Technique builders with a pedagogical approach to new music proficiency

Andrew Charles Gentzsch

University of Iowa

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TECHNIQUE BUILDERS WITH A PEDAGOGICAL APPROACH TO
NEW MUSIC PROFICIENCY

by

Andrew Charles Gentzsch

An essay submitted in partial fulfillment
of the requirements for the Doctor of Musical Arts
degree in the Graduate College of
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PUBLIC ABSTRACT

Building up a skill or technique is an important part to violin playing. It not only helps prevent injury but assists in developing specific techniques and skills; however, there is an insufficiency of developing exercises geared towards new music techniques. Many advanced violin performers lack the skills to begin practicing, learning, reading, and performing new music. The techniques required, such as sul ponticello, overpressure with the bow, or quarter tones, are extremely difficult. They require a similar mastery, if not greater mastery, of typical classical violin techniques. Though there is a large body of repertoire for the violin requiring these techniques, there are few pedagogical materials that guide teachers and performers towards how to read, interpret, and master each new technique.

Ten original technique builders are composed, helping address this need for developing technique required to perform new music on the violin. Each builder addresses a specific technique, including rhythm, bow contact point, pizzicato, intonation, left hand dexterity, and harmonics. Repertoire lists accompany each builder, guiding the reader towards viewing each technique in context.
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CHAPTER 1: INTRODUCTION

Using exercises to develop technique is an important aspect of violin playing. They can help not only prevent injury, but assist in learning new techniques and skills. There are countless warmups, etudes, caprices, workbooks, and technical guides for developing standard violin techniques; however, there is a lack of exercises geared towards new music techniques. Many advanced violin performers need to build skills to begin practicing, learning, reading, and performing new music. Many of the techniques required, such as sul ponticello, overpressure with the bow, or quarter tones, are uniquely difficult. They require an equal, if not greater mastery, of typical classical violin techniques. Some of these techniques have been used and developed for hundreds of years, such as sul ponticello or pizzicato. Their usage and evolution with new music is far more difficult and complicated. Transitioning between bow contact points is nuanced, happening faster, and usually specifically notated by composers. Pizzicato use is defined exactly how to be performed. Even simple dynamics are more extreme. Moreover, each composer has their own written language for many of these techniques, requiring a performer to translate markings into the intended musical sound and expression. Though there is a large body of repertoire for the violin requiring these new skills, there are few pedagogical materials that guide players and teachers towards reading, interpreting, and mastering each new technique.

First, this essay identifies and reviews existing materials intended to teach new music techniques for the violin, as well as materials that will serve as guides. This literature review includes etudes, technique books, and caprices. A caprice, or capriccio, is sometimes viewed as a study to help build technique; however, by definition, it “does not signify a specific musical technique … but rather a general disposition towards the exceptional, the whimsical, the fantastic
and the apparently arbitrary.”¹ Many newer caprices fall into this latter genre, usually being a stand-alone concert piece instead of a study, such as Earl Kim’s 12 Caprices for Solo Violin² and Sophie Carmen Eckhardt-Gramatté’s 10 Caprices for Solo Violin.³ One older technique book must also be noted as an inspiration for a structural model for this essay, The Dounis Violin Players’ Daily Dozen to Keep the Violinist Technically Fit for the Day's Work: Twelve Fundamental Exercises for the Left Hand and the Bow, Op. 20 by Demetrius Dounis.⁴ Practicing sections of the Dounis’s Daily Dozen helped give the impetus to start this project. Dounis’s exercises have accessibility at multiple skill levels and maintain their usefulness beyond their initial purpose, whether it is teaching left hand or bow technique. Several dissertations, treatises, and essays, including a dissertation by Kenneth Lee Sarch, titled The Twentieth Century Violin: a Treatise on Contemporary Violin Technique, are reviewed.⁵

This essay focuses on five significant new music works with a variety of instrumentations; solo violin, violin and orchestra, string quartet, and chamber ensemble. They are Luciano Berio’s Sequenza VIII (1975-1977), Gérard Grisey’s Vortex temporum (1994-96), Helmut Lachenmann’s String Quartet No. 3 Grido (2001), György Ligeti’s Concerto for Violin and Orchestra (1990-93) and Kaija Saariaho’s Lichtbogen (1986). The specific editions used in examples are properly cited in the footnotes and bibliography of this essay. From within these works, numerous new music techniques are highlighted. Each technique is identified with a

header and description, with a score selection from the five selected pieces. A collection of

header and description, with a score selection from the five selected pieces. A collection of
technique builders, newly composed by myself, is located in Chapter 5, corresponding with each
technique. The builders are recounted in detail, describing how they will help a performer learn
a specific skill.

