**Annual Report: January - December 2022**

Diana Dabby, Professor

Electrical Engineering and Music

Music Program Director

**Looking Back: Major Activities and Accomplishments**

Activity/Accomplishment 1A: Still re-building Music during a pandemic: **January – May 2022**

**Replenishing OCO, moving Wired Ensemble forward, and keeping everyone safe**

OCO hasn’t had a timpanist since Joseph Lee graduated in 2019. It was clear to me during Fall 2021 that a timpanist would be necessary for Spring 2022. Joseph worked for FormLabs in Somerville so was local. He kindly said yes to playing timpani in Spring 2022.

Other changes were necessary. Due to junior semester away, OCO was losing 2 good players, a violinist and a violist. So I reached out to Joseph’s wife Mary who is a good violist, and she agreed to join on viola. The problem then was vaccination status due to health concerns. What ensued were multiple communications with Olin Ahead, including Olin’s covid nurse practitioner Krista Chavez. According to her:  “For the vaccinated individual that would mean 1 individual PCR test prior to being on campus and weekly testing after. For the unvaccinated individual, it would be the 1 individual test prior to coming to campus followed by twice a week testing.” But this requirement was incompatible with Joseph’s and Mary’s schedules. Between schedule conflicts, testing requirements, and Olin Ahead requirements, it took almost 4 weeks to arrange everything.

Furthermore, our pianist from first semester wanted to do other activities and quit. We then tried to find other pianists in the Olin community. This took time as we uncovered every stone. At one point, a pianist emerged and was set to audition. Unfortunately, the student cancelled the audition a few hours before it was to take place. An instrumentalist in OCO volunteered to be pianist but we needed them to stay on their primary orchestral instrument. Finally, a pianist from Babson heard of our search; she passed the audition with flying colors.

Air exchange protocols still had to be followed during Spring 2022. This meant arranging rehearsal agendas so that the time winds spent in a rehearsal room allowed time for the air exchange schedule.

Wired Ensemble made a leap forward this fall. The Wired Ensemble Event featured memorable performances. At the last minute, 2 students didn’t feel they could perform their solo piano compositions so I performed them instead. I also hosted a talk by multiplatinum producer Susan Rogers, “The Listener Profile: A New Model of Music Cognition”, in Norden Auditorium, primarily for students in Wired Ensemble, but open to the entire Olin community. Students loved it; they wouldn’t let her go!

**Significance**: Musical events and performances are important for our Strategic Plan because, according to Admissions, students won’t come to Olin unless there’s music!

**Pointer to relevant evidence**: video clips shared during Candidates Week, additional videos and recordings from Spring and Fall performances

Activity/Accomplishment 1B: Re-building Music during a pandemic: **June – August 2022**

**A new piano for East Hall**

In May 2022, Rick Osterberg spoke to me about a possible donation of his mother’s Chickering grand piano to Olin. Rick introduced us in June and a lively email exchange happened over the summer months involving the Office of Student Affairs and Resources, Olin’s piano technician (for evaluation and eventual tunings), the Office of Advancement, Allston Piano Movers, as well as Linda Osterberg. I devoted about 40 hours to this project and was helped by Barb Luciano, Patrick Clarkson, Katie Rollauer, and Harry&David.

**Significance**: For a while now, there’s been a need for another good piano in the East Hall practice rooms. Students love this piano!

**Pointer to relevant evidence**: A chair in a room

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Activity/Accomplishment 2A: **October 28, 2022**

**U.S. Provisional Patent submitted to the USPTO (United States Patent and Trademark Office)**

New provisional patent filed to support the CantoVario projects: met with patent agent, completed research, 4 drafts followed by final provisional filed with USPTO. Sept – Oct 2022. US Provisional Patent Application No: 63/420,364: Algorithm-generated variations of original songs for tangible and digital products.

**Significance**: this patent application supports the current NSF PFI-TT grant.

**Pointer to relevant evidence**: If approved, then disclosed on USPTO website

Activity/Accomplishment 2B: **January – December 2022**

**The CantoVario Projects – Research & Development funded by NSF**

CantoVario’s NSF PFI-TT grant (Partnerships for Innovation—Technology Transfer) has three prototype deliverables: a MIDI Variation Engine, an Audio Variation Engine, and a Science Museum Chaos+Music Exhibit. According to my advisers at the MIT Venture Mentoring Service (VMS), the MIDI Variation Engine is now a minimal viable product (MVP). I created a new algorithm for the MVP and have a few adjustments still to implement.

