Narrative Summary of Teaching

In my last 4 years at SUNY Potsdam, I've had the opportunity to teach eight different courses. Of these, two courses, CIS 431 Machine Learning and CIS 475 Introduction to Cryptography were entirely conceptualized, developed, and taught by me. This year, my new teaching initiative was to design and develop a new course CIS 325 Data Analysis & Visualization, which is now approved and added to the catelog. I'm leading the data analytics track for computer science majors and with the Data analysis & visualization course being approved, I developed three courses towards this track. My next goal is to get data analytics track approved for computer science majors

In the last 2 semesters, I taught 5 different courses: CIS 431 Machine Learning (a new course I introduced in Spring 2020), CIS 410 Computer Networks, CIS 420 Database Systems, CIS 201 Computer Science 1 (including lab; Spring and Fall), and CIS 301 Theory of computation. These courses have been regularly revised considering changes in the field and student/peer feedback. Some of these revisions include: introduction of a lab for the Computer Networks course, incorporation of Big Data concepts and projects in the Database course, and inclusion of research paper reviews in all 400-level courses.

With the pandemic, the last two semesters have not been ordinary. In Spring 2020 when we had to transition our courses to online with short notice, I chose to offer my classes asynchronously, with the assumption that my students can pace and access the course according to their situation at home while maximizing learning. This transition was aided by my prior attendance of CCI workshop in early Spring 2020, where new technologies for online education were introduced to us. I incorporated learnings from that workshop in my online offering and posted weekly pre-recorded lectures, related short quizzes, and associated homeworks. Additionally, I was available for 3 hours of office hours on all weekdays on *Discord* (Computer Science department server) for students to "stop by" and discuss any questions they had. My goal was to recreate or even exceed the in-person experience that the students were used to.

At the end of the Spring 2020 semester, however, I realized that the lack of regular structured interaction with students affected student-learning and my teaching experience. During summer 2020 I attended an online pedagogy course (session 5) offered on campus to facilitate development of knowledge, skills and attributes for effective online teaching and learning. For Fall 2020, I made a "course-correction" by switching to synchronous offering. This change resulted in a course that was much closer to my regular in-person offering. The student feedback was very positive for this change.

Some problems from the Fall offering that I am addressing in Spring 2021 are: 1) Uneven student participation: Students presence in online classes is not always evident as they sometimes do not turn on their video. To ensure that they are present and attentive, I'm taking two actions. First, I'm calling out students randomly and having them answer questions related to the lecture. Second, I have short in-class quizzes that test students' attention to the lecture material. 2) Zoom waiting room challenges: Students joining the lectures late or losing connections, are sometimes stuck in my waiting room. To overcome the challenge of managing the waiting room during the lecture, I assigned a student leader to watch the waiting room. Also,

the last student to come is often assigned as the one responsible for managing the waiting for the next time. This approach has largely eliminated late arrivals.

The change in the mode of teaching to online from in-person has benefited students in many ways, including with access to recorded lectures after class and being able to electronically "walk-in" to my office hours via discord. Some students, however, have found this transition a bit challenging, and in their evaluations noted that the semester was stressful and overwhelming. Recognizing that students face a diverse set of challenges that are not easily evident to me, I've been encouraging regular contact through office hours and am open to some flexibility in deadlines.

Some of the pandemic-driven changes in my teaching will become part of my offering when we get back to in-person teaching. As an example, I will be teaching using tablets, so I can face my students while teaching and post recordings after class, and continue to use discord for office hours, in addition to face-to-face meetings, to provide flexibility in how students reach me.

Reflecting the effort that I put into the courses, my student evaluations, as in years past, were highly positive. I was also fortunate to have my peers sit in several of my classes and evaluate me and they were highly positive about my offering. I always carefully look through the feedback from my students and peers to see how I can improve and modify my teaching style/content.

Narrative Summary of Research

My research is in the field of Big Data, Machine Learning, and Data Analytics. I have been actively involved in research related to these fields in collaboration with faculty and students in Clarkson University and undergraduate students in our department.

Since I joined SUNY Potsdam, I have published 2 peer-reviewed journal publications, made 8 conference presentations, conducted an international workshop on data analytics, and presented 3 department seminars.

My recent research projects have been on modeling air quality using land-use information and understanding the connection between air quality exposure and severity of COVID-19 disease. Related to these projects, I submitted a manuscript entitled "..." for publication in a peer-reviewed journal in Feb 2021. I have also presented research related to both these projects in conferences, including the American Association for Aerosol Research (one in October 2019 and one in October 2020) and in Research and Projects Showcase conference in Clarkson University (June 2020). My work was accepted for poster presentation in Air Sensors International Conference in May 2020, but that conference was canceled due to the pandemic.

I have been actively looking to find funding for my research activities. In 2020, I submitted a proposal to NYSERDA for supporting data analysis for a large air quality network. That proposal did not get funded, but I will continue to look for funding opportunities that will sustain my research over a long time period.

The pandemic initially posed a challenge for our research as we had to change our mode of operation from regular in person meetings to online collaboration. Over the course of time, we have optimized the process and now our research productivity is now back to normal.

Narrative Summary of Service

At University level, my service over the last year includes:

1. Department delegate on the Faculty Senate since May 2019
2. Chair of the Student Affairs Committee since May 2020
3. Member of the Faculty Executive Committee
4. Member of the Arts and Science Curriculum Committee.

Participation in different university committees required significant time commitment but has been very rewarding. I have a better understanding of the academic issues within the university and also appreciate the larger social concerns of our campus community.

During the November national elections, the student affairs committee worked with campus life and faculty volunteers to support and arrange logistics for students to confidently exercise their right to vote. I built a secure discord server for use in emergency communications by the University community, in collaboration with Prof. Grabowski. I'm currently working with the Students Affair committee to gather ideas on how to address students' COVID-related health issues such as stress, anxiety, grief, and mental issues.

At the department level, my services included: design of a new course, active participation in board meetings, presenting seminars, assisting students in senior projects, and academic student advising. In summer 2020, I designed and got approval for a new course Data Analytics and Visualization, which is one of the courses in our planned Data Analytics track. This is the third course I designed and developed since my appointment in SUNY Potsdam. I've been an active participant in all our Board of Advisors meetings because I believe that our external advisors need to have a full picture of our activities so they can meaningfully contribute to our growth. Before the pandemic, I was actively leading the department's participation in open houses and in Major Affairs to inform and attract undeclared-majors to our program.

I'm an active advisor for ACM-Women (ACM-W) student clubs. I participated in all the meetings and on-campus activities and arranged and accompanied students to the ACM NYCWIC conference in May 2019. I worked closely with our students to review and revise their poster which won the best poster award in that conference. As an academic advisor, I met with all students through video conferencing and made sure that they transitioned well to online courses in Spring and were doing well in Fall.

I have been actively co-advising a PhD student in Clarkson University working on Big Data and Machine Learning. In the last two years, I co-organized a 5-day workshop on Sensors and Data Analytics in Clarkson University, presented a department seminar on Data visualization, and organized an informational seminar by two Data Analytics faculty from Clarkson University for our students.

At the community level, I'm serving on the advisory board of two Patient-Centered Outcomes Research Institute (PCORI) projects conducted by St Lawrence health systems (SLHS). I provide a patient perspective in one of the committees (PCORI-CTD-ILD: Connective Tissue Disease-Associated Interstitial Lung Disease) while on the other project (PCORI-DISRUPTS: Developing InfraStructure for Research to Utilize Patient-centered Techniques), I'm a member of the stakeholder advisory board. I help organize seminars related to public health and offer it to St. Lawrence community. The most recent seminar, entitled "Vax vs Fiction" was widely attended by the campus community.

I also provide community service with my role as a mentor for the “Friends of India Association (FIA)”. FIA brings together students, staff, and community with interest in Indian culture and helps new students from India when they first come to Potsdam. As a mentor, I help with the club’s organization and functioning and am one of the primary organizers of FIA’s annual Diwali show.