

## Pattern Recogn Comput Vision (Spring 2024)

Instructor: **Maxwell, Bruce**

Subject: **CS**

Catalog & Section: **5330 03**

Course ID: **40208**

Objectives:

Enrollment: **118**

Responses Incl Declines: **50**

Declines: **0**

### Instructor Related Questions: Bruce Maxwell (84 comments)

#### Q: What were the strengths of this course and/or this instructor?

- 1 Prof Maxwell is extremely knowledgeable about computer vision and did a great job presenting the material in an order that made sense and in a solid level of detail. Concepts were explained in a way that was consistently effective. I think the progression from classic computer vision to modern computer vision was done well and helped to lay a solid foundation. I would recommend the course to anyone at Northeastern.
- 2 Projects are really good
- 3 He is very knowledgeable in this area.
- 4 The instructor can really break things down in a simple manner
- 5 -
- 6 well structured. clear explanation and vivid examples
- 7 The professor is very amazing and friendly. He solve and answers student's very doubts very fast on piazza.
- 8 It is very obvious that the professor is well-versed in the material and passionate about the field.
- 9 One of the best professors we have and I learned a lot w.r.t computer vision in depth with the help of Bruce Maxwell's teaching and the way assignments and projects are structured
- 10 Great teaching style. Professor is very patient and understanding
- 11 Easily the best professor in the university
- 12 Expertise in computer vision and neural networks within the academic realm.
- 13 The quality of the course and homework is one of the best in the university. The instructor is willing to look into detail of the homework and coding which is great.
- 14 Prof Maxwell is amazing. There is no one better to teach you the basics of CV. Despite being online his class is super engaging and fun. The projects he defined were also very good in helping you learn whatever he taught in class.
- 15 He had a vast amount of knowledge and experience in the field of computer vision, which could be seen clearly in the way he teaches complex topics and breaks it down for a student's better understanding.
- 16 The instructor's method of teaching was good.
- 17 Very knowledgeable, enthusiastic about the material.
- 18 The information is presented very interestingly. The instructor wants the students to succeed. The course teaches a lot of important and interesting information.
- 19 I think the strengths are the expertise, and depth at which the instructor teaches the course, there is a lot of information that is taught well and lectures are engaging and there is lots of class participation
- 20 Instructor is very helpful, very good creation of assignments and tasks.
- 21 Professor Maxwell is passionate and knew the material really well. Most of all, he was a great teacher, very approachable and enthusiastic about the course material. He reminded us to ask questions often. He made me interested in the topic even more and offered materials that were beyond the scope for those who are interested to learn more than what the syllabus is supposed to cover.
- 22 His way of teaching is really interactive and helpful
- 23 Prof maxwell is very inclusive, doesnt take himself too seriously, and is passionate about the subject. He can explain things clearly and at a good pace.  
  
Welcomes clarifying questions and isnt bothered by repeating himself of drawing more diagrams to help explain which is amazing for slower students.
- 24 Although extremely skilled and experienced, He never belittled, and was patient to listen to everyone's ideas and questions. This allowed for a completely organic learning experience for the sake of self-development and curiosity of the field, devoid of the pressures of credit and grades.
- 25 The instructor is very informative and the course lectures help a lot in preparing for the homeworks and projects.
- 26 Prof Bruce extremely knowledgeable about the course, was able to answer every query, and allowed student to give input
- 27 Assignments we challenging
- 28 Clear communication, Expertise in the field, Effectively addresses questions
- 29 Teaching style and project flow
- 30 The course is practical and industry-relevant. The selection of topics covered in class was excellent. The professor gave an in-depth explanation of the concepts along with practical examples, which made it easy to understand the material. The math part was difficult to understand, but I think that requires more time in general.
- 31 Professor Maxwell is very knowledgeable on this subject matter and is good at explaining these concepts.
- 32 Prof. Bruce is an amazing Professor, This course is really well designed and fun. It allows you to do things hands-on and experience/ understand/ visualize what you are learning. The Professor teaches all concepts in a streamlined manner so we can absorb it.

#### Q: What could the instructor do to make this course better?

- 1 I think it could be better to have office hours over two days a bit further apart in the week than Wed/Thurs so if we need work through some suggestions we have a couple days to then go back to Prof Maxwell's OH if we can't get help from a TA on the question. I'd also suggest doing one more deep learning project even if it means adding an extra assignment over the semester not replacing one.
- 2 Lengthy online classes are sometimes difficult to concentrate. It's better to have two classes instead of one.

**Q: What could the instructor do to make this course better?**

- 3

This class is challenging, and I have no complaints in that regard because I've learned a lot and find computer vision very fun to explore. However, the attendance issue has been a focal point throughout the semester, but students are not responsible for the attendance of their peers. I can only control my own attendance, and as someone who has been present at every session, I've gradually lost interest in the need to coax other students to attend so that we may review the material. If the instructor is dissatisfied or annoyed by attendance issues, perhaps it could be addressed by incorporating it into participation points, or maybe just teach in-person class. Honestly speaking, there are not actually many ways to fully enforce or guarantee attendance. It is just unfair to foster inconvenience or even create conflicts among students over this. This should be the responsibility of the faculty to manage, not the students.
- 4

Make the workload a little less. I found myself spending up to 40 hours a week on some assignments
- 5

-
- 6

Professor make the assignments a little short and make the assignments check policy liberal, especially the extensions part.
- 7

Nothing comes to mind.
- 8

N.A
- 9

Release grades faster
- 10

It's been nothing short of exceptional thus far; I have no grievances.
- 11

Nothing comes to mind.
- 12

While the instructor made commendable efforts to simplify complex concepts, there were instances where grasping them proved challenging within the given time constraints. It would have been immensely beneficial had the instructor supplemented the lectures with additional resources. Providing materials beforehand would have allowed for deeper preparation, enabling a more thorough understanding of the intricate topics covered in the course.
- 13

Split the class into two sessions instead of one long 3 hrs class
- 14

The assignments are great for learning, but too time-consuming if other commitments came up.
- 15

Structure the modules better, and give titles and descriptions of what was covered each week.
- 16

Possibly provide more secondary resources outside of the lectures to learn concepts, and also to possibly space out projects more than 2 weeks apart from each other (or take out one or combine one into another to make them all fit)
- 17

Take more time with the innovation that is being happening currently
- 18

Continue the great work, not much improvement needed. I guess there could be more breaks if the classes are long.
- 19

Splitting the 3 hours into 2 1.5 hours maybe
- 20

When going over CNNs in the beginning the pacing was super fast. If I hadn't had any background on this before I wouldn't have known anything about what he was saying. But overall repeating things twice or having a summary of what was just talked about would have been beneficial for me. OR writing out some steps to solving the problem or algo (this is already done for some examples/algorithms so this is good).

Maybe adding an inclass poll or something to gauge how confused students are (there are some students that are too shy to ask over zoom)
- 21

Nothing. Everything, he planned and executed was optimally tailored to give the tools students needed to explore the field by themselves, should they decide to pursue a career in it.

Although, some Extra-credit, math rigorous problems, and follow up discussions regarding it (in office hours) would have been nice. This is probably an unpopular opinion though.
- 22

Personally, I had trouble with the 3-hour long once-weekly course schedule. If possible, I think breaking the courses into two 1.5 hour sections weekly would allow for more absorption of information.
- 23

Maybe its a zoom thing, thats at times it was hard to focus
- 24

Maybe include some more tutorials for OpenCV.
- 25

nothing
- 26

While the course structure is well designed, I'd like to suggest the professor to go a little easy on the assignments. The amount of work was enormous. I learned a lot because of that, and I'd like to thank the professor for this. But I disliked some parts of the projects, like the extensions. It's hard enough to complete the normal tasks on time, and on top of that, there was demand for extensions, which can easily take a lot of time. The extension component should not be graded, and kept optional, like an extra-credit assignment. Also, in many of the projects, the tasks involved coding some readily available functions from scratch. Now, I understand that this is to improve our coding skills, but executing the code with in-built functions itself is a challenging task. If I implement my own code, it is unlikely to work as well, and also it wastes a lot of time. I won't be able to submit the project on the deadline. I would really appreciate it if the professor gives relaxation on extensions and coding-from-scratch. It would make a huge difference to someone like me, who is not a seasoned software development engineer.
- 27

Make the recordings available regardless  
Have more office hours availabilities  
Update instructions on the assignments to be more up to date and make sure the code/instructions are correct  
Hire more knowledgeable TAs  
Respond to emails and teams more
- 28

As students, our attention spans are really weak and we cannot pay attention for such long durations and there is too much information packed in the lectures.

My only complaint with this course is the lectures are too tightly occupied with explanations, for example, the hands-on coding part in some lectures is usually done at the end, if it were done in between, that could give a change of pace and make us more reactive, also some slides with certain solving questions forcing everyone to answer the question could also force discussions among students and allow a small change of pace.

The best scenario will be to host 2 sessions of smaller duration in a week. From what I see, each topic is about an hour long, so it is possible to divide into 2 sessions which allows for better information absorption and more people attending the class as well.