The Audio Variation Engine has a new interface, and I plan to give more attention to this product in 2023.

The new algorithm has also entered the design of the Chaos+Music Exhibit prototype which satisfies constraints identified through interviews with professionals who build science museum exhibits. A newly revised video of the exhibit prototype, now accessible via iPad mounted on a Brown Innovations (Bii) Sound-focusing dome, is part of the MAC Research Showcase.

**Significance**: Of the 158 active PFI-TT grants, Olin has been distinguished as a recipient of one of only two PFI-TT grants awarded to undergraduate institutions. (The other recipient is Union College.)

**Pointers to relevant evidence:**

NSF PFI-TT Annual Report

Audio Variation Engine (updated CSS still to be incorporated) <http://test.cantovario.com/new>

MIDI Variation Engine <http://cantovario.com/5abcd>

The piano roll to be integrated with the MIDI Variation Engine <http://bit.ly/3ESajzG>

Chaos+Music Science Museum Exhibit prototype <http://test.cantovario.com/exhibit>

Activity/Accomplishment 2C: **March 9 – May 4**

**MIT VMS I-Corps Program: Customer Discovery Sprints (CD Sprints)**

Enrolled in MIT VMS I-Corps program (CD Sprints) to complete at least 25 Customer Discovery interviews during the 8-week program. (Completed and analyzed 32.) Other deliverables included applying entrepreneurial thinking to move CantoVario forward, e.g., using information gleaned from interviews to map out stakeholder and payment flow diagrams. Explored a related customer segment to “aspiring musician-producers”: bands and musicians who write songs for their bands.

**Significance**: this program provided additional customer discovery in support of the NSF PFI-TT and I-Corps grants.

**Pointer to evidence**: Answers to the following questions relating to the MIDI Variation Engine

• Will you use the current score feature? [mostly no]

• Is a piano roll necessary for your workflow? If yes, will that stop you from using it? [mostly yes and yes]

• What would a MIDI roll do for you? How would you use it? [an easy alternative to reading music “which I’m not good at”]

Activity/Accomplishment 3: **July and November**

**Provided extensive interview as part of a Chinese Engineering Education paper** for the Journal of East China Normal University (Educational Sciences) (ECNU(ES)), TONG Xiangwen, editor. **“**Attaching the Wings of Kindness and Beauty to Engineering Education” for the'Golden Courses’ Interview Series: Pursuing the Truth, Kindness, and Beauty.

Authors: Justin M. Thomas, Diana Dabby, Richard K. Miller (Corresponding author), Carrie Nugent (Corresponding author), Xing Qingqing, Wu Jingshen (Corresponding author), Yu Haiqin

**Significance**: the paper contributes to Olin’s international presence.

**Pointers to relevant evidence**: publication in 2023

Activity/Accomplishment 4: **July 15**

**MIT appointment as Research Affiliate in the Lab for Information and Decision Systems:**

**July 15, 2022 – July 14, 2024**

**Significance**: Approved by MIT’s Dean of Engineering (Anantha Chandrakasan), this appointment gives access to MIT’s resources, e.g., library privileges, building access, etc. It’ll also save Olin extra library expenses.

**Pointers to relevant evidence**: <https://lids.mit.edu/people/affiliates>

MIT ID 

Activity/Accomplishment 5A **Spring 2022**

**Eleven arrangements of works for the Olin Conductorless Orchestra**

I created 11 original arrangements (aka re-orchestrations of symphonic works) for OCO’s eclectic instrumentation, i.e., its unbalanced wind, brass, and string sections.

Spring 2022. Four original orchestral arrangements of works for 16 players (**flute, clarinet, 2 alto saxophones, tenor sax, trombone, bass trombone + tuba (one player on both), timpani, piano, 3 violins, viola, 2 cellos, and double bass**)

• Johann Strauss II: *Voices of Spring.* Strauss scored his Waltz for flute, piccolo, 2 oboes, 2 clarinets, 2 bassoons, 4 horns, 2 trumpets, 2 trombones, bass trombone, timpani, bass drum, snare drum, harp, and strings (34 violins, 14 violas, 12 cellos, and 6 basses).

• Ralph Vaughn Williams: *Five Variants of Dives and Lazarus* (Variants I and II). Vaughan Williams wrote the “Five Variants” for string orchestra and harp.

• John Mackey: “Night on Fire” from *The Soul has Many Motions.* Mackey scored “Night on Fire” for piccolo, 4 flutes, 2 oboes, 2 bassoons, contrabassoon, 4 clarinets, bass clarinet, contrabass clarinet, 4 saxophones (SATB), 4 trumpets, 4 horns, 4 trombones, euphonium, tuba, double bass, marimba and percussion.

• W.A. Mozart: *Symphony no. 40 in g minor, K. 550* (Molto allegro). Mozart composed his penultimate symphony for flute, 2 oboes, 2 clarinets, 2 bassoons, 2 horns, and strings (18 violins, 6 violas, 4 cellos, and 2 double basses).

Fall 2022. Seven original orchestral arrangements of works for 16 players (**2 flutes, 2 clarinets, alto saxophone, tenor sax, trumpet, tenor trombone, bass trombone + tuba (one player on both), glockenspiel, piano, 2 violins, viola, cello, and double bass**)

• Gustav Holst: Song Without Words “I’ll love my love” from the *Second Suite for Military Band*. Holst wrote the Song without Words for flute, piccolo, oboe, Eb clarinet, 4 Bb clarinets, Eb alto clarinet, Bb bass clarinet, contrabass clarinet, 2 bassoons, Bb soprano sax, Eb alto sax, Bb tenor sax, Eb baritone sax, Bb bass sax, 3 Bb cornets, 2 Bb trumpets, 4 horns, 3 tenor trombones, bass trombone, euphonium, and double basses. Re-orchestrated for OCO’s wind/brass players + piano + glockenspiel.

• Edvard Grieg: Sarabande, movement II *From Holberg’s Time*, op. 40. Grieg wrote the Sarabande for string orchestra. (2 versions: one including 2 cellos, the other including 1 cello). Re-orchestrated for OCO’s string section, and added a piano part.

• W.A. Mozart: Overture to *Idomeneo*. Mozart composed the overture to his opera *Idomeneo* for 2 flutes, 2 oboes, 2 clarinets, 2 bassoons, 2 horns, 2 trumpets, strings (12 violins, 4 violas, 4 cellos, 2 basses), and timpani. (2 versions: one including 2 cellos, the other including 1 cello)

• Percy Grainger: Rufford Park Poachers, movement III of *Lincolnshire Posy*. Grainger wrote the “Rufford Park Poachers” for 2 flutes, piccolo, 2 oboes, English horn, Eb Clarinet, 3 Bb clarinets, alto clarinet, bass clarinet, 2 bassoons, contrabassoon, soprano sax, 2 alto saxes, tenor sax, baritone sax, bass sax, 3 cornets, 3 trumpets, 4 horns, 2 tenor trombones, bass trombone, Bb baritone, euphonium, tuba, string bass, and percussion.

• Jason Hurwitz: Epilogue to *La La Land*. Jason Hurwitz wrote the Epilogue for piccolo, 2 flutes, 2 oboes, English horn, Eb clarinet, 2 Bb clarinets, bass clarinet, tenor sax, bari sax, 2 bassoons, 4 horns, 4 trumpets, 2 tenor trombones, 2 bass trombones, tuba, harp, celesta, piano, vibraphone, timpani, percussion, and strings (34 violins, 14 violas, 12 cellos, 8 double basses).

**Significance**: As noted above by students, OCO would not exist without these arrangements specifically geared to the orchestra’s eclectic instrumentation.

**Pointers to evidence**: arrangements will be posted to the Engineers’ Orchestra Hub website; some recordings in the pipeline (unfortunately, others ruined).

