

CURRICULUM VITAE

Diana S. Dabby

Associate Professor

Electrical Engineering and Music

Music Program Director

Olin College of Engineering

Professional Preparation

Ph.D. 1995 MIT Electrical Engineering and Computer Science

S.M. MIT Electrical Engineering and Computer Science

M.F.A. Mills College Music

B.Eng. City College of New York Electrical Engineering

A.B. Vassar College Music

Appointments

2010 – present	Music Program Director, Olin College of Engineering
2005 – present	Associate Professor of Electrical Engineering and Music, Olin College of Engineering
2000 – present	Research Affiliate, MIT Lab for Information and Decision Systems
2000 – 2005	(Founding Faculty) and Assistant Professor of Electrical Engineering and Music, Olin College of Engineering
Jan – May 2002	Adjunct Graduate Faculty, The Juilliard School
Jan – Dec 2000	University Fellow in Electrical Engineering and Computer Science, Tufts University
1999	Visiting Lecturer in Electrical Engineering and Computer Science, Tufts University
1999	Visiting Lecturer in Music, Tufts University
1998	Visiting Lecturer in Electrical Engineering and Computer Science, MIT
1998	Visiting Lecturer in Electrical Engineering and Computer Science, Tufts University
1997 – 1998	Visiting Assistant Professor of Music, Middlebury College

1997	Artist in Residence, MIT
1997	Summer Teaching Fellow, Tufts University
1995 – 1997	Postdoctoral Associate in Electrical Engineering and Computer Science, MIT

Intellectual Vitality: Research—Patents

Dabby, D.S. (2018). Method and Apparatus for Computer-Aided Mash-up Variations of Music and other Sequences, Including Mash-up Variation by Chaotic Mapping. Utility patent application 16/144521, filed United States Patent and Trademark Office 26 September 2018, pending.

Dabby, D.S. (2017). Method and Apparatus for Computer-Aided Mash-up Variations of Music and other Sequences, Including Mash-up Variation by Chaotic Mapping. Provisional patent application 62/563669, filed United States Patent and Trademark Office 26 September 2017, pending.

Dabby, D.S. (2016). Method and Apparatus for Computer-aided Variation of Music and other Sequences, including Variation by Chaotic Mapping. US 9286877 United States Patent and Trademark Office, issued 15 March 2016. Continuation in Part to cover applications, filed April 2014.

Dabby, D.S. (2016). Method and Apparatus for Computer-aided Variation of Music and other Sequences, including Variation by Chaotic Mapping. US 9286876 United States Patent and Trademark Office, issued 15 March 2016. Provisional filed July 2010, Utility and updated Provisional filed July 2011. Preliminary amendment filed January 2012.

Dabby, D.S. (2015). EnginArt™. Computer software for processing digital music files; computer software for creating and editing music and sounds; music-composition software. Registration No. 4698653 United States Patent and Trademark Office, registered trademark 10 March 2015.

Dabby, D.S. (2014). CantoVario™. Computer software for processing digital music files; computer software for creating and editing music and sounds; music-composition software. Registration No. 4656199 United States Patent and Trademark Office, registered trademark 16 December, 2014.

Dabby, D.S. (1997). Method of and apparatus for computer-aided generation of variations of a sequence of symbols, such as a musical piece, and other data, character or image sequences. US 5606144 United States Patent and Trademark Office, issued 25 February 1997.

Intellectual Vitality: Research—Publications

Dabby, D.S. (2019). The Engineers' Orchestra: a conductorless orchestra for developing 21st century professional skills. Peer-reviewed and accepted for publication in the Proceedings of the 2019 ASEE Zone 1 International Conference, Niagara Falls, New York.

Dabby, D.S. (2017). The Engineers' Orchestra—a conductorless orchestra for our time. Book chapter in D. Baraiktarova & M. Eodice (Eds.), *Creative ways of knowing in engineering* (pp. 23-58). Cham, Switzerland: Springer Nature. Peer-reviewed book chapter. (450 purchased downloads from Springer Nature).

Dabby, D.S. (2008). Creating Musical Variation. *Science*. 320 (5872), 62-3. Invited *Perspectives* article.

Dabby, D.S. (2003). En Route To Engineering: Nabokov, Lepidoptera, Dynamics. In *ASEE Conference Proceedings, 22-25 June 2003*. Nashville, TN: ASEE. pp. 8.482.1 - 8.482.9. Peer-reviewed conference paper.

Dabby, D. (2002). Leonardo as Artist, Scientist, Engineer. In *ASEE Conference Proceedings, 16-19 June 2002*. Montreal, Canada: ASEE. pp. 7.810.1 - 7.810.11. Peer-reviewed conference paper.

Dabby, D.S. (2001). Heroes for the Renaissance Engineer: Leonardo, Nabokov, Bach and Borodin. In *ASEE Conference Proceedings, 24-27 June 2001*. Albuquerque, NM: ASEE. pp. 6.539.1 - 6.539.13. Peer-reviewed conference paper.

Dabby, D.S. (1998). A Chaotic Mapping for Music and Image Variation. In *Proceedings of the Fourth Experimental Chaos Conference, 6-8 August 1997*. Boca Raton, FL: World Scientific.

Dabby, D.S. (1996). Musical Variations from a Chaotic Mapping. *Chaos: A Journal of Nonlinear Science* (American Institute of Physics), 6, 95-107. Peer-reviewed journal paper.

Intellectual Vitality: Research—Grants

NSF Partnerships for Innovation—Technology Translation Grant Proposal. Proposal No. 1941526. Title: CantoVario: Uniting Chaotic System Variability, Musical Variation, and Sound-focusing Technology for Technology Translation. Diana Dabby, Principal Investigator (PI). Submitted July 2019. 250K.

Olin Integrated Project Fund. Diana Dabby. The Engineers' Conductorless Orchestra website Hub. Award date: March 2019. 4K.

NSF Innovation Corps (I-Corps) Teams. Managing Division Abbreviation: IIP. "I-Corps: Harnessing Chaotic System Variability." Diana Dabby, PI. Proposal no. 1924305. Award No. (FAIN): 1924305. Award date: April 4, 2019. 50K

Travel grant for further Customer Discovery by CantoVario, administered by MIT I-Corps and funded by NSF. Award date: November 2018. 1.5K.

Olin Summer Innovation and Research Grants, Summers 2014-17 and 2005-09. 4K/summer for a student programmer to code algorithms disclosed in the above patents.

"Mix and Stir: musicians, composers, poets in concert." Babson, Olin, Wellesley (BOW) Presidential Innovation Grant. Mix and Stir featured BOW student and faculty musicians, composers, and poets in two

cross-disciplinary musical/literary events, enabling them to collaborate in a new venue, as part of a new Olin concert series. Awarded 2015. 6K.

Intellectual Vitality: Research—Web Applications

Dabby, D.S. (2017-2019). Web Application www.cantovario.com: CantoVario incorporates a number of algorithms based on the above patents that create musical variations of original works. Web app 2017 – 2019 coded by Jacob Kingery '16. New web app for MIDI song variations in beta at <http://cantovario.com/summer2019/>, 2017 – 2019. Coded by Justin Kunimune '19.

Dabby, D.S. (2019). The Engineers' Conductorless Orchestra website Hub. Provides resources such as blueprints, videos, and scores of orchestral arrangements for engineering schools wishing to create their own conductorless orchestras that builds leadership, teamwork, and communication skills in engineering students. <https://pages.olin.edu/eco-summer2019> Coded by Luis Zuniga '21.

Dabby, D.S. (2011-2014). CantoVario Web Application based on technology disclosed in the above patents to create musical variations of both audio and MIDI songs. Coded by James Rising.

Intellectual Vitality: Music—Premières, Commissions, Performances, and Recordings

(YouTube links provided where available.)

Dabby, D.S. (2018). *Parallel Lives—Distant Mirrors* for piano, bass and alto flutes, voice, and soundtrack. World première, Wellesley College Concert Series. Performed by Yong Su Clark (flutes), P. Lucy McVeigh (mezzo-soprano), and Jongsun Lee (piano). The fifth movement presents a concert of "Variations and Shadows" where seat location determines what the audience hears. The world première performance utilized sound-focusing technology developed by Kevin Brown of Brown Innovations. November 2018. <https://www.youtube.com/watch?v=xSqE22X4l8U&feature=youtu.be>

Dabby, D.S. (2017). *Who was Wissam Eid?* for violin, cello, and piano. World première, Ann Schaffner Concert Series, Olin College of Engineering. One of 14 faculty and student commissions from a Presidential Innovation Grant (Babson, Olin, Wellesley) performed by Gabriela Diaz (violin), David Russell (cello), and Lois Shapiro (piano). April 2017. https://youtu.be/Ra_AoA8SUsY

Dabby, D.S. (2013). *Fuente y Variación* (source and variation) for piano. World première, Youngsan Art Hall, Seoul, Korea. Commissioned by pianist Jongsun Lee for her invited artist concert sponsored by Youngsan Art Hall. May 2013.

Dabby, D.S. (2013). *Tre Studi di Colore*, three études for solo piano. Asian première, Youngsan Art Hall, Seoul, Korea. Performed by Jongsun Lee for her invited artist concert sponsored by Youngsan Art Hall. May 2013.

Dabby, D.S. (2013). *Fuente y Variación* (source and variation) for solo piano. Recorded by pianist Jongsun Lee at Mozart Hall, Seoul, Korea. December 2013. <https://www.youtube.com/watch?v=3vVeYwW1VNY>

Dabby, D.S. (2013). *Tre Studi di Colore*, three études for solo piano. Recorded by pianist Jongsun Lee at Mozart Hall, Seoul, Korea. December 2013. <https://www.youtube.com/watch?v=mRrJhR4OmEQ>

Dabby, D.S. (2012). *Tre Studi di Colore*, three études for solo piano. World première, Wellesley College Concert Series. Commissioned by the Jubilee Trio for their Houghton Chapel concert, Wellesley College. November 2012.

Dabby, D.S. (2011). *September Quartet*, a five-movement work for chorus, winds, brass, percussion, violin and piano. World première on the Tenth Anniversary of 9/11 at Distler Performance Hall, Granoff Music Center, Tufts University. Commissioned by Tufts University for the New Music Ensemble, John McDonald, Director, in commemoration of the Tufts Sesquicentennial. In the process of establishing this new link, the previous 500 views and comments were lost. September 2011. <https://www.youtube.com/watch?v=UQj2EmfFgAg>

Dabby, D.S. (2009). *11*, part of a larger Tufts University commission. Distler Performance Hall, Granoff Music Center, Tufts University. Performed by Joanna Kurkowicz, violin, and John McDonald, piano. April 2009.

Dabby, D.S. (2008). *A Fire's Tale* for piano. World première, Boyer Hall, Temple University. Commissioned by pianist Martha Schrepel on the occasion of her Temple University Final Doctoral Recital. March 2008.

Dabby NPR radio Interview/Performance (2007). "New Space Promotes Intersection of Art and Science." *Weekend Edition* piece highlighting, in part, the combination of engineering and music to produce a new technique for musical variation. *Invention for Two Hands* (Diana Dabby, pianist and composer) aired as excerpt. Taped Nov. 13, 2007; broadcast December 29, 2007.

Capps, D. and Bradley, L. (2007). *Con/cantation: (chaotic variations)*, a computer-assisted theme and variations performance project. Based on the chaotic variation technique presented in "Musical Variations from a Chaotic Mapping" (Dabby 1996). Sponsored by the Radcliffe Institute for Advanced Study. April 2007.

Dabby, D.S. (2006). *Aerial Silk* for solo piano to accompany 'aerial silk' performer Matthew Brouillard. Sorenson Theater, Babson College, on behalf of the Sharing Foundation. December 2006.

Dabby NPR member station WBUR Interview/Performance (2004), "Variations on Chaos – Math and Music of Diana Dabby." Taped April 23, 2004; broadcast July 9, 2004.

Dabby, D.S. (1999). *Trio Sonata* for flute and piano. Foy Concert Hall, Moravian College, Bethlehem, PA. Performed by the Kani-Schrepel Duo. February 1999.

Dabby, D.S. (1998). *Invention for Two Hands* for piano. World première (composer as pianist), Center for the Arts, Middlebury College. May 1998.

Dabby, D.S. (1997). *Trio Sonata* for flute and piano. World première, 14th Annual Musicfest, Bethlehem, PA. Commissioned and performed by the Kani-Schrepel Duo. August 1997.

Dabby, D.S. (1996). *Islamorada* for percussion ensemble and piano. World première (composer as pianist), Jordan Hall at New England Conservatory of Music. Commissioned by the New England Conservatory Percussion Ensemble. April 1996.

Dabby, D.S. (1993). *Manhattan EightSixSix* for piano and tape. World première (composer as pianist), The Cube, MIT. May 1993.

Dabby, D.S. (1990). *Lopez* for piano and tape. World première (composer as pianist), The Cube, MIT. May 1990. Tanglewood première (composer as pianist), Tanglewood Festival for Contemporary Music. August 1990.

Intellectual Vitality: Music—Orchestral Arrangements

Orchestral arrangements for the 12-22 players of the Olin Conductorless Orchestra (OCO) are available on the Engineers' Conductorless Orchestra website Hub <https://pages.olin.edu/eco-summer2019>

As a self-directed orchestra, OCO selects its own repertoire, often voting for symphonic works written for orchestras four times its size. Since Olin is a small school (350 students), OCO has always had an eclectic array of instruments. This nonstandard instrumentation—coupled with unbalanced wind, brass, and string sections—necessitate the orchestral arrangements I've created.

Links to sample recordings can be accessed in this CV under the subsequent heading: "Intellectual Vitality: Music—the Olin Conductorless Orchestra."

Dabby, D.S. (2018-2019). Nine arrangements of the following works (some of which were arranged for two different instrumentations, due to Junior semester away: Mozart *Wind Serenade in Bb major*, K. 361 (Rondo) – 2 different arrangements; Tchaikovsky "Waltz" from the *Serenade for String Orchestra*, op. 48 – 2 different arrangements; Mozart Overture to *Così fan tutte*, K. 588; Berlioz "Marche Hongroise" from *La Damnation de Faust* – 2 different arrangements; K. Badelt/T. Ricketts Medley from *Pirates of the Caribbean* – 2 different arrangements; and Arturo Marquez *Danzon No. 2*.

Dabby, D.S. (2017-2018). Six arrangements of the following works: Dvorak *Serenáda in d minor*, Op. 44 (Finale); Elgar *Serenade for String Orchestra in e minor*, op. 20 (Allegro Piacevole and Allegretto); Mozart Overture to the *The Marriage of Figaro*, K. 492; Schumann *Symphony No. 1 in Bb major*, "Spring", Op. 38 (Andante un poco maestoso—Allegro molto vivace); Puccini *Preludio Sinfonico* in A Major; and Elmer Bernstein theme song from *The Magnificent Seven*.

Dabby, D.S. (2016-2017). Six arrangements of the following works: Shostakovich "Waltz No. 2" from the *Suite for Variety Orchestra*; Mozart Overture to the *Magic Flute*; Louis Prima/Benny Goodman/O'Brien *Sing, Sing, Sing*; Gershwin *An American in Paris* (in an abridged version and a complete version, each for a different instrumentation); and J. Powell/S. O'Loughlin "This is Berk" from the movie *How to Tame Your Dragon*.

Dabby, D.S. (2015-2016). Seven arrangements of the following works: Dvorak *Serenáda in d minor*, Op. 44 (*Minuet in F*); Suk *Serenáda in Eb major*, Op. 6 (Andante con moto); Beethoven Overture to the *Creatures of Prometheus*; Saint-Saëns *Danse Bacchanale* from *Samson et Dalila*; A. Silvestri, G. Ballard, and J. Brubaker Suite from the *Polar Express*; Rimsky-Korsakov *Scheherazade* (The Sea and Sinbad's Ship); Dvorak *Symphony No. 9 in e minor* "From the New World", Op. 95 (Allegro con fuoco).

Dabby, D.S. (2014-2015). Seven arrangements of the following works: Dvorak *Serenáda in d minor*, Op. 44 (Moderato, quasi marcia); Dvorak *Serenáda in E major*, Op. 22 (Moderato); J.S. Bach/Holst *Fugue à la Gigue*; Ramin Djawadi Theme song from *Game of Thrones*; Wagner *Ride of the Valkyries*; Prokofiev Montagus and Capulets (from *Romeo and Juliet*, op. 64ter); and Bernstein *Symphonic Dances* (Prologue and Somewhere).

Dabby, D.S. (2013-2014). Six arrangements of the following works: Copland *Appalachian Spring* (in abridged and complete versions, the latter for 2 different instrumentations); Debussy *Petite Suite*; Saint-Saens *Le Carnaval des Animaux* (Introduction et Marche Royale du Lion, Le Cygne, and Fossiles); and Dvorak *Symphony No. 8 in G major*, op. 88 (Allegro, ma non troppo).

Dabby, D.S. (2012-2013). Six arrangements of the following works: Beethoven *March alla Turca*, op. 113; Stravinsky *Suite No. 2*; Marquez *Danzon No. 2*; Mussorgsky and Mussorgsky-Ravel *Pictures at an Exhibition* (Promenade and Old Castle); Saint-Saens *Danse Macabre*; and Mozart *Wind Serenade in Bb major*, K. 361 (Largo-Molto Allegro).

Dabby, D.S. (2011-2012). Eight arrangements of the following works: Mozart *Symphony no. 35 in D major*, K. 385, "Haffner", (Allegro con spirito); Beethoven *Symphony no. 7 in A major*, Op. 92 (Allegretto); John Williams *Across the Stars* (from Star Wars Episode II "Attack of the Clones"); Tchaikovsky "Waltz Finale and Apotheosis" from *The Nutcracker*; Haydn *Symphony no. 45 in f# minor*, Hob. I:4; Mozart *Serenade in Eb major*, K. 375 (Finale: Allegro); Piazzolla *Oblivion*; and John Williams Theme from *Jurassic Park*.

Dabby, D.S. (2010-2011). Seven arrangements of the following works: J.S. Bach *Orchestral Suite No. 4* (Overture); Copland *Rodeo* (Hoe-down); Holst "Jupiter" from *The Planets*; Lee Jisu *Arirang Rhapsody*; Rimsky-Korsakov "The Sea and Sinbad's Ship" from *Scheherazade*; Suk *Serenade in Eb for String Orchestra*, Op. 6; and Dvorak *Symphony No. 9 in e minor*, "From the New World", (Allegro con fuoco).

Dabby, D.S. (2009-2010). Six arrangements of the following works: Handel "Alla Hornpipe" from *Water Music*; Mozart Overture to the *Marriage of Figaro*; Beethoven *Symphony No. 4 in Bb major* (Adagio-Allegro vivace); Schumann *Symphony No. 2 in C major* (Adagio espressivo); Smetana *The Moldau*; and Mussorgsky *Night on Bald Mountain*.

Dabby, D.S. (2008-2009). Nine arrangements of the following works: Saint-Saens *Danse Macabre* (3 arrangements, each for a different instrumentation); Beethoven *Symphony No. 7 in A major*, Opus 92 (Allegretto) - 5 arrangements, each for a different instrumentation; and Mussorgsky-Ravel *Pictures at an Exhibition* (Promenade I, Gnomus, Promenade II, Il vecchio castello, Promenade III, Tuileries, Limoges).

Dabby, D.S. (2007-2008). Ten arrangements of the following works: Haydn *Symphony No. 48 in C major*, "Maria Theresa", (Allegro) – 3 arrangements, each for a different instrumentation; Beethoven *Symphony No. 8 in F major*, Op. 93 (Allegro vivace e con brio) – 2 arrangements, each for a different instrumentation; Beethoven *Symphony No. 8 in F major*, Op. 93 (Allegretto scherzando); Bernstein Overture to *Candide* – 2 arrangements, each for a different instrumentation; and Smetana *Vltava*.

Dabby, D.S. (2002-2007). 25 arrangements of works by Mozart, Gershwin, Rachmaninov, Britten, Stravinsky, Tchaikovsky, Bartok, Elgar, Shostakovich, Gorecki, Copland, Fauré, Borodin, and Schubert, of which only nine survive. The others appear to be lost due to lack of an orchestral library for the arrangements (which has since been remedied).

Intellectual Vitality: Music—Solo Piano Concerts (ranging from Bach to Bartok) and **Contemporary Music Performances**

- 1998 Center for the Arts, Middlebury College. Solo piano concert. May 1998.
- 1996 Jordan Hall at the New England Conservatory. Contemporary piano performance: *Islamorada* for percussion and piano by Diana Dabby (composer and pianist) with the New England Conservatory Percussion Ensemble, Frank Epstein, Director. April 1996.
- 1993 The Cube, MIT Media Lab. Contemporary piano performance: *Manhattan EightSixSix* for piano and tape by Diana Dabby (composer and pianist). May 1993.
- 1991 Boston Symphony Hall. Contemporary keyboard performance: *From Silence* for electronics with live performers (violin, viola, percussion, keyboards and soprano) by Jonathan Harvey; John Hoose, conductor. January 1991.
- 1990 Tanglewood Festival of Contemporary Music. Contemporary piano performance: *Lopez* for piano and tape by Diana Dabby (composer and pianist). August 1990.
- The Cube, MIT Media Lab. Contemporary piano performance: *Lopez* for piano and tape by Diana Dabby (composer and pianist). May 1990.
- 1987 Merkin Concert Hall, New York, NY. Solo piano concert to establish the Judith Resnik Memorial Scholarship at The City College of New York. April 1987. Sold out.
- Friends of Music Series, Princeton University. Solo piano concert. April 1987.
- 1986 American Music Week Manhattan, New York, NY. Two performances. November 1986.
- 1983 Jeunesse Musicale Concert Series, Marczibanyi Teri Cultural Center, Budapest, Hungary. Solo piano concert, April 1983. Sold out.
- Museum of the City of New York Concert Series (encore), New York, NY. Solo piano concert. March 1983.
- Donnell Library Concert Series (by audition), New York, NY. Solo piano concert. March 1983.
- Hewlitt-Woodmere Library Concert Series (by audition), New York, NY. Solo piano concert. March 1983.
- 1981 Gallery Concerts at St. Ignatius Church (by audition), New York, NY. Solo piano concert. December 1981.

Massapequa Public Library Concert Series (by audition), Massapequa, NY. Solo piano concert. November 1981.

Bosendorfer Beethoven Festival (encore), Friends of the Arts Concert Series, Oyster Bay, NY. Solo and one piano-four hands Beethoven performances. September 1981.

Museum of the City of New York Concert Series (by audition), New York, NY. Solo piano concert. March 1981.

1980 Trinity Church Concert Series (by audition), New York, NY. Solo piano concert. November 1980.

Bosendorfer Beethoven Festival at Coe Hall (by audition), Friends of the Arts Concert Series, Oyster Bay, NY. Solo Beethoven performance. September 1980.

Lincoln Center Performing Arts Library, New York, NY. Solo piano concert. June 1980.

Carnegie (Weill) Recital Hall, New York, NY. Solo piano concert, April 1980. Sold out.

South Huntington Library Concert Series (by audition), South Huntington, NY. Solo piano concert. April 1980.

Westbury Library Concert Series (by audition), Westbury, NY. Solo piano concert. March 1980.

Brooklyn Museum, Brooklyn, NY. Solo piano concert. January 1980.

A sampling of live recordings from my New York concerts can be heard at <https://youtu.be/CZB8NF390GU>

A live recording of a contemporary performance, *Islamorada* for percussion and piano (with the composer as pianist and the percussion part rendered on tape), can be heard at <https://youtu.be/UZQwi24DGB0>

Intellectual Vitality: Music—Building a Music Program from Scratch, and Sustaining it

2002 - present Founder and developer of the Music Program at Olin College of Engineering (2002-present). Responsibilities include applying orchestration, composition, theory, and performance skills towards all facets of the program; organizing and rehearsing concerts for Olin events and programs (8-23 concerts/year inside and outside Olin); ensuring year-to-year continuous improvement and innovation.

Rehearsed and produced 272 concerts by the Wired Ensemble, the Olin Conductorless Orchestra, and other ensembles. Of these 270 concerts, I performed as a pianist in 70 of them to help establish the program. (Programs available on request.)

2002 – present Founder and developer of the *Olin Conductorless Orchestra* (2002-present), an ensemble—minus conductor—featuring instrumentalists in leadership, communicative, and collaborative roles. The Olin Conductorless Orchestra is the only conductorless (self-directed) orchestra

composed of engineers—in the world. Responsibilities include re-orchestrating symphonic works (chosen by the students) for the orchestra’s eclectic combination of instruments; providing constructive commentary on a weekly basis; coaching/rehearsing/guiding from the side or up front, as needed; bringing in Boston area musicians to provide external feedback to the orchestra 3-4 times each semester.

- 2019 Concert by the Olin Conductorless Orchestra at the American Society for Engineering Education Zone I International Conference, Niagara Falls, NY. 12 April 2019.
- 2005 - 2018 Acquisition of instruments, including alto flute, bass flute, percussion (xylophone, glockenspiel, toms, snares, cymbals, triangles, bass drum, timbales, bongos, conga, and smaller instruments), timpani (23”, 26”, 29”, and 32”), Yamaha upright B3 rehearsal piano, and Steinway A rehearsal/practice piano.
- 2017 Concert by the Olin Conductorless Orchestra at the Great Hall of the Cooper Union. 19 February 2017.
- 2014 Initiated Ann Schaffner Concert Series at Olin College with generous grant from the Schaffner family. April 2014.
- 2013 Acquisition of new Steinway B for Milas Hall Mezzanine (Olin’s music performance space). Wrote proposal, discussed with administration, responded to questions from all concerned, located piano technician in Connecticut to evaluate the Steinway prior to purchase, emails and phone calls with the piano technician, meetings/emails/phone calls with the seller, emails/phone calls/meetings with Facilities regarding placement of Steinway once it arrived, emails/phone calls with Steinert Pianos in Boston to install piano dolly, emails/phone calls with Olin’s piano technician to address voicing, string leveling, tuning, and regulation of the piano, and fundraising (emails/phone calls/meetings) to finance purchase.

Intellectual Vitality: Music—the Olin Conductorless Orchestra (OCO)

Dedicated to playing orchestral works selected by its students, OCO forges individual participation, active listening, and group-motivation into performances that have established it as a singular ensemble. In Fall 2002, I created the Olin Conductorless Orchestra to give our new college, and its students, a bold variation on the collegiate student orchestra—one that is self-directed rather than conducted. In so doing, OCO offers engineer-musicians an experiential lab for developing leadership, teamwork, and communication skills, while doing something they love—music.

The orchestra has performed 137 concerts since inception. A representative sampling of performances is given below, in chronological order to show overall growth of the orchestra. The orchestral arrangements are identified in “Intellectual Vitality: Music—Orchestral Arrangements” given above. (Full list of concerts available on request.)

- Spring 2008 Haydn *Sinfonia No. 48 in C Major*, “Maria Theresia”: first movement (Allegro).
<https://youtu.be/knulC0k1r5M>
- Spring 2011 Composite video excerpts (Holst: Jupiter from *The Planets* and Lee Jisu: *Arirang Rhapsody*).
http://www.youtube.com/watch?v=ZFd453aYudU&feature=mfu_in_order&list=UL

- Spring 2013 Arturo Marquez *Danzon No. 2.*
<https://youtu.be/yyzEQ6n6OYA>
- Fall 2015 Beethoven Overture to the *Creatures of Prometheus*
<https://www.youtube.com/watch?v=VlkAZG106ek>
 Saint-Saens *Danse Bacchanale*
<https://youtu.be/zix7lwadvM>
- Spring 2016 Dvorak *Symphony No. 9 in e minor*: fourth movement (Allegro con fuoco)
http://bit.ly/OCO_Dvorak9th
- Spring 2017 Gershwin *An American in Paris*
<https://www.youtube.com/watch?v=BA5F48usRlo>
- Spring 2019 Mozart *Serenade in Bb major for 13 Winds*, K. 361: Finale
<https://www.youtube.com/watch?v=hTNUGRU4PI8>
 Berlioz “Marche Hongroise” from *La Damnation de Faust*
<https://www.youtube.com/watch?v=a9IkNITe1fE>

Invited Lectures and Presentations

- 2018 CantoVario keynote. Young Inventors’ Program Convention at Southern New Hampshire University (SNHU) sponsored by the Academy of Applied Science, Fidelity Investments, and SNHU. “Two-Part Invention.” March 2018.

 Guest Lectures on the mathematics underpinning music for “Engineering the Acoustical World,” a new course at Harvard University, John A. Paulson School of Engineering and Applied Sciences. Lectures connected the wave equation, overtone series, tuning, string harmonics, and modal scales. February 2018.
- 2017 CantoVario presentation and demo. MIT Venture Mentoring Service annual showcase/networking event “The Entrepreneurial Edge.” October 2017.
- 2016 CantoVario pitch and demo. MIT Venture Mentoring Service “Snapshot Pitches.” February 2016.
- 2015 Seminar presentation: CantoVario. Wellesley College AFR -237 - Women, Careers, and Diversity: Mining the Landscape. February 2015.
- 2014 Competition for MIT Venture Mentoring Service (VMS) 2014 Demo Day. CantoVario (EnginArt) selected as one of 20 Demo Day presentations from 70 MIT start-up applicants. April 2014.
 CantoVario Workshop. Society of Composers, Berklee College of Music. February 2014.

- CantoVario presentation. Society of Composers, Berklee College of Music. February 2014.
- 2013 Art of Science speaker series, Brandeis Women in Science Initiative, Brandeis University. "Creating Musical Variation—from Chaos." March 2013.
- 2012 Dean William Parks Colloquium, Christopher Newport University. "Two-part Invention: Creating at the Interface of Art and Science." April 2012.
- 2010 Ted^x Olin College. "Musical Variation via Chaos." December 2010.
Skidmore Union Network, funded by an NSF Advance PAID grant. "From Chaos: Musical Variations." March 2010.
- 2009 Yale University Women in Science, "Taming Chaos for Musical Variation." October 2009.
National Symposium for the Advancement of Women in Science (NSAWS), presented by Women in Science at Harvard-Radcliffe. "Taming Chaos for Musical Variation." February 2009.
- 2008 MIT Laboratory for Information and Decision Systems *Colloquium*. "Creating Musical Variation." April 2008.
- 2007 Plenary speaker, 2007 International Conference on Complex Systems. "Engineering Chaos and Musical Variation." 28 October-2 November 2007.
Dartmouth College Thayer School of Engineering (Jones Seminar Series on Science, Technology, and Society). "Chaos Theory intersects Musical Variation." April 2007.
Concert/lecture. The City College of New York Honors Program, Schools of Engineering and Liberal Arts/Sciences. "At the Interface of Science and Art." March 2007.
- 2006 Guest Lecture. Harvard University Engineering Sciences 147: Idea Translation. "Pulling Music out of Chaos." November 2006.
- 2005 Lecture presentation. National Association of Schools of Music (NASM) 81st Annual Meeting, *New Dimensions: Avant-garde Thinking in Educational Technology*. "Automatic Generation of Musical Variations." 19-22 November 2005.
- 2004 Concert/lecture. Harvard University School of Engineering and Applied Sciences. "Engineering Musical Variation." December 2004.
- 2002 Concert/lecture. Mills College Department of Music. "Tempering Chaos for Musical Variation." April 2002.
- 2001 Concert/lecture. Boston Cyber Arts Festival, Sorenson Theater, Babson College. "Creating Musical Variation by Taming Chaos." April 2001.
- 1999 Concert/lecture. Department of Music, Dartmouth College. "Art \cap Science: Musical Variations from a Chaotic Mapping." March 1999.

- Concert/lecture. Women in Music Series at Tufts University. "Music and Engineering—Endless Variations."
- Concert/lecture. Honors Colloquium, UMass Dartmouth. "Art \cap Science: Music via Chaos."
- 1998 Concert/lecture. Arts in Science Series presented by FIRST Place of New Hampshire. "Art \cap Science: Music and Image from Chaos." November 1998.
- 36th Annual *New Horizons in Science Briefing* International Conference for Science Writers sponsored by the Council for the Advancement of Science Writing, in conjunction with Boston University. "A Chaotic Mapping for Music and Art." 1-5 November 1998.
- Concert/lecture. International Symposium on Information Theory, Kresge Auditorium, MIT. "Variations in Music and Image via Chaos." August 1998.
- Concert/lecture. Departments of Music and Electrical Engineering, Princeton University. "Art \cap Science: Music and Image from Chaos." April 1998.
- Concert/lecture. Electrical Engineering and Computer Science Colloquium, MIT. "Art \cap Science: A Chaotic Mapping for Musical Variation." March 1998.
- Math and Music Seminar, Cornell University. "At the Intersection of Math and Music: A Chaotic Mapping for Musical Variation." March 1998.
- Concert/lecture. Center for Applied Mathematics Colloquium, Cornell University. "From a Chaotic Mapping: Variations in Music and Image." March 1998.
- Concert/lecture. Center for the Arts, Middlebury College. "Where Art meets Science: Musical Variations from a Chaotic Mapping." February 1998.
- 1997 Mathematics Seminar, Middlebury College. "Mappings for Music." October 1997.
- Office of Naval Research. Fourth Experimental Chaos Conference, Boca Raton, FL. "A Chaotic Mapping for Music and Image Variation." July 1997.
- 1996 Mitsubishi Electric Research Lab, Cambridge, MA. "Musical Variations from Chaos." October 1996.
- 1995 Concert/lecture. Departments of Music and Electrical Engineering, Hong Kong University. "Musical Variations from a Chaotic Mapping." April 1995.
- Concert/lecture. Department of Physics, Hong Kong University of Science and Technology. "Musical Variations from a Chaotic Mapping." April 1995.
- Concert/lecture. Department of Electrical Engineering, Hong Kong Polytechnic University. "Musical Variations from a Chaotic Mapping." April 1995.

Concert/lecture. Departments of Music, Mathematics, and Physics, Hong Kong Baptist University. "Musical Variations from a Chaotic Mapping." April 1995.

Concert/lecture. Department of Mechanical and Automation Engineering, Chinese University of Hong Kong. "Musical Variations from a Chaotic Mapping." April 1995.

Conference Presentations and Symposia

- 2019 Invited Speaker and Panelist. "The Engineers Orchestra." ASEE Cooperative & Experiential Education Division (CEED). Leveraging Experiential Learning to Integrate Liberal Arts Into Engineering Education, Tampa Convention Center, Tampa, FL. 15-19 June 2019.
- Conference Presentation. "The Engineers' Orchestra: a conductorless orchestra for developing 21st century professional skills." ASEE Zone One International Conference, Niagara Falls, NY. 11-13 April 2019.
- 2018 Invited panelist. Academy of Applied Science panel presentation on Invention Education at the Massachusetts STEM Summit. Presentation with three other educators on fostering invention for K-12 students. DCU Center, Worcester, MA. 14 November 2018.
- 2013 Invited Panelist, Wheaton Institute for the Interdisciplinary Humanities, Inaugural Gala Event, "The Humanities Give Back: The Role of the Humanities in Professional Fields," moderated by Anthony Grafton, Henry Putnam University Professor of History, Princeton University. April 2013.
- 2009 Invited Panelist, National Symposium for the Advancement of Women in Science (NSAWS), presented by Women in Science at Harvard-Radcliffe. "Interdisciplinary careers: carrying science across fields." 7-9 February 2009.
- 2005 Invited Panelist, National Symposium for the Advancement of Women in Science (NSAWS), presented by Women in Science at Harvard-Radcliffe. "Interdisciplinary careers: carrying science across fields." 8-10 April 2005.
- 2005 Invited consultant, Engineering Vision Workshop sponsored by the School of Engineering, University of North Florida. "Superior Engineering Education to Drive Economic Development in Northeast Florida." 10-12 March 2005.
- 2004 Invited Panelist, Siemens Foundation *Beautiful Minds, Beautiful Music* symposium at Weill (Carnegie) Recital Hall. Event sponsored by the Siemens Westinghouse Science Competition to examine the connection between science and music. June 2004.
- 2003 Conference presentation. "En Route To Engineering: Nabokov, Lepidoptera, Dynamics." American Society for Engineering Education Annual Conference, Nashville, TN. 22-25 June 2003.
- 2002 Conference presentation. "Leonardo as Artist, Scientist, Engineer." American Society for Engineering Education Annual Conference, Montreal, Canada. 16-19 June 2002.

- 2001 Conference presentation. "Heroes for the Renaissance Engineer: Leonardo, Nabokov, Bach and Borodin." American Society for Engineering Education Annual Conference, Albuquerque, NM. 24-27 June 2001.
- 1995 Poster presentation. "Musical Variations from a Chaotic Mapping." SIAM (Society for Industrial and Applied Mathematics) International Conference on Applications of Dynamical Systems, Snowbird, UT. 21-24 May 1995. Best Poster Prize (unanimous).
- 1994 Conference presentation. "A Musical Chaotic Space." Acoustical Society of America Conference, Cambridge, MA. 6-10 June 1994.

Olin Summer Intellectual Vitality (IV) Grants: Research Students (2005 – 2019)

(In chronological order to convey the progress of my projects.)

- | | |
|-------------|--|
| Summer 2005 | Michael Wu '07 coded up a number of preliminary algorithms for making variations of audio recordings. Despite some promising results, this preliminary work was abandoned. In March 2006, I had an epiphany which led to the continuous- and discrete-time algorithms coded up during summers 2006, 2007, 2008, 2009. |
| Summer 2006 | Michael Wu '07 programmed the continuous-time algorithms in Matlab. Though he had never built an interface up to that point, he created an efficient design that allowed access to a number of complex variation methods for audio. During Fall 2006, I realized all of the continuous-time algorithms also applied to making variations of discrete-time input, e.g., MIDI song files. |
| Summer 2007 | David Nelson '09 coded up the new discrete-time algorithms, based on the above continuous-time results, in Python. Though he had never coded in Python, I took a chance on him, and I'm glad I did. He not only programmed the aforementioned discrete-time algorithms, but also created a usable interface so that I could experiment further. |
| Summer 2008 | Kevin Cheng '11 then coded the continuous-time algorithms in Matlab. This was necessary because the beautiful interface created by Michael Wu no longer worked with my new computer. Furthermore, I wanted to re-test the results of Summer 2006 to make sure they were reproducible. Eddie Byun '11 also worked with me. At the start of the summer, he wanted to improve his programming ability, yet realized as the summer progressed that coding was not where he wanted to put his future energies. This turned out to be a valuable realization (his words to that effect). |
| Summer 2009 | Andrew Pikler '12 coded a number of new discrete-time algorithms that arose when I turned my attention to the problem of rhythmic variations. Again, the breakthrough for these rhythmic variation methods arose in a flash during a quiet moment in May 2009, but only after making various attempts since 2000. Andrew made an interface that I used in order to check new results against those created earlier. |

Summer 2014	James Jang '17 researched and organized a number of contemporary song recordings by key and tempo so that we could test "CantoVario" (the musical variations project) with different genres. CantoVario encompasses all the continuous- and discrete-time algorithms disclosed in the above patents.
Summer 2015	Jacob Kingery '16 coded a number of web mockups, audio experiments, and new algorithms designed to satisfy copyright and trademark constraints. This work started in fall 2014 as an Undergraduate Research project (for credit), continued in Spring 2015 as paid work, and summer 2015 as part of an Olin Summer IV Grant.
Summer 2016	Sungwoo Park '19 coded a web app that included 4 of my variation algorithms for MIDI songs. Duncan Hall '18 investigated the addition of a score feature for the web app.
Summer 2017, Summer 2019	Justin Kunimune '19 programmed a standalone desktop version of CantoVario that now includes all my variation algorithms for MIDI songs, as well as a web app featuring same (now in beta).
Summer 2019	Luis Zuniga '21 built the new Engineers' Conductorless Orchestra website Hub. Though he had never created a website, he taught himself the necessary HTML, CSS, and JavaScript languages. The website was a complex undertaking due to the large amount of content, as well as the variety of that content (e.g., videos, musical scores, programs, etc.)

Courses Taught

(In chronological order to show evolution of course development at Olin College of Engineering, while building & sustaining the College, as well as at other institutions.)

1997 Fall	<i>Musical Variation</i> seminar, Middlebury College Dept. of Music
	<i>Music Composition I</i> , Middlebury College Dept. of Music
1998 Spring	<i>Music Composition II</i> , Middlebury College Dept. of Music
	<i>Music Theory I</i> , Middlebury College Dept. of Music
1998 Fall	<i>Signals and Systems</i> (6.003), MIT Dept. of Electrical Engineering and Computer Science
	<i>Circuits</i> , Tufts University Dept. of Electrical Engineering and Computer Science
1999 Fall	<i>Musical Variation</i> composition seminar, Tufts University Dept. of Music

	<i>Music, Art, Literature: Intersections with Science.</i> Tufts University Dept. of Music
	<i>Circuits</i> , Tufts University Dept. of Electrical Engineering and Computer Science
2002 Spring	<i>Music, Art, Literature: Intersections with Science.</i> The Juilliard School, Graduate Division
2001 – 2015	Developed, taught, and created curricular materials for the following courses. Each different course was a ‘first’ at Olin College of Engineering
2001 Fall	<i>Leonardo as Artist, Scientist, Engineer</i> , offered during Olin’s “Partner Year”
2002 Spring	<i>Nabokov, Butterflies, Moths</i> , offered during Olin’s “Partner Year”
2002 Fall	<i>Music Performance, Music Composition</i> which included the Olin Conductorless Orchestra. ELE1020
2003 Spring	<i>Musical Design and Aesthetics</i> , including the Olin Conductorless Orchestra. ELE1025
2003 Fall	<i>The Wired Ensemble: Instruments, Voices, Players.</i> Arts, Humanities, and Social Sciences (AHS) Foundation course. AHS1122 <i>The Olin Conductorless Orchestra</i> , though not yet a course, running concurrently.
2003	<i>Signals and Systems.</i> Electrical and Computer Engineering (ECE) core course (required for ECE majors). FND2510
2004 Spring	<i>Heroes for the Renaissance Engineer: Leonardo, Nabokov, Bach, Borodin.</i> AHS elective. AHS1140 <i>The Olin Conductorless Orchestra</i> , though not yet a course, running concurrently.
	<i>Signals and Systems.</i> ECE core course (required for ECE majors). ENGR2410
2004 Fall	<i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122 <i>The Olin Conductorless Orchestra</i> , though not yet a course, running concurrently.
2005 Spring	<i>Signals and Systems.</i> ECE core course (required for ECE majors). ENGR2410

	<i>Heroes for the Renaissance Engineer: Leonardo, Nabokov, Bach, Borodin.</i> AHS elective. AHSE2120
	<i>The Olin Conductorless Orchestra</i> , though not yet a course, running concurrently.
2005 Fall	<i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122
	<i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2005 Spring	<i>Signals and Systems.</i> ECE core course (required for ECE majors). ENGR2410
	<i>Heroes for the Renaissance Engineer: Leonardo, Nabokov, Bach, Borodin.</i> AHS elective. AHSE2120
	<i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2006 Fall	<i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122
	<i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2006 Spring	<i>Signals and Systems.</i> ECE core course (required for ECE majors). ENGR2410
	<i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2007 Fall	<i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122
	<i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2007 Spring	<i>Signals and Systems.</i> ECE core course (required for ECE majors). ENGR2410
	<i>Heroes for the Renaissance Engineer: Leonardo, Nabokov, Bach, Borodin.</i> AHS elective. AHSE2120
	<i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2007 Fall	<i>The Engineers' Orchestra, part I: Acoustics, Waves, Vibrations.</i> Engineering elective. Co-taught with Prof. Chris Lee. ENGR2125
	<i>The Engineers' Orchestra, part II: Theory, Orchestration, Composition.</i> AHS elective. AHSE2125
	<i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122

	<i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2008 Spring (on developmental leave)	<i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2008 Fall	<i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122 <i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2009 Spring	<i>Digital Signal Processing.</i> ECE elective. ENGR3499 <i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2009 Fall	<i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122 <i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2010 Spring	<i>Digital Signal Processing.</i> ECE elective. ENGR3415 <i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2010 Fall	<i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122 <i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2011 Spring	<i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2011 Fall	<i>Digital Signal Processing.</i> ECE either/or requirement that satisfies either a core requirement or an ECE elective requirement. ENGR3415 <i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122 <i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112
2012 Spring	<i>Signals and Systems</i> , new approach to this core course (required for ECE majors, including new text book, lab work, and written reports based on a writing rubric developed in conjunction with Olin Writing Consultant Dr. Gillian Epstein. <i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112

Created and prepared curricular materials for Olin's 2012 institutional evaluations by the Accreditation Board for Engineering and Technology (ABET) for 3 courses: Digital Signal Processing, the Wired Ensemble, Signals and Systems.

2012 Fall	<p><i>Digital Signal Processing.</i> ECE either/or requirement that satisfies either a core requirement or an ECE elective requirement. ENGR3415</p> <p><i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122</p> <p><i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112</p>
2013 Spring (on developmental leave)	<p><i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112</p>
2013 Fall	<p><i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122</p> <p><i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112</p>
2014 Spring	<p><i>Digital Signal Processing.</i> ECE either/or requirement that satisfies either a core requirement or an ECE elective requirement. ENGR3415</p> <p><i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112</p>
2014 Fall	<p><i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122</p> <p><i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112</p>
2015 Spring	<p><i>Digital Signal Processing.</i> ECE either/or requirement that satisfies either a core requirement or an ECE elective requirement. ENGR3415</p> <p><i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112</p>
2015 Fall	<p><i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122</p> <p><i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112</p>
2016 Spring	<p><i>Digital Signal Processing.</i> ECE either/or requirement that satisfies either a core requirement or an ECE elective requirement. ENGR3415</p> <p><i>The Olin Conductorless Orchestra.</i> AHS elective. AHSE0112</p>
2016 Fall	<p><i>The Wired Ensemble: Instruments, Voices, Players.</i> AHS Foundation. AHSE1122</p>

Digital Signal Processing. ECE either/or requirement that satisfies either a core requirement or an ECE elective requirement. ENGR3415

The Olin Conductorless Orchestra. AHS elective. AHSE0112

2017 Spring *The Olin Conductorless Orchestra.* AHS elective. AHSE0112

2017 Fall *The Wired Ensemble: Instruments, Voices, Players.* AHS Foundation. AHSE1122

The Olin Conductorless Orchestra. AHS elective. AHSE0112

2018 Spring (on
developmental
leave) *The Olin Conductorless Orchestra.* AHS elective. AHSE0112

2018 Fall *The Wired Ensemble: Instruments, Voices, Players.* AHS Foundation. AHSE1122

The Olin Conductorless Orchestra. AHS elective. AHSE0112

2019 Spring *Signals and Systems*

The Olin Conductorless Orchestra. AHS elective. AHSE0112

Independent Studies (IS) and Olin Self-Studies (OSS)

(In chronological order to convey the growth and variety of the Music Program.)

2003 Spring Musical Concepts (Etosha Cave) IS

2004 Fall Music Composition (Amanda Blackwood) IS

Music Composition (Jake Graham) IS

2006 Spring Jazz Theory (Steve Shannon) IS

Music Theory: Tonal Harmony (Matt Tesch) IS

Musical Performance (Steve Shannon) IS

Digital Audio Synthesis (Grant Hutchins) OSS

Alexander Borodin: The Relationships that Influenced his Pursuit of Music
(Christopher McCabe) Babson College Honors Thesis

2006 Fall	Harmonic Practice (Michael Wu) IS
2007 Spring	A Quick-Entry Musical Interface for Notation Software (Ben Fisher) IS
	Country and Blues in America: 1920-1960 (Brian Shih) IS
2007 Fall	Music Composition (Leif Jentoft) IS
2008 Fall	Music Composition (Jeff Gluckstein) IS
2009 Spring	Progressive Rock composition (James Whong and Dan Cody) OSS
2010 Spring	Tonal Harmony (Noura Howell) IS
	Directing the Olin PowerChords (Dan Elg) OSS
2011 Spring	Exploring DnB (Shannon Taylor) OSS
	Music Theory and Ear Training (Scott Carlson) IS
	Theory and Piano (Sandra Lam) IS
	Digital Music (Jessica Noglows and Aaron Greenberg) IS
	Live Mixing (4 students including Shannon Taylor) IS
	Acoustics (Anton Frolenkov) OSS
2012 Spring	A Twelve-tone Analysis of Schoenberg's Praeludium (Jea Young Park) IS
	Music Synthesis Composition (Gray Thomas) IS
2015 Fall	Diwali Vocal Performance (Subhash Gubba) IS
2016 Fall	Music Production (Jee Hyun Kim) IS
2018 Fall	Markov Chains and Music (Junwon Lee) IS

Arts, Humanities, and Social Sciences (AHS) Capstones in Music—Supervised and/or Mentored

(In chronological order to show the trajectory of the AHS Capstone in Music.)

2005 Fall	House Music Composition (Grant Hutchins: annotation + two original house music compositions mixed to CD)
-----------	--

	Computer Music Composition (Katie Rivard: monograph + CD of original compositions)
	A Cappella Arranging (Amanda Blackwood: annotation + original a cappella arrangements of two current mixed instrumental/vocal popular songs by LeeAnn Womack and Aerosmith)
2006 Spring	<p>Bassoon Performance (Janet Tsai: annotation + live performance of 5 works in Sorenson Theater, including two for bassoon and orchestra)</p> <p>Vocal Conducting (Jake Graham: annotation + demo mini disk of three a cappella works brought to performance level by a student conductor working with an amateur group of singers)</p> <p>Spanish/Sephardic Music and Composition (Ben Donaldson: annotation + 3-movement work)</p> <p>Hearing cf. Hearing-Impaired Perceptions of Music (Jay Gantz: monograph + 10 transcripts of interviews)</p> <p>Percussion Performance and Composition (Steve Shannon: annotation + live performance of original compositions in Sorenson Theater for the Performing Arts + CD of 7 original 'drum-featured' pieces)</p>
2007 Spring	<p>The Internet and the Printing Press: parallels through Western music history (Kristin Dorsey: written disciplinary deliverable)</p> <p>Bass Trombone Performance (Matt Tesch: solo concert in the Glavin Chapel, Babson College)</p> <p>Jazz Singing in the Swing Era (Laura Stupin: solo recital in the Glavin Chapel, Babson College)</p> <p>Viola Performance (Kat Kim: solo recital in the Glavin Chapel, Babson College)</p>
2009 Spring	<p>Chicago and Delta Blues (Kevin Sihlanick: paper + demo recital at Olin College of Engineering)</p> <p>Theory as Performer's Tool: Musical Interpretation and Audience Engagement (Sylvia Schwartz: paper + demo recital at Olin College of Engineering)</p> <p>Emotional Evocation through Music (Erin Schumacher: paper)</p> <p>Electronic Music Composition (Jonathan Pechan: paper + composition + recording)</p>

	Religious Tradition in American Popular Song (Bonnie Charles: paper + demo recital at Olin College of Engineering)
	Tango Research and Composition (Kelly Butcher: paper + compositions + demo recital at Olin College of Engineering)
2010 Spring	Violin Performance (Erika Boeing: program notes + violin recital at Olin College of Engineering)
	Music Composition based on Early Music Influences (Ben Fisher: original compositions + performance at Olin College of Engineering)
2010 Fall	Analysis and arrangement of “One Man Wrecking Machine” (Dan Grieneisen: paper + arrangement + recording)
	Music Production: a Portfolio of Musical Works (Scott Carlson: recordings + program notes + live performance at Olin College of Engineering)
2012 Spring	Vocal Percussion (Jason Curtis: vocal percussion created and performed for 3 songs—Take on Me, Grace Kelly, and S Catapult—with recordings and live performances at Olin College of Engineering)
2012 Fall	Approaches to Performing and Understanding Classical Music (Elsa Culler: paper + piano recital at Olin College of Engineering)
2014 Spring	Schubert Study (Liz Fitzpatrick: program notes + lessons)
2014 Fall	Phoenix Flight (Kevin O’Toole: composition for OCO based on the children’s story “The Phoenix and the Carpet” by Edith Nesbit. Program notes + OCO World première at Olin College of Engineering)
2015 Spring	A Look into Schubert and Schumann (Philicia Chow: program notes + lessons + May concert (cancelled due to pneumonia))
2016 Spring	Music Composition: EP (Michael Resnick: extended play collection of songs and performance at Olin College of Engineering)
2017 Spring	Music Production (Riley Chapman: arrangements and recordings of “Girl in the Hi-Tops” by Peter Mulvey, “Snow is Gone” by Josh Ritter, “Easter Sunday” by John Craigie, and “Death Row” by Jimi Charles Moody)
2017 Fall	Video Game Music Composition (Joseph Sutker: composition tracks to back a video game project)

	Film Music Composition (William Lu: composition tracks to back a film project)
2018 Spring	Dream of the Butterfly (Jee Hyun Kim: composition for piano)
2019	Journey (Joseph Lee: composition for OCO. Program notes + OCO World première, Olin College of Engineering)

Passionate Pursuits (Music) Supervised

Responsibilities include helping student instrumentalists and vocalists find appropriate private instruction; evaluating end-of-term performances & deliverables; accompanying student performances on piano; and coaching, as needed.

(In chronological order to demonstrate growth of the Passionate Pursuit Program in Music.)

2002 – 2003	Violin – Etosha Cave
2003 Spring	Flute – Clara Cho
	Bassoon – Janet Tsai
	Clarinet – Jerzy Wieczorek
	Jacob Graham – Silver Harmony (Olin’s first A Cappella group)
2003 – 2004	Trombone – Dan Bufford
	Voice – Will Clayton
	Trombone – Chris Doyle
	Flute – Johanna Itescu
	Voice – Laura Stupin
	Bassoon – Janet Tsai
2004 – 2005	Flute – Johanna Itescu
2005 – 2006	Voice – Jo Itescu, Lauren Glanville, George Jemmott, Elizabeth Kneen, Paul Mandel, Karen Levi, Erin Schumacher. These 7 passionate pursuits culminated in an end-of-term musical theater revue. Worked with voice teacher to present and evaluate the student performances.
	Viola – Angela Sharer

	Viola Study – Kat Kim
	Olin String Quartet
2006 Fall	<p>Voice Lessons – Bonnie Charles, Ben Fisher, Lauren Glanville, Karen Levi, Chujiao Ma, Paul Mandel, Jessica Murray, Amanda Pratt, Ben Small, Laura Stupin, Alexandra Wheeler, Nikolaus Wittenstein. These 12 passionate pursuits culminated in a vocal concert. Worked with voice teacher to present and evaluate the student performances.</p> <p>Piano Study – Stephanie Gulbrandsen</p> <p>Piano Study – Michael Boutelle</p> <p>Guitar Study – Leif Jentoft</p> <p>Viola Study – Kat Kim</p>
2007 Spring	<p>Group Pursuit in “Musical Theater Performance” – Chujiao Ma, Karen Levi, Paul Mandel, Amanda Pratt, Lauren Glanville, Bonnie Charles, Ben Small. Worked with voice teacher to present and evaluate the 7 student performances.</p> <p>Private Voice Study – Bryn Hollen</p> <p>Voice Jazz – Laura Stupin</p> <p>Viola Performance – Kat Kim</p> <p>Advanced Piano Technique and Performance – Elizabeth Kneen</p>
2007 Fall	<p>Group Pursuit in Voice Lessons – Dan Elg, Derek Thurmer, Karen Levi, Lauren Glanville, Ben Small, Paul Mandel, and Bonnie Charles. Worked with voice teacher to present and evaluate the 7 student performances.</p> <p>Piano Study – Tess Edmonds</p> <p>Voice Study – Bryn Hollen</p> <p>Jazz Violin Study – Erika Boeing</p> <p>Piano Study – Peter Massari</p>

2008 Spring	Voice Lessons in French - Liana Austin, Dan Elg, Lauren Glanville, Karen Levi, Paul Mandel, and Bonnie Charles. Worked with voice teacher to present and evaluate the 6 student performances.
	Violin Study – Jonathan Reed
	Piano and Music Theory – Amanda Blackwood
	Solo and Four-handed Piano Performance – Tess Edmonds
	Voice Study – Bryn Hollen
2009 Spring	Piano Lessons and Performance – Tess Edmonds
	Violin Study and Performance – Steven Zhang
	Clarinet Study – Noura Howell
	A Cappella Singing – Rachita Navara
2009 Fall	Clarinet Lessons – Noura Howell
	Brandeis-Wellesley Orchestra – Thomas Dugger
	Violin Study and Performance – Steven Zhang
	Professional Singing Instruction – Rachita Navara
	Gu Zheng (Chinese zither) Study and Performance – Mandy Korpusik
	Gu Zheng Study and Performance – Lillian Tseng
2010 Spring	Classical Vocal Techniques – Ilana Walder-Biesanz
	Learning to Play the Banjo – Emily Shakleton
	Lutherie in order to Make a Soprano Ukelele – Jessica Noglows
	Professional Singing Instruction – Rachita Navara
	Disc-jockeying – Arjun Iyer
	Brandeis-Wellesley Orchestra – Thomas Dugger

	Jazz Piano – Molly Farison
2010 Fall	Clarinet Lessons – Noura Howell
	Classical Piano Lessons – Jea Young Park
	Brandeis-Wellesley Orchestra – Thomas Dugger
	Classical Vocal Techniques – Ilana Walder-Biesanz
	Private vocal instruction/vocal technique – Helen Wang
	Viola Private Lessons – Josh Furnish
	Live Mixing of Music – Mark Muraoka and Andrew Carmedelle
	DJ-ing – Arjun Iyer
	The Art of Reed Making (oboe) – Eric Westman
2011 Spring	Professional Singing Instruction – Rachita Navara
	Private Vocal Lessons – Helen Wang
2011 Fall	Clarinet Lessons – Noura Howell
	Classical Vocal Techniques – Ilana Walder-Biesanz
	Performance DJ-ing – Arjun Iyer
	Solo Violin Performance – Allie Duncan
	The Ficus Quartet – Ian Hoover
2012 Spring	Clarinet Lessons – Noura Howell
	Classical Vocal Techniques – Ilana Walder-Biesanz
	Concert Piano Performance – Alyssa Bawgus
	Performance DJ-ing – Arjun Iyer
	Piano Lessons – Andrew Pikler

2012 Fall	Classical Vocal Techniques – Ilana Walder-Biesanz
	Concert Piano Performance – Alyssa Bawgus
	Electronics for Music – Arjun Iyer
	Flute Lessons – Ambika Goel
	Flute Lessons – A Young (Claire) Keum
	Instrument Building – Alyssa Bawgus
	Sound Systems – Charles Gwennap
2013 Spring	Classical Piano – Luis Rayas
	Classical Vocal Techniques – Ilana Walder-Biesanz
	Flute Lessons – Claire Keum
2013 Fall	Violin Classical Lessons – Pinar Demetci
	Vocal Performance – Mariko Thorbecke
	Ballet – Juanita DeSouza
2014 Fall	Drums – Jay Woo
2015 Fall	Instrument Fabrication – Jee Hyun Kim
	Learning tenor banjo – Meg Lidrbauch
	Music Performance (flute) – Kathryn Hite
	Music Performance (violin) – Shreya Rangarajan
	Opera Appreciation – Ziyi Lan
2016 Fall	Improve Violin Skills – Yichen Jiang
	Private Cello Lessons – Hannah Kolano
	Piano Performance – Emily Yeh
2017 Spring	Learning Mountain Dulcimer – Regina Walker

2017 Fall	Classical Violin – Aiden Carley-Clopton
	Violin Lessons – Vienna Scheyer
2018 Spring	Orchestral Minimalism composition – Diego Alvarez
2018 Fall	Learning to play Ukelele – Jerry Goss
2019 Spring	Chamber music – Anne Ku

Committees

(In chronological order to show building and sustaining the College.)

2000 – 2001	Admission; Arts, Humanities, and Social Sciences (AHS) Search (Chair); Faculty Search
2001 – 2002	Admission, Faculty Search
2002 – 2003	Admission, Organizational Health, BBOW (Brandeis, Babson, Olin, Wellesley) including visiting committee to Wellesley, ECE Search Committee, Olin Expo, Gates, and Intellectual Vitality
2003 – 2004	Admission, Organizational Health, Electrical and Computer Engineering (ECE) Search Committee, AHS Search Committee, Writing Committee, Olin Expo, Passionate Pursuit Grant Board
2004 – 2005	Admission, Organizational Health, ECE Search Committee, AHS Program Group Committee, Passionate Pursuit Grant Board
2005 – 2006	Admission
2006 – 2007	ECE Program Group, AHS Program Group, Admission Reader, Passionate Pursuit Grant Board
2007 (Fall)	ECE Program Group, AHS Program Group, Passionate Pursuit Grant Board (on leave Spring 2008)
2008 – 2009	ECE Program Group, AHS Program Group, Passionate Pursuit Grant Board, Student Experience Committee
2009 – 2010	Committee on Student Academic Performance, ECE Program Group, AHS Program Group

2010 – 2011	Committee on Student Academic Performance, ECE Program Group, AHS Program Group
2011 – 2012	Faculty Search Committee, ECE Program Group, AHS Program Group
2012 (Fall)	ECE Program Group, AHS Program Group (on leave Spring 2013)
2013 – 2014	ECE Program Group, AHS Program Group, Admission
2014 – 2015	ECE Program Group, AHS Program Group, Admission
2015 – 2016	Academic Life, Committee on Academic Performance (COSAP)
2016 – 2017	Passionate Pursuit Grant Board
2017 (Fall)	Intentional Student Experience Working Group (on leave Spring 2018)
2018 – 2019	Reappointment and Promotion Committee

Professional and Community Service

(In chronological order to more clearly depict multi-year efforts.)

2006 – 2013	Lesley University, member Doctoral Committee for thesis at the interface of art and science that focuses on computer scientists with strong talents in music, 2006 – 2013: Shaked, Varda. <i>The Meaning of Music-Making for Computer Scientists with a Serious Music-Making Avocation: A Phenomenological Case Study</i> (2013)
2013	“_____ for life.” Worked with SERV (Olin’s Student Community Service) and BOW (Babson, Olin Wellesley) faculty to involve Sorenson Center Spring Concert (featuring 6 BOW music groups, including OCO) in “_____ for life”: a SERV-sponsored event to raise funds for the American Cancer Society.
2013 – 2017	Lions Club Fundraiser (Olin Conductorless Orchestra and PowerChords), May 2013-17. Performance for Needham Lions Club as part of their annual fundraiser.
2015 – 2016	Needham Rotary Club Music Awards, adjudicator for student and professional awards, Jan. 2015, Jan. 2016
2018	Musical Performance (Olin Conductorless Orchestra) for residents of Mt. Pleasant Residential Care Home, Jamaica Plain, MA. May 2018.

Contributions to Student Life

(In chronological order to show growth of the “Learning Continuum” at Olin College of Engineering.)

Co-Curricular: Olin Does the BSO. Each year students sign up to attend three concerts offered by the Boston Symphony Orchestra. They receive co-curricular non-degree credit if they attend 2/3 concerts. The Office of

Student Affairs and Resources has sponsored my co-curricular “Olin Does the BSO” since 2002, but we only have records of the students involved since Spring 2007.

2007 – 2008	Bryn Hollen, Laura Stupin, Hermes Taylor-Weiner
2008 – 2009	Raphael Cherney, Bryn Hollen, Clark McPheeters
2009 – 2010	Ben Fisher, Sasha Sproch, Liz Threlkeld
2010 – 2011	Breauna Campbell, Molly Farison, Sasha Sproch
2011 – 2012	Andrew Carmedelle, Mandy Korpusik, Hannah Sarver
2012 – 2013	Alyssa Bawgus, Ry Horsey, Liz Fitzpatrick
2013 – 2014	Emily Engel, Liz Fitzpatrick, Daniel Dichter, Hannah Wilk
2014 – 2015	Christine Dimke, Riva Kahn-Hallock, Hannah Wilk
2015 – 2016	Christine Dimke, Meg Lidrbauch, Hannah Wilk
2016 – 2017	Christine Dimke, Claire Kincaid, Hyun Joo Lee, Hannah Wilk
2017 – 2018	Utsav Gupta, Cusai Alfred-Igbikwe, Rachel Won, Joseph Lee
2018 – 2019	Claire Kincaid, Paige Pfenninger, Regina Walker

Wired Ensemble Field Trips to New York City 2002 – present. Yearly fall semester field trips to hear live performances at the Brooklyn Academy of Music and Lincoln Center, e.g., the Metropolitan Opera, New York Philharmonic, New York City Opera, The Juilliard School Concert Series, and more.

Family Night at the Opera 2004 – present. Yearly spring semester trips into Boston for my advisees; we have dinner out and attend an opera.

Professional Affiliations

The College Music Society (2005 – present)

American Society for Engineering Education (2001 – 2005; 2013 – present)

Institute of Electrical and Electronics Engineers (2005 – present)

IEEE Signal Processing Society (2005 – present)