The final section of this essay will identify needs for future projects, such as publication
of the technical builders in a book, the addition of more builders and techniques as new music is
composed, and expanding the examples section to include other monumental violin works.
CHAPTER 2: LITERATURE REVIEW

Nearly every advanced violinist can pick up their instrument and play an intermediate etude or exercise in the standard violin repertoire, possibly even an advanced caprice; however, this process can get far more difficult the newer the music is because of extended techniques. To show the need and precedent of culling new music skills from pieces and composing brand new technique builders, this literature review examines several books, dissertations, essays, and treatises containing technical guides, etudes, caprices, and compendiums of new music techniques for the violin and their pedagogical application.

*The Twentieth Century Violin: A Treatise on Contemporary Violin Technique*, by Kenneth L. Sarch, is a treatise on identifying, describing, and presenting 20th-century violin technique.6 Published in 1982, Sarch’s work covers a vast amount of 20th-century violin solo and chamber repertoire, sixty-one total pieces ranging from Claude Debussy’s *Sonata for Violin and Piano L. 140*, written in 1917, to Elliott Carter’s *Duo for Violin and Piano*, written in 1974. Sarch lists thirty-five different techniques, such as flautando, sul tasto, col legno, bow pressure noise, tremolo, changing bow sounds, whole bow gliding, chromatic fingering, quarter tones, double stops, harmonics, rhythm, percussive effects, mutes, and more. Though these techniques are still used today, they are treated with more nuance and contain complicated combinations within works not included in Sarch’s treatise. Each identified technique is first described, then shown in a study written by Sarch, and lastly contextualized within the 20th-century violin repertoire. The studies range in length from a few measures to over a page, each presenting a violin technique in an original context. The studies help a player develop a technique, such as the rhythmic studies outlining multiple rhythms, oscillations, and rhythmic groupings.7 A study

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6 Ibid., Abstract.
7 Ibid., 197-205.
at times also serves as an example of a technique, such as Study No. 16 – Two Finger Pizzicato, Pizzicato Glissando, Pizzicato Tremolo, and Snap Pizzicato. This treatise is a useful pedagogy tool in pointing a performer towards defining a specific technique as well as repertoire excerpts.

A dissertation written in 2005 by Brenda van der Merwe, New Frontiers in the Art of Violin Performance: The Contemporary Study and Pedagogy of Extended Performance Techniques for the Violin, is a supplement to traditional violin technique pedagogy, focusing on the mastery and pedagogy of new violin technique and repertoire. This dissertation focuses on a selection of solo violin repertoire: George Rochberg Caprice Variations, Krzysztof Penderecki Miniatury na skrzypce I fortepiano, Donald Martino Fantasy- Variations for Violin, Luciano Berio Sequenza VIII, Iannis Xenakis Mikka, Elliot Carter 4 Lauds for Solo Violin, Witold Lutoslawski Partita for Violin and Piano, George Crumb Four Nocturnes (Night Music II) for Violin and Piano, and John Cage Freeman Etudes. Chapter 1 focuses on the above repertoire; each piece is contextualized and analyzed with tips on notation. Additionally, selected examples of extended techniques are discussed. The next section, titled Contemporary Violin Technique, dissects techniques, such as subharmonics, just-tuning, harmonic reasoning, harmonic variations, scordatura, microtones, and technology. Chapter 3 is dedicated to rhythm, followed by a Compendium of Caprices in Chapter 4, composed by the dissertation’s author. The goal of the caprices is “to provide the violinist with an introduction to some contemporary techniques, using musical material that is approachable and feasible.” The majority of the dissertation focuses on examples of techniques from solo violin repertoire, with score samples and an in-depth analysis.

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8 Ibid., 250.
10 Ibid., xiii.
11 Ibid., 161.
12 Ibid.
of each excerpt and technique. Extensive sections on just-tuning and scordatura are helpful in using various tuning systems in a contemporary context. The layout of this dissertation is useful from a pedagogical point, with all of the caprices located in one chapter towards the end, where the techniques are referenced and described in the previous chapters.