Activity/Accomplishment 5B: **Spring 2022 and Fall 2022**

**Eleven Music Program concerts/events showcasing our students for Olin and external communities**

Online Events Preparation for Spring 2022:

• Wired Ensemble online event for Candidates Week (February 26, 2022)

• OCO online event for Candidates Week (February 26, 2022)

In-person Events Preparation (rehearsals and dress rehearsals) for Spring 2022:

• OCO performances for Admitted Students Days (April 11, 21, and 27)

• OCO to provide music for the Inauguration of President Barabino (May 5)

• OCO concert for May Expo (May 12)

Concert preparation (rehearsals and dress rehearsals) for Fall 2022:

• 3 OCO concerts: Family Weekend (Oct. 7), Office of Admission Fall Open House (Nov. 12), Final Events Concert (Dec. 15)

• The Wired Ensemble Event concert (Dec. 15)

**Significance**: These concerts reach core Olin constituencies: families (Family Weekend), external professional visitors (e.g., Expo), students + families attending Candidates Week.

**Pointers to relevant evidence**: recordings, communications from Olin parents, students, professional musicians, and Candidates Week audiences

Activity/Accomplishment 6: **Spring 2022**

**In-person delivery of Engineering Systems Analysis (ESA:Systems), co-taught with Chris Lee**

ESA:Systems involves building, developing, and practicing process-based quantitative analysis skills in the broad area comprising linear analysis of engineering systems. Concepts such as linearization, equilibrium, and stability are applied to study the dynamic response of electrical and mechanical systems in both the time and frequency domains through time-integration, transfer functions, and state-space analysis. Ideas from feedback control are introduced. Coursework and projects involve examples such as robots, communication systems, or aircraft/spacecraft.

We again re-vamped our course, this time to provide in-person delivery. The last in-person delivery involved 3 professors (S. Govindasamy, C. Lee, and me), but now Chris and I were the faculty in charge of 62 students.

Pointers to relevant evidence: ESA:Systems Canvas site <https://canvas.olin.edu/courses/373>

**Continued in-person half-semester course—ESA:Signals**

Linear system theory offers a powerful set of mathematical tools used broadly across science and engineering. Signals represent the transfer of information or power, while systems represent operations on these signals. ESA:Signals extends material from the first half-semester to focus on fundamental concepts such as frequency response, convolution, impulse and step response, sampling and aliasing, transforms (CTFT, DTFT, z), and modulation. These concepts are presented within the framework of linear operators and transforms in discrete- and continuous-time. Applications include filters, system identification, and communications.

Parts I and II of ESA were, and continue to be, a love. Interacting with the students, co-developing with Chris, and learning much in the process, continue to engage me fully.

**Significance**: ESA continues the engineering analysis stream and builds upon the QEA foundation at Olin.

**Pointers to relevant evidence**: ESA: Signals Canvas site <https://canvas.olin.edu/courses/371>

**Looking Back: Other Activities and Accomplishments**

1. As part of my NSF grants, I prepared and submitted 2 annual reports and one final report: I-Corps National Teams grant annual report, Mar 2022; PFI-TT (Partnerships for Innovation-Technology Transfer) grant annual report, May 2022; I-Corps National Teams final report, Oct 2022.
2. Enrolled in 4 MIT VMS (Venture Mentoring Service) Workshops and 4 AES (Audio Engineering Society) Workshops, attended South by Southwest online, the NAMM (National Association of Music Merchants) Show in person at the Anaheim Convention Center, and the AES Fall 2022 Convention in person at New York’s Jacob Javits Convention Center to help further deliverables for my NSF grants
3. The music@olin website is now accessible via iPad mounted on a Brown Innovations (Bii) Sound-focusing dome, in the entryway to the MAC. The website got ‘lost’ in transition to Olin’s new website, as did the website on the Olin Conductorless Orchestra. Both can now be found at <https://www.olin.edu/academics/curriculum>
4. Asked to join the Organizing Committee that submitted the NSF grant proposal “Supporting Undergraduate Institutions in Technology and Entrepreneurship Development (SUITED)” to the PFI-TT program. NSF had identified a need to engage PUIs (primarily undergraduate institutions) in its entrepreneurial programs. As noted earlier, of the 158 institutions with current active PFI awards, only 2 are held by PUIs (Union College and Olin College). The grant, approved in 2022, will fund 3 workshops in 2023 designed to identify and then address how best to involve PUIs in NSF’s ecosystem for bringing research from the lab to the marketplace, thereby providing more benefit to the American people (who fund NSF).
5. Met with faculty candidates Joseph Towles, David Shuman, Julia Carroll (twice), and Andrea Cuadro (I also listened to the video of her talk). Provided written commentary on each.
6. Some events attended:

* Feb 2 online talk at Stony Brook University given by John Cimino, “Leadership and the Inner Work of Art”; placed the details in Olin’s AL Announcements, after receiving an email from Mark Rice, cc-ed to Rick Miller and Mark Somerville.
* CWeek Faculty Chats, Feb 27
* CWeek Candidate Interviews, Mar 5
* Lunchtime presentation by President Gilda Barabino and Dean Harriet Nembhard on their paper, “Suffocating from Medical Bias”, Sept 7
* Alumni Weekend dinner, Sept 16
* Family Weekend Social sponsored by OSCOM, Oct 7
* “Culture of Care” seminar, Food for Thought series, given by Zhenya Zastavker, Oct 26
* “On Scholarship of Teaching and Learning”, Food for Thought series, moderated by Zhenya Zastavker, Nov 9
* Aaron Hoover remembrance, Nov 3
* Alex Morrow remembrance, Nov 16
* Participated in OFYI Engineering Identities session, “Merging Engineering with other Passions”, Nov 30

1. Wrote 10 recommendations for 5 Olin students to academic programs.
2. As part of the Spring 2022 AHS Capstone course, I provided timely feedback to **Richard Gao** as he created, produced, and performed an EP: *Right Now.* During Spring 2022, I signed on for six passionate pursuits, five of which were in music.
3. January – October 2022. Member, Reappointment and Promotion Committee.
4. **Music Program Director Activities/Responsibilities**

* Finally got the bass flute fixed through Flutistry’s flute repair colleagues in New York, with the help of Barb Luciano and Shashank Swaminathan ‘22
* Worked with Barb Luciano and Jocelyn Jimenez to use QR codes for OCO programs, starting with OCO’s Nov 12 performance for the Office of Admission Fall Open House
* Worked with Tufts University recording engineer to improve recordings for November and December performances
* Meetings with students involved with Independent Studies
* Preparing music program information sessions for first year students.
* Individual counseling for first year musicians, regarding auditions, music lessons, etc.
* Jam room coordination with students.
* Attendance at music events featuring students and alumni, as well as those featuring staff and faculty, including FWOP plays and musicals. (pre-covid)
* Other responsibilities include:
  1. Providing orchestration, composition, theory, and performance skills to support all facets of the program
  2. Helping students find ‘good fit’ private teachers for their particular instruments
  3. Producing musical opportunities for students to create and perform
  4. Preparing / rehearsing concerts for Olin events (Family Weekend, Office of Admission Fall Open House, Olin Expositions, Candidates Week, Admits Day performances, Candidate Weekends, etc.)
  5. Bringing in external coaches to provide additional feedback to students
  6. Maintaining all Olin-owned instruments, e.g., timpani and percussion
  7. Protecting Olin-owned instruments against theft. Sadly, triangles ($500), 4 tom-toms ($1000), 2 timbales ($500), and bongos ($150) disappeared during the 18 months we were virtual
  8. Evaluating/coordinating all tunings and repairs of the MAC 305 Steinway B, Yamaha MAC 318 upright, MH Steinway B, East Hall Steinway A, and East Hall Chickering grand piano
  9. In tandem with marketing and student input, coordinating action photos of Olin musicians in performance and rehearsal
  10. Working to ensure the music program continues to grow, thrive, improve

1. **Explanatory notes for the OCO re-orchestrations (arrangements of symphonic works).** In creating these re-orchestrations, I strive to make OCO sound as full and varied as possible, with a wide dynamic range, different colorations, strategic doublings, and effective solos/duets. Yet constraints exist, e.g., the comfort ranges of the OCO musicians. Simply substituting one instrument for another isn’t an option for many reasons:

* Instrumental, sectional (strings, winds, brass, percussion), and orchestral voice leading.
* Contrapuntal and harmonic intent of the composer.
* Non-traditional instrumentation, i.e., instruments typically not found in an orchestra such as piano and saxophones.
* Non-standard ratios of strings to winds and brass.
* Reduction from 90+ player orchestrations to 12-22 player arrangements (e.g., the 22 wind/brass instruments required for the Berlioz “Marche Hongroise” vs. the 8 that were available in OCO), or an increase in forces, as from a wind ensemble to a mixed string/wind/brass/percussion group.
* Balance issues, e.g., non-standard numbers of wind, brass, and strings comprising their respective sections.
* Creating the impression of large forces through dynamics, color contrasts, decreasing/increasing texture, among other strategies. OCO typically likes ‘big’ works.
* At the start of each semester, I ask students for their comfortable high and low *forte* notes and high/low *piano* notes. These often dictate what I can and cannot do, resulting in re-orchestrations particular to OCO.
* I try to give each student a good part that speaks to his/her/their strengths, while also challenging weaker aspects of an individual’s playing (provided the student shows a commitment to mastering an earlier part). I also try to give each at least one challenging part so they can ‘rise to the occasion’, hopefully paving the way for additional challenging parts. When material is repeated, I’ll often vary the orchestration with each repetition (e.g., Mozart’s “Wind Serenade in Bb major, K. 361”) or when duets/trios allow, I switch players in and out, thereby distributing parts (e.g., Mozart’s overture to *Così fan tutte*).
* And lastly, something I always try to do: everyone plays at the end of a piece—at least one note!

**Looking Back: Mapping Activities and Accomplishments**

**Diagram

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**Looking Back: Feedback Received**

**Feedback from Colleagues**

**Continuing a storytelling writing module for the resumption of Wired Ensemble**. Gillian Epstein continues to have progressive ideas for writing in the AHS Foundation courses. Working together, we changed a significant portion of the AHS Foundation Writing component for Wired Ensemble in 2017 and revived it again with the resumption of Wired in Fall 2021. Wired students continue to appreciate her voice and feedback with respect to their narrative writing on the topic: how has music figured in my life. We included Close Reading and Evidence workshops, as well as a Storytelling Development and Feedback workshops on student draft narratives. I always learn something new during the writing component of Wired, whether it’s reinforcing an earlier concept or prompting a new connection between writing compelling music and writing meaningful text.

**External Guests provide feedback to OCO**. Since 2006, I’ve invited 3-4 orchestral musicians in the Boston area to provide external feedback to OCO students each semester. Music benefits from different voices, interpretations, and viewpoints. Students highly value these visits from our external guests. We had 4 such visits in 2022. In 2023, I want to increase the number of these visits, as well as find a good timpanist to give lessons to an OCO member who doesn’t play timpani but would like to learn.

**Piano maintenance feedback**. Whenever Olin’s pianos are tuned by Mark Whitlock, I ask for his assessment on the state of the instruments. His expertise was especially helpful in evaluating the new Chickering piano.

**CantoVario (a project combining musical variations, chaos science, acoustics, and signal processing)**. Feedback provided by the MIT Venture Mentoring Service (VMS) Advisory team to CantoVario has benefited this project from the start and continues to do so. Additional feedback provided by two professors at Berklee College of Music has been incorporated into our deliverables.

**Team-teaching Engineering Systems Analysis with Chris Lee.** Just as students express how much they learn from their peers, Chris and I brought different perspectives to the table, and those perspectives informed not only us but our students. I continue to enjoy the learning exchange with Chris. He’s wonderful to work with and never leaves things to the last minute, whereas I am often doing just that. This is something I clearly have to work on.

**Feedback from Students**

Student feedback from Spring ’22 OCO and Fall ’22 Wired Ensemble went quite well. Though I worked hard to address the 2021 feedback from ESA, I nevertheless received some of the same comments that came my way in the 2022 evaluations. It was as if I had changed nothing, which I found difficult to understand. Still, from my musical experience, I know something can always be better, no matter how good it is in the moment. So I aspire to continue taking these comments to heart and doing my best to redress them. For ESA: Systems, the metric “Overall, was an effective teacher” received 3 Strongly Agree, 23 Agree, 4 Neutral, 5 Disagree, and 1 Strongly Disagree, out of 36 respondents from a class of 58.

The first comment I read for ESA: Signals made me beyond happy, “This was my favorite class I’ve taken at Olin so far — and that’s saying a lot, because my top three used to be reserved for design classes.” The next set of comments were great too, but then I read the rest of the evaluation, and my spirit plummeted.

I made a big mistake in Signals, giving the class a final quiz that some felt was like an exam. I used a 3-hour activity block to ensure more than enough time for completion. When they asked how to prepare for it, I always said the same thing: review your class notes, review the course handouts prepared for each class, go over the Day assignments and the homework assignments for which answers had been provided in a timely manner. I completely based the final quiz on those materials. I worked hard to lay out everything so clearly for them in these class materials. But quite a few students clearly had trouble with the quiz. Realizing this, I went through a variety of sources so that the final grades would accurately reflect each student’s understanding of the Signals material. I gave 6 As, 7 B+s, 2 Bs, 5 B-, 2 C+, 1 D+. No one complained about their grade.

Fall ’22 OCO faced some headwinds. Without calling out anyone, I’d rather look forward. A first step is to talk with each member of the orchestra at the start of the Spring ’23 semester and hear what they would like to get out of OCO this term.

**Reflection**

Much of Spring ’22 was spent on my courses, a period I covered in other parts of my Annual Report. So I’ll start with my trip to the NAMM show, departing June 2, 630am on American. It was the first time I’d flown since the pandemic lockdown in March 2020. Also, my first trip to NAMM (it’s huge and I was told “overwhelming” – but I loved it), as well as my first trip to LA. I went from LAX to Union Station, took Amtrak to Anaheim, about 50minutes away, and that’s when I really saw some great railroad action. I was taking the Surfliner which runs up and down the California coast; I actually have a model of a Surfliner engine that I run on the floor, around the piano. But the most remarkable part of the journey was what I saw outside the window: an old NY Central passenger car, BNSF engines (just like the ones shown in the ad video that precedes PBS Newshour), and surprise surprise – a Santa Fe Steam Engine that looks like the one I have. I could scarcely contain myself.

Anaheim is a very relaxed place, its tempo much slower than what I’m used to, but it felt great to be out in the sunshine, not rushing (as usual). After checking into the hotel, I went to their outdoor rooftop Basque restaurant for dinner. Looking at the menu surprised me. Entrees were 50-70USD. Much more expensive than Boston. But I had a great waiter – Scott, who also looked like Burt Reynolds. He recommended the duck (which was also the least expensive entrée) and 2 veg dishes. I also wanted to try their potatoes. He told me, don’t worry about the potatoes. Later he told me, don’t worry about the dessert. When I got the check, he had comped me the potatoes (which were cooked in the Basque tradition) and a Basque cheesecake—very light.

I went to NAMM on Friday, June 3, and asked for directions to register and pick up my badge. I never saw such a line, at least 10 blocks long. So I got in line, but then remembered I had a QR code. So I got out of line and went to a guard and said, I found my QR code, where do I go now? She said, Honey, everyone in that line has a QR code.

But I just got out of that line. Oh no, what do I do now? She said, come with me; now you’re going to still be in some line, but it’ll be much shorter… and 15 minutes later I had my badge!

Being at NAMM is like being in a candy factory. Cool gear everywhere. Over the next 3 days, I went to particular booths to check out software. Also went to a number of sessions to learn about the latest innovations coming through the pipeline. I could see a pathway forward to presenting at a future NAMM. My PFI-TT grant expects products at its completion, and I’m getting there. This LA trip gave me a boost; it was reinvigorating to be in a new place, looking, listening, exploring. I’ve missed that a lot so I also registered for the in-person AES (Audio Engineering Society) Convention in New York, Oct 19-20.

During the rest of the summer, I entered my creative world again. But first, there was a ton of stuff I had to catch up on. I always find myself picking up whatever i postponed from what was formerly known as 2nd semester, and it’s always a lot.

A person with curly hair

Description automatically generated with low confidenceMIT appointed me as a Research Affiliate for 2 years. That appointment (though unremunerative) allows access. (During the pandemic MIT secured all its buildings so you couldn’t enter unless you had a key-coded ID. They snapped this photo, and now I have an MIT ID.) Securing it took time due to paperwork and required approvals by the EECS Chair and the Dean of Engineering, but approval came on July 15. I was thrilled. It felt wonderful to have access again. I also love the place—its people, halls, libraries.

During Fall 22 semester, I taught OCO and the Wired Ensemble. End of term was crazy busy because of rehearsals and performances. Dec 13, 14, and 15 were 12-hour+ days, but the performances turned out well. At the last minute, two students didn’t feel they could perform their solo piano compositions so I stepped in and played them for the Wired Ensemble Event. I thought we’d get some good recordings since I had consulted with the recording engineer for Tufts University. He gave me some excellent pointers which we put to good use for the Nov 12 Office of Admission Fall Open House performance. But the Dec 15 recordings weren’t as good due to one student passing his recording duties to another who didn’t have the experience.

Regarding my musical variations project, I was able to push CantoVario forward and one of its projects is now ready for testing. (well, almost – I altered my algorithm and it still has to be coded up.) I also filed a new patent as a provisional application which means I can add more material during the next year but the priority date is established. The future of music continues to stay on my mind. Basically, I want to carve out some quiet time to think and dream a bit. Right now, though, I’m just trying to take care of a long todo list that’s been growing since first semester. I want to finish it asap so I have the freedom, expanse, and time to move my projects forward during my developmental leave.

**Looking Ahead: Goals and possible activities for the coming year**

**What are your personal goals for the coming year, and longer term?**

1. Grow the orchestra
2. Find funding for more performing opportunities for OCO outside of Olin so the students have that experience
3. Move forward with CantoVario’s R&D plan
4. Compose another concert of “Variations and Shadows”, i.e., a “variation concert” piece
5. Do, learn, teach, and grow personally and professionally

**What do you see as important Olin goals that you can contribute to over the next year, and beyond?**

Contributions to Olin’s leadership in the educational space:

1. Help export the ESA model
2. Export the conductorless orchestra model
3. Support Olin’s transformational mission: Engineering for Everyone

**Given these goals, identify activities that you *might* pursue in the coming year.**

* Cultivate ongoing appreciation for, and admittance of, good musicians
* Continued work in the pedagogical ESA and Signals & Systems space
* Work with students talented in music and engineering to help them realize their goals
* Contribute to a vibrant Olin community culture that fosters growth, openness, creativity, and ‘doing good’

**What does Olin need from you?**

1. Creativity and resourcefulness for internal and external projects that help develop students, build the college, and achieve impact
2. Continued work and involvement with electrical engineering courses
3. Continued work and involvement with music composition and performance courses, as well as AHS Capstones and Independent Studies in Music
4. Continued work and involvement with AHS Foundation courses
5. Continued work and involvement with developing the Music Program at Olin

**What do you need from Olin?**

* Ongoing help with attracting and admitting musicians to build up OCO and other music performing groups on campus, e.g., the Olin Jazz Orchestra, the Olin Rock Orchestra, PowerChords
* Summer support for an Olin student would be helpful

**Looking Ahead: What is your story?**

I speak two languages: electrical engineering and music. These languages are rich; they inspire me. I create in each and invent by moving beyond discipline-specific approaches to carve out domains that only emerge after being “in the tunnel”, sometimes with great struggle. It’s exciting not to know the answer to a life quest, to have a motivating question that leads to unknown places where discovery beckons. My story—in 4 words: I live to create. At Olin, I have told this story through leadership and impact across our 3 activity areas—developing students, external impact, building and sustaining the College. As to where I’ve been? I’ve had the great fortune to create many ‘firsts’ at Olin: a paper in *Science*, NSF I-Corps National Teams grant award, NSF PFI-TT grant award, a ‘variation concert’ where seat location determines what is heard, building a music program from scratch and sustaining it, a conductorless orchestra of engineers, a best paper award from ASEE, 9 new courses, … . Where am I headed? In and out of tunnels, to find the answers I’m looking / listening for.

My next reappointment: 25-26

Thanks for all you do – and your time!