**Q: Please expand on the instructor's strengths and/or areas for improvement in facilitating inclusive learning.**

- 1

Great all around. I'd suggest perhaps bumping up the number of student's needed to record lectures or instead making them available to students if you have some set attendance rate so people don't feel like they can afford to skip class and there is a better rate of people showing up. Missing a class if it only meets once a week for this sort of material would have been very difficult especially since there isn't a set slide deck to refer to and I found myself watching lectures multiple times. The lecture notes pdf is helpful, but without the opportunity to watch and rewatch the lecture I would have been somewhat lost some weeks.
- 2

The way he teaches is awesome
- 3

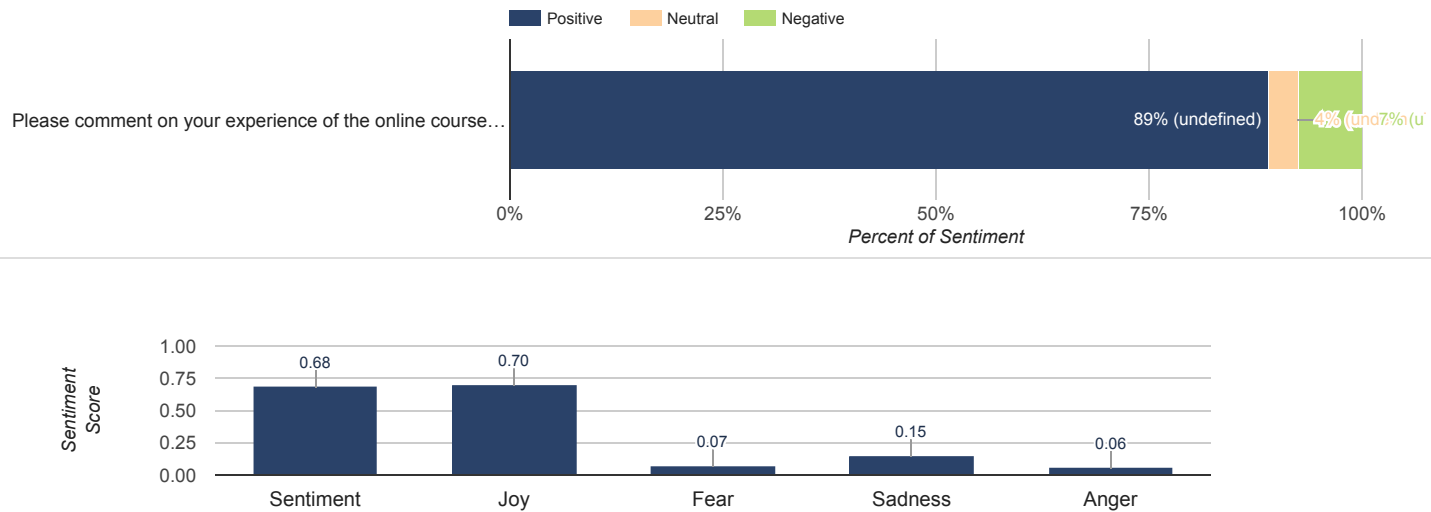
He is quite humorous in class and encourages interaction, which is appreciated. I really enjoyed the small talk session before the class officially starts. However, on the forum, I don't feel that he is as approachable or willing to address students' questions. His responses often come across as very strict. While some questions might seem simple or obvious, students are generally polite and are merely seeking confirmation or clarification. The way he responds does not foster an inclusive learning environment. It intimidates those who wish to ask questions, making them feel as though they are asking something stupid or bad. This is particularly concerning since people in this class may come from diverse backgrounds, with some needing more time to grasp and master concepts, or even to understand the assignments. Sometimes, the replies just make me feel sympathetic towards the student who asked the initial question. I understand that people who are highly knowledgeable in a certain area may underestimate the difficulties beginners face. However, I truly believe that as an educator, it is crucial to continuously remind oneself not to fall into this intuitive trap and to strive to do better.

Q: Please expand on the instructor’s strengths and/or areas for improvement in facilitat**ing** inclusive learning.

4	The instructor could talk more about current research
5	I think the instructor is a strong teacher, I think possibly better spacing or assignments or secondary sources for cruxes of projects that students may have trouble on.
6	Fun to be in class.
7	-
8	He kept it fun and exciting for everyone with fun questions in the beginning of class and jokes from time to time and stories relating to the topics. The additional section of learning about important figures in Computer Vision was a great motivational and inspiring bit. Most of all, his love for the topic and for teaching us with patience and depth and his humor, and his expertise in the topic were his strengths.
9	In my opinion the professor was very inclusive.
10	Professor Bruce Maxwell's teaching is very easy to understand and helps make everyone understand the concept by explaining concepts in detail
11	Good at incentivizing people to turn on cameras, but could provide more incentivization. Very clear about asking questions and not being afraid to do so. Always adds to what students have to say.  Would love to omit the attendance rule to record because it eats away at the class time in the beginning sometimes, but I do get how its an incentive to get people to come to class.
12	Lots of experience in the field. Included modern techniques like deep learning too as a part of this course
13	The professor's class is fun, he prioritizes having fun, in the sense that the class fosters curiosity, and stimulates thoughts about concepts, problems and possible solutions unrestricted to class hours. I find myself thinking about class and why concepts were formed as they were, and just random tangents from these concepts leading to others. This is mainly because the class is NOT exhausting, it is stimulating.
14	Expanding on the instructor's strengths and areas for improvement in facilitating inclusive learning, I find the instructor to possess a commendable depth of knowledge and adeptness in teaching methodologies, particularly in project setup. Their expertise contributes significantly to the clarity and understanding of complex concepts. However, in terms of fostering inclusive learning environments, there is potential for improvement. While the homework assignments are generally satisfactory in terms of difficulty level and coverage of knowledge, incorporating diverse perspectives and accommodating various learning styles could enhance inclusivity further. Encouraging more interactive discussions and providing additional resources tailored to different learning needs could promote a more inclusive and enriching educational experience for all students.
15	I think he is quite inclusive and considerate
16	Prof is always approachable outside of class. He promptly replies to any queries and is also very lenient and flexible. He is very understanding and this is an important factor in the learning process. I was never stressed about administrative issues because of this. He is also very good at teaching and has a lot of knowledge.
17	The professor explains each topic in detail and always gives clear answers to any doubts or questions.
18	The instructor's strengths lie in their extensive knowledge and experience in computer vision, evident through their adeptness at simplifying complex topics for better student comprehension. However, to foster a more inclusive learning environment, the instructor could consider supplementing lectures with additional resources. By providing materials beforehand, students could engage in deeper preparation, ensuring a more inclusive understanding of the course material and accommodating diverse learning styles and paces
19	N/A
20	handling the problems and availability of TA
21	In my opinion, the professor is a really great individual with a real passion for computer vision. He inspired me, and through his coursework, I have surpassed all my limits. I learned a lot of things quite fast because of the challenging curriculum. It has helped me grow exponentially. I took this course so that I could apply it to robotics, which I am currently pursuing. Maybe in some other lifetime, I would have chosen computer vision as my field of interest. It's the next best thing to robotics, which I admire a lot. There is no additional feedback I can give for improvement. The course as well as Prof. Bruce Maxwell were both awesome! Thank you for everything.
22	overall great teaching and enthusiasm, but seems to be overly concerned about participation and has no leniency even if students have an emergency and cannot attend class
23	Strengths: treats everyone equally.
24	Apart from the timing issue and lecture content, I have no complaints, the course is actually great. I wish the extensions could be more precise on what would be a good one, as that is always difficult to rely on but that's what the Professor expects. So that should be fine.

Questions to Assess Students’ Online Experience (27 comments)

Q: Please comment on your experience of the online course environment in the open-ended text box.



**Q: Please comment on your experience of the online course environment in the open-ended text box.**

- 1 Great online experience. ★★★★★
- 2 It's good. But it would be better if have two classes instead of one. ★★★★★
- 3 It was extremely informative and the instructor is can really make things sound not as boring as when we read on our own ★★★★★☆
- 4 Really enjoyed the coursework and it was more of a one on one interaction all through the class. ★★★★★
- 5 Very informative courses. Learned about about pattern recognition, obejct detection and deep networking. ★★★★★
- 6 I would say this class is very amazing and I learned a lot in this class. ★★★★★
- 7 The professor was well organized with materials and very responsive. ★★★★★
- 8 The course was really very well thought by the professor and always making it more interactive which was really very helpful★★★★★
- 9 The online classes where so good and interactive. ★★★★★
- 10 Great professor, great coursework. Classes could be split up into two days instead of one ★★★★★
- 11 This CS course at Northeastern University is unparalleled. Despite being conducted remotely, it's live and engaging. The curriculum is comprehensive, delving into everything from the fundamentals of OpenCV to advanced topics like Deep Learning. It's proven to be instrumental in my mastery of C , OpenCV, and serves as a solid foundation for my future endeavors in AI. ★★★★★☆
- 12 It was my first online class and having the luxury to sit at home or anywhere I want and listen to the lecture was pretty amazing. ★★★★★
- 13 It was a good experience ★★★★★
- 14 The online course is well structured and organized, however long sessions are difficult to sit through. ★☆☆☆☆
- 15 I think the course was very informative, learned so much in such a short amount of time. The instructor is very knowledgable, although the pace for me was very fast and with many back to back projects while still understanding previous concepts I had a hard to keeping to deadlines while juggling another class. ★★★★★
- 16 Very nice professor with a very good motivational skills to spsrk ignite in the field of computer vision. ★★★★★
- 17 Organized, well-planned syllabus and timely - not much was changed from the original plan. Very approachable even if it was online ★★★★★☆
- 18 I really loved it ★★★★★
- 19 Maxwell was very energetic and also not too formal during his sessions which made it very easy to ask questions online. Overall online environment is hard because not everybody will turn on cameras, but having some sort of incentive to turn on cameras can help with this. This is up to the instructor and class and sometimes people do have exceptions to this, so its just a suggestion ★★★★★☆
- 20 The course helped me grow more than i thought i could. I had nothing valuable learning experiences associated to this course. ★★★★★
- 21 Was a good online environment ★★★★★
- 22 The course was highly educational, enabling me to translate my theoretical understanding into practical applications in computer vision. While it presented challenges, I found it engaging and enjoyable ★★★★★
- 23 The online environment did not diminish any aspects of the class. The professor always encouraged questions and interaction. ★★★★★☆
- 24 Very interactive and well designed course structure ★★★★★
- 25 The online course environment was pretty good. There are no suggestions from my side. ★★★★★☆
- 26 Overall this was fine; professor had a strange policy of not releasing a recording of a lecture if less than half the class showed up, so I don't think many students were there to learn at the spot live but was simply there to get the recording. ★★☆☆☆
- 27 The course structure and content is really great. I would love to have it offline as I prefer offline classes but the online version is worth the knowledge you gain. ★★★★★

**Student Self-Assessment of their Effort to Achieve Course Outcomes (28 comments)**

**Q: What I could have done to make this course better for myself.**

- 1 Get started on projects earlier
- 2 I could have explored more research areas
- 3 Thoroughly learn the practical concepts and implement the subject matter in a better way.
- 4 The way you teach is excellent. I find this is perfect.
- 5 I could have spent more time going over the materials and attending office hours.
- 6 I could have had better understanding of deep learning implementations in python and good knowledge of python for later part of the course
- 7 Every thing was perfect.
- 8 A prior coding knowledge in C might have helped me
- 9 Attend more office hours
- 10 Have a better grip on C
- 11 Given more time, I plan to delve even deeper into OpenCV, immersing myself in its intricacies and mastering its functions from the inside out. I aim to challenge myself by attempting to replicate its functions entirely from scratch.
- 12 I was fairly new to C plus plus, so learning a bit more of the language would have made things easier
- 13 I wasn't really sure I would be able to find myself a seat in this class as I was on the waitlist. so I didn't bother learning c during the winter break which was a mistake on my part. Having a head start in c would have saved me a lot of time while working on the assignments and maybe I would have had more time doing more extensions.
- 14 Allocate more time for the course
- 15 Study more, invest more time in projects.

### Q: What I could have done to make this course better for myself.

- |    |   |
|----|---|
| 16 | I think that I could have carved out more time, or tried to do more prep before the class started, or try to finish other deadlines for classes later. While it was a very interesting class I had a hard time keeping up with the projects.  |
| 17 | Went through research paper concurrently to understand the concept better   |
| 18 | Read the materials more   |
| 19 | Attend the classes on time  |
| 20 | Starting assignments early is a great way, but also hard because the lectures don't cover everything until a couple days after assignment is assigned.<br><br>Getting to know some classmates so I could ask for help/have a partner for assignments. Ended up working out, but if someone hadn't reached out to me in the beginning, it would have been hard.<br><br>Asking "dumb" or clarifying questions whenever they come up and not hesitating. |
| 21 | started the final project earlier   |
| 22 | Spend ore time on the coding assignments  |
| 23 | read the OpenCV Documentation   |
| 24 | Maybe should have read some basics of OpenCV before starting this.  |
| 25 | By engaging in more time to learn more about the topics   |
| 26 | While I tried my best, I could not always give my maximum in this course. The course is really great, but at the same time quite intensive. I fell I should have perfected large-scale C programming before starting this course.   |
| 27 | review other online materials on openCV/pytorch   |
| 28 | Attend lectures on time and stay up to date every week.   |