A monograph written in 2004 by Michael Kim Buckles, *A Structured Content Analysis of Five Contemporary Etude Books for the Violin*, begins with a literature review, reporting on standard 1940’s scale books by Carl Flesch to Patricia Strange and Allen Strange’s *The Contemporary Violin: Extended Performance Techniques*, written in 2001. Several 20th-century violin technique dissertations are reviewed, including *The Twentieth Century Violin: A Treatise on Contemporary Violin Technique* by Sarch, discussed above.13 Buckles presents a *Content Analysis Form* for contemporary etudes, guiding teachers in selecting contemporary etudes for their students. The form, which is found at the back of the monograph, can be filled out by a teacher to identify techniques within etudes that might be of pedagogical use.14 Buckles selected five etude books to put into the form: *Rhythmical Etudes* (1932) by Bohuslav Martinů, *Ten Preludes for Solo Violin, OP. 35, 1952* by Eugène Ysaÿe, *Studies for Violinists* (1967) by Paul Hindemith, *Freeman Etudes* by John Cage, and *Meadowmount Etudes* (1996) by Samuel Adler.15 Buckles reached a conclusion that contemporary repertoire has expanded at an accelerated rate, while contemporary etudes and exercises have not caught up with the standard pedagogical materials and new music repertoire.16

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14 Ibid., 212.  
15 Ibid., xiii.  
16 Ibid., 196.
A treatise by Piotr Szewczyk, titled *Solo Violin Miniatures in the 21st Century: Analysis of Commissioned Works from the Violin Futura Project*, initially introduces the Violin Futura Project, a series of recitals performed by the author, containing pieces composed and commissioned specifically for the author.\textsuperscript{17} Szewczyk outlines the genesis, diversity, and styles within the project, as well as issues such as unplayability, fragmentation, and the socio-cultural environment of the 21\textsuperscript{st} Century.\textsuperscript{18} The treatise then delves into different categories of compositional analysis: form, harmonic language, extended notation/techniques, as well as performance and pedagogical aspects.\textsuperscript{19} This treatise then finishes like a monograph, listing numerous works composed for solo violin before the Violin Futura Project as well as during.\textsuperscript{20} Some essential pedagogical points involve the significance of collaboration, the need for each composition to have its own sound world, getting to the correct mindset for contemporary music, and attaining comfort with technique. Szewczyk identifies a need for accessible pedagogical material early in his treatise:

The pedagogy of contemporary music is notoriously challenging both for professors and students since contemporary music still occupies a very small part of professional music training, with the exception of people who decide to become specialists. With its divergent styles and technical challenges, contemporary music needs special approaches from many angles. I will explore those pedagogical aspects in detail, using examples from the commissioned pieces and other sources. The Violin Futura Project lends itself perfectly to the

\textsuperscript{18} Ibid., 7.
\textsuperscript{19} Ibid., v-vi.
\textsuperscript{20} Ibid., 100.
exploration of the pedagogical aspects of contemporary music, since the pieces can be used as modern caprices and etudes in a variety of styles.\textsuperscript{21}

Szewczyk shows a deep desire to find a sustainable model for new music as a performer, composer, and teacher, starting with isolating techniques in some way. Extracting a technique and composing a brief technique builder is exactly what Szewczyk is proposing in his treatise.

A dissertation written in 1958 by Willard Gibson Walters, \textit{Technical Problems in Modern Violin Music as Found in Selected Concertos, with Related Original Exercises and Etudes}, identifies technical violinistic challenges in seven 20\textsuperscript{th}-century violin concertos.\textsuperscript{22} Though an older dissertation, Walters wrote one of the first collections of contemporary violin studies, showing where violin technique pedagogy was at this time. Works include Alban Berg, \textit{Violin Concerto}, Igor Stravinsky, \textit{Violin Concerto in D}, Darius Milhaud, \textit{Concerto for Violin and Orchestra, No. 2, Op. 263}, Samuel Barber, \textit{Violin Concerto, Op. 14}, Arnold Schoenberg, \textit{Violin Concerto, Op. 36}, Benjamin Britten, \textit{Violin Concerto, Op. 15}, and Béla Bartók, \textit{Violin Concerto}.\textsuperscript{23} Several contemporary violin studies, exercises, and etudes follow, composed by Walters, beginning with exercises and studies.\textsuperscript{24} Exercises and studies are about a page long and focus on left hand technique, such as extensions, chords, chromatics, finger patterns, double stops, and scales. The etudes are much longer, usually spanning two to three pages, and they contain more melodic content while incorporating the techniques identified in the exercises.\textsuperscript{25}

\textit{16 Contemporary Violin Etudes for Study and Performance} is a collection commissioned by the American String Teachers Association in 1982. It was designed to fill a pedagogical gap.

\begin{itemize}
\item \textsuperscript{21} Ibid., 2.
\item \textsuperscript{22} Willard Gibson Walters, “Technical Problems in Modern Violin Concertos, with Related Original Exercises and Etudes,” Ph.D. diss., State University of Iowa, 1958.
\item \textsuperscript{23} Ibid., v.
\item \textsuperscript{24} Ibid., 108.
\item \textsuperscript{25} Ibid., 181.
\end{itemize}
Four composers of pedagogical and compositional significance collaborated for the project: Allan Blank, Ralph Shapey, George Flynn, and Virko Baley. Each composer’s etudes are accompanied by a biography, notes on the composition by the composer, as well as a detailed explanation on performance and preparation by the editor of the collection, Eugene Gratovich. Gratovich was, at the time of publication, Head of the String Department at DePaul University and National String Chairman of the Music Teachers National Association. In the Preface, Gratovich suggests a sequence to learning these 16 Contemporary Violin Etudes. “The student might first study the etudes of Allen Blank for exposure to diverse combinations of intervals, articulations and rhythms, as well as rapid string crossings and quick alternations of arco and pizzicato.” Shapey is proposed next, due to increasing movement of the left hand as well as an expanded melodic range. Third, Flynn is recommended, bringing more complicated left hand technique to his etudes such as quarter tones, double stop harmonics and left hand extensions and contractions. Last, Baley’s etudes create “new functions of both hands.” The composers suggest their etudes can either be performed as a set of suites or programmed by themselves. Gratovich includes a detailed guide on each etude, even including a preparatory exercise before Shapey’s four etudes. An Appendix also contains some Practice Procedures, mainly ear training exercises for left hand development. As the book progresses, so does the difficulty of the etudes, with Gratovich suggesting that the final etude set should be practiced in small amounts at a time to retain the notes and technique, as well as focusing on learning the

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27 Ibid., Preface.
28 Ibid.
29 Ibid.
30 Ibid., 17-18.
31 Ibid., 78-85.
pitches in the left hand and string crossings, following with the addition of articulation, timbre, and dynamics. Gratovich also suggests a color coding for the performer to keep track of timbre changes, such as red for sul ponticello and blue for sul tasto.

*The Contemporary Violin Extended Performance Techniques*, by Patricia Strange and Allen Strange, written in 2001, is a compendium of techniques for the violin with corresponding musical examples. Several broad topics covered are bow contact point techniques, fingerings, quarter tones, harmonics, percussion techniques, tuning systems, and the use of technology such as a tape recorder or computer. The authors, at the time of publication, extracted every technique from repertoire, removing nearly all musical analysis, philosophy, and aesthetic. This way, the only information provided is how to perform a skill without any superfluous and opinionated information. Excerpts are only what the reader needs to see the technique. Notation is discussed for each example when necessary, contextualizing what a performer sees while performing each piece. For instance, overpressure is described with several different score passages, all of which have a unique notation from composer to composer. The authors say their text is like “a cookbook where all the recipes have been kitchen tested!” This volume is a thorough work of reference, describing, contextualizing, and regarding new music techniques.

Salvatore Sciarrino’s *Sei Capricci, per Violino*, composed in 1976, is a set of six caprices, with a typical performance of the full set lasting about twenty-one minutes. They contain numerous extended techniques, such as ricochet arpeggiated harmonics, light finger touching, brushing, non-tonal passagework, and rapid bow contact point changes. They are loosely

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32 Ibid., 55.
34 Ibid., xi-xiii.
35 Ibid., 18-23.
36 Ibid., xii.
composed in the style of the Niccolò Paganini’s *24 Caprices for Solo Violin*, most noticeable when listening to the first Sciarrino *Caprice* compared to Paganini’s first *Caprice*. Beginning the process of learning these caprices requires great patience and efficient practice skills, even if one is well versed in the techniques required. Technique builders used to bridge the skill gap between Paganini and Sciarrino could accelerate the learning process. The builders in this essay, though not composed directly for Sciarrino’s *Sei Capricci, per Violino*, help hone a few techniques within the Sciarrino by gradually building up the skills contained, such as light finger touching and arpeggiated harmonics.

The literature reviewed within this chapter contains extraordinary substance relating to new music technique, with several going far enough to ask for a need to extract and isolate techniques instead of immediately attempting them within new music etudes, caprices, and compositions. Though there are numerous etude books, caprices, and studies regarding new music technique, few bridge the gap between skills required for the standard violin canon versus the new music canon. The technique builders in this essay have been composed to bridge that gap, containing straightforward exercises to develop speed and flowing transitions.

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38 Ibid., 2.
CHAPTER 3: REPERTOIRE IDENTIFICATION

When selecting the five violin pieces for this essay, several factors were considered. First, a variety of instrumentation helps showcase violin new music techniques across various ensemble settings. Second, selected works need to be significant to the violin repertoire. The solo violin, concerto, string quartet, and chamber ensemble genres are considered standard within new music repertoire, influencing the five pieces. Each piece is monumental for each composer and embodies their style, while for the performers, they are momentous undertakings and pinnacles of chamber music or solo violin repertoire. The selected compositions are performed and taught frequently, incorporated within pedagogical repertoire. As a teacher, it is important to pass on one’s knowledge of a piece, such as practice techniques, phrasing ideas, and a background, contextualizing a piece in the violin canon.

In this chapter, each piece will be contextualized within the composer’s lifetime, will provide an account of the composer’s compositional style for each piece, as well as a brief recount on their individual form and function. The following list contains the composer and title of each piece, with the specific edition in the footnote:

1. Luciano Berio (1925-2003), Sequenza VIII (1975-1977)\[39\]
2. Gérard Grisey (1946-1998), Vortex temporum (1994-96)\[40\]
3. Helmut Lachenmann (b. 1935), String Quartet No. 3 Grido (2001)\[41\]
4. György Ligeti (1923-2006), Concerto for Violin and Orchestra (1990-93)\[42\]
5. Kaija Saariaho (b. 1952), Lichtbogen (1986)\[43\]

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3.1. Luciano Berio, *Sequenza VIII*

Berio’s *Sequenza VIII* was composed from 1975-1977, with its premiere by violinist Carlo Chiarappa in La Rochelle, France, 1977. The *Sequenza* series is a set of pieces for various solo instruments, with each having an impromptu and ruminate quality. Each *Sequenza* embodies the history of the instrument, a skilled exploration of the instrument’s technique, and an experimental form with a particular performer in mind. Specific inspiration for *Sequenza VIII* was Johann Sebastian Bach’s *Ciaccona* from *Partita No. II for Solo Violin*. Berio’s own knowledge and appreciation for the violin were also an influence, being the second instrument Berio learned. Specific techniques, categorized into sections, serve as the driving force behind the musical ideas.

*Sequenza VIII* begins with a large passage of chords, all in quarter notes, gradually expanding each chord into faster bursts of pitches, a passage directly influencing my *Unison Triple Stop Builder*. Starting at Line 9 of the *Sequenza VIII*, fast passages of 32nd notes provide momentum forward until Line 24, where a lyrical section begins with bow contact point shifting, and complex rhythms. After a brief return to the opening material in Line 32, the music accelerates, notated to maximum tempo speed at Line 35 and settling to a stable slower 16th note area. This area gradually slows down at Line 49, a bit faster than the opening tempo, when a frantic 32nd note passage begins, with six lines to be presented in random order at the performer’s preference, continuing for 130 seconds. The familiar triple stop opening returns at Line 67 and begins morphing into the final section, beginning in Line 72 with the mute being applied. The

46 Ibid., 169.
47 Ibid., 172.
48 The *Unison Triple Stop Builder* is in Chapter 5 on p. 90.
piece destabilizes in a section marked *tempo molto instabile, come improvvisando*, translated as unstable and improvised. A juxtaposition of duple and triplet figures ultimately concludes the piece, contributing to the requested unstable marking. Some of the technique identified above will be explained later in this essay. The freedom to select ordering makes a performance of *Sequenza VIII* unique for every person, adding another layer of individuality and artistic freedom to interact with this music.

### 3.2. Gérard Grisey, *Vortex temporum*

Gérard Grisey is known as a spectral composer, using analysis of a sound to compose a piece. Exclusive pitches from within the harmonic series are used to bring out unique timbres and tuning systems, unveiling a de-constructed sound. Composers use this method to manipulate timbre, harmony, time, and form.49 *Vortex temporum* was Grisey’s last instrumental chamber work. It was significant in both length and Grisey’s philosophic approach towards perception of time. The simplest description of the piece is an arpeggio stretched and compressed repeatedly, being distorted through the listener’s perception of time.50 Full of many difficult techniques, *Vortex temporum* uses unique tuning, harmonics, bow placement, and overpressure to distort sound, resulting in a slowly evolving soundscape. Composed in 1996, *Vortex temporum* was written for six performers: a flutist performing on bass flute, alto flute, flute, and piccolo; a clarinetist performing on a bass clarinet, A clarinet, and a Bb clarinet tuned a quarter tone lower; a violinist; a violist; a cellist; and a pianist, with four notes on the piano tuned a quarter tone lower. This piece was commissioned by the French Ministry of Culture, the Ministerium für Kunst Baden-Würtemberg, and the Westdeutsche Rundfunk Köln, at the request by the Ensemble

50 Ibid., 54.
Recherche, which premiered the work. Each movement is dedicated to another composer: movement I to Gérard Zinsstag, movement II to Salvatore Sciarrino, and movement III to Helmut Lachenmann.51

Grisey outlines the form of Vortex Temporum as having three basic events: the original event, a wave caused by the initial event, and, simultaneously, an attack and a hold.52 The main catalyst for the event is an arpeggio, quoting Maurice Ravel’s Daphnis et Chloé. Movement I uses this arpeggio to represent the original event, repeated and distorted throughout the instruments, culminating in a piano cadenza. In between each movement as well as ending the piece is an Interlude, still and slow moving. Movement II travels along at a gradual speed, akin to watching a flower bloom or the night sky change, sometimes referred to as “whale time”.53 The material mostly comes from the same catalyst but is so imperceptible it is an unrecognizable augmentation. Nearly everything in movement II is the opposite of movement I except this catalyst; contrast in movement I is homogeneous, while in movement II memorable events become dreamlike, distinct pitches become spectral and more abstract. Movement III contains the same catalyst as the other movements, but usually overlapped by multiple instruments in contrasting styles, articulations, rhythms, tuning, and timbres. Interspersed between these arpeggios are long sustained tones. The piece ends with a final Interlude, naturally dying away.

Having a sound technical foundation in new music techniques gives one access to mastering this piece, containing numerous difficult harmonics, bow contact point transitions, quarter tones, and rhythm.

52 Wang, 71.
53 Ibid., 86.
3.3. Helmut Lachenmann, *String Quartet No. 3 Grido*

Helmut Lachenmann is known as a composer of *musique concrete*, or concrete music, a style known for using and manipulating recorded and synthesized sounds. Lachenmann strives to re-invent these sounds that, in Lachenmann’s words, “are simply at hand to be downloaded but also to the world of the string quartet, which needs to be newly defined for a third time.” Before composing *String Quartet No. 3 Grido*, Lachenmann was satisfied with his string quartet output, having found the string quartet voice. However, Lachenmann realized that “pathways in art don’t lead anywhere and most certainly not to a destination.” This realization led to *String Quartet No. 3 Grido*. The title, *Grido*, is not only a dedication to the members, at the time, of the Arditti Quartet, but is an Italian word for shout. “*Grido*, Shout of Cryin Italian, also satisfies a request from Irvine Arditti for me to write a louder piece than my previous quartets.”

Lachenmann’s *String Quartet No. 3 Grido*, composed in 2001, was commissioned by the Melbourne Festival, as well as co-commissioners Westeutscher Rundfunk Köln, Lucerne Festival, Royal Festival Hall London, Salzburger Festspiele, and IRCAM/Centre Pompidou, dedicated to the Arditti Quartet.

This piece contains numerous sections, each creating a unique sound world using new music techniques, with a few of the sections identified here. The first section contains long held notes interjected by punctual gestures, usually stronger and of different timbre, such as sul ponticello, than the long tones. The following area consists of sul ponticello with fast bow

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56 Ibid.
58 Ibid., II.
strokes, gradually morphing into overpressure and grinding on the string. The third sector consists of various harmonics interspersed with pizzicato. The fourth is dominated by a cello 16\textsuperscript{th} