Science PhD

PROPOSAL

The academic programs to be moved to the proposed department are shown in Figure 2. The two data science degrees (BS and MS) will be moved from the CS department and the HI master's degree will be moved from the AC department. The faculty from the two departments that primarily support these programs will constitute the initial core DS faculty (see Appendix I). It is anticipated that once the department is formed, there will be a significant number of faculty from other units that will seek to have joint or affiliate positions with DS, although these relationships are still being worked out and are thus omitted from this proposal.

The new budget required to successfully create the department is modest *given that many of the needed investments have already been made*. In fact, each position included in the table is already included in the college's annual budget. This includes the administrative and advising support needed for the proposed department. Upon creation of the department, the administrative stipend and summer salary associated with the associate dean of data science initiatives will be reallocated to the department chair costs. An item-by-item impact document has been shared with you (Provost Storer). All told, *a realistic cost to create the department is less than $50,000/yr*. Separately, we have initiated discussions with the associate provost and dean of the graduate school regarding additional support for doctoral students working in data science, but those discussions are expected to be ongoing and should not be a deciding factor regarding formation of the department.

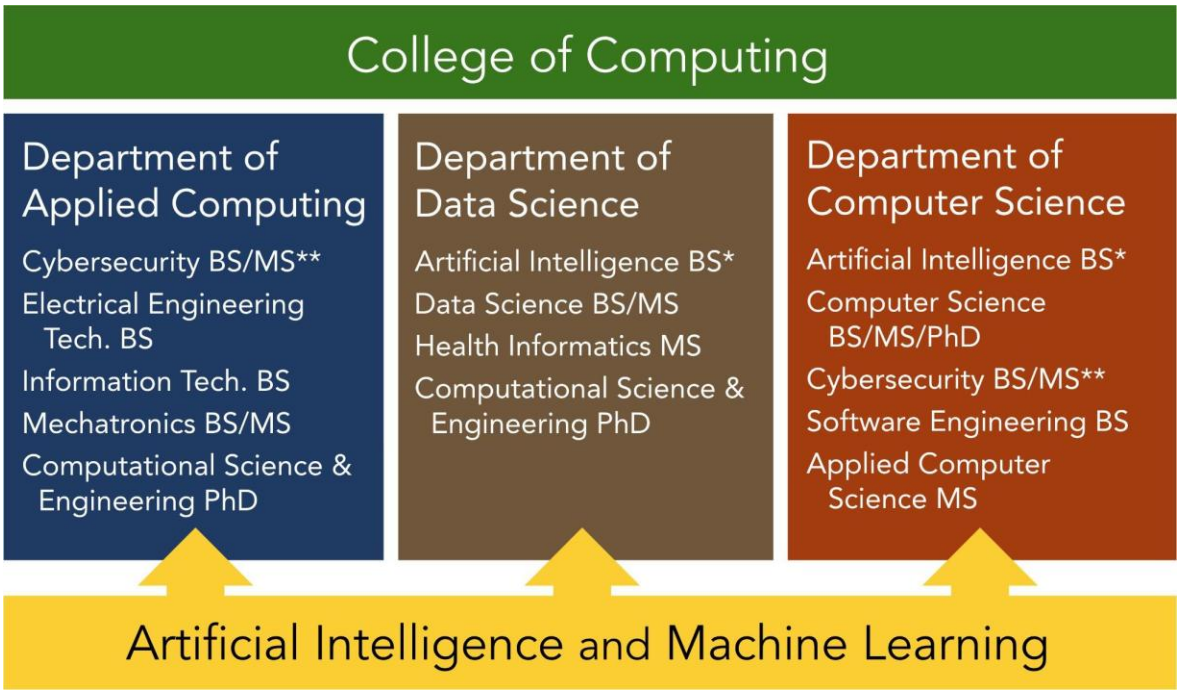

Figure 2. Academic departments and programs in the College of Computing after the proposed department is formed. Our proposed artificial intelligence BS degree* will be shared by the DS and CS departments, similar to how our cybersecurity BS** degrees are shared by the AC and CS departments.

Space is another limiting factor, which we have also already addressed. Repurposing two large graduate student "bullpen" spaces on the third floor of Rekhi Hall, last year we created mini-suites for our current departments. This freed up space in the dean's office suite. The near-term plan is for the DS chair, advisor, and administrative support to be co-located within this space. When funds and other graduate student space become available, we plan to create a third department mini-suite alongside the other two. DS faculty research space will be managed in the same way as the rest of the college, which is defined by theme instead of individual faculty assignments.

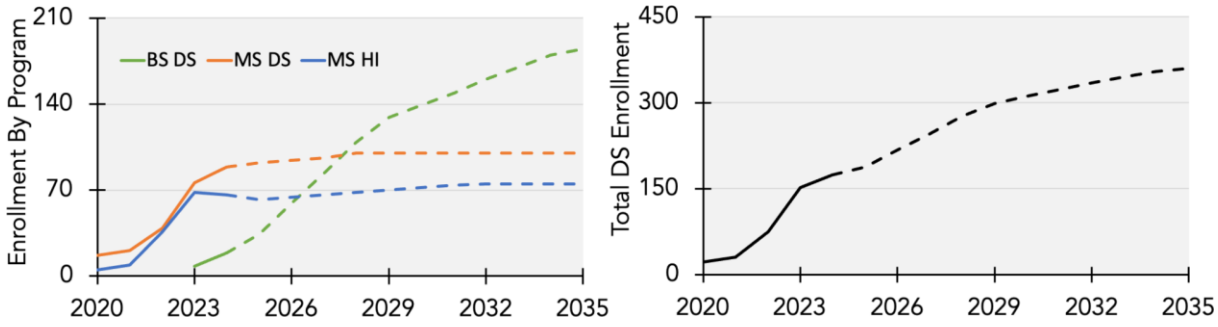

Figure 3. Enrollment history (solid line) and projections (dashed line) for the three DS degree programs. The panel on the left corresponds to the three programs individually, whereas the panel on the right is the sum. Note that the projections for the DS bachelor's program have been updated to be slightly more conservative than those approved by the BoT last fall; the DS and HI master's projections are the same as the approved projections.

Figure 3 highlights current and projected DS enrollments. Enrollments in our DS and HI graduate programs have been growing steadily. We are not expecting them to grow significantly more, but we should be able to maintain the gains (with recent challenges to visa availability being the only significant concern). Enrollment in the BS program has been steady and reliable, which is expected to continue.

CONCLUSIONS

Creating a DS department offers several strategic, academic, and financial benefits. Most of this proposal is couched as being better able to support data science as an emerging standalone discipline. This includes being able to attract top talent (students, faculty, and researchers) and having a formal comprehensive academic structure that aligns to the discipline of data science, which drives program credibility and facilitates accreditation. Moreover, a DS department will also promote large-scale, interdisciplinary research projects, such as our recent NSF-NRT grant. By being able to strategically hire faculty with complementary expertise and establishing an outward facing agenda from conception, the Department of Data Science will significantly help advance all aspects of Michigan Tech's Tech Forward 2.0 agenda, especially in the biomedical and allied health space. That is, it will be embedded in the mission of the unit to serve as a central hub for cross-disciplinary research projects that rely on data science. The new department will also continue Michigan Tech's fundamental mandate of supporting "*the industries of the state*." The College of Computing was created in 2019 to continue this tradition, and the Department of Data Science is simply the next step in that evolution.

Appendix I. Initial Department of Data Science faculty and staff

	Name	*Title*	*Current Unit*
Faculty	Laura Brown	Professor	Computer Science
	Tim Havens	Professor	Computer Science
	Dennis Livesay	Professor	Applied Computing
	Guy Hembroff	Associate Professor	Applied Computing
	Weihua Zhou	Associate Professor	Applied Computing
	Neerav Kaushal	Assistant Professor	Applied Computing
	TBD	Professor and ICC Exec. Dir.	vacant (search underway)
	Evan Lucas	Assistant Professor	Computer Science
	Sujan Roy	Assistant Teaching Professor	Computer Science
Staff	Sherry Wyeth	Academic Advisor	Computer Science
	TBD	Office Assistant	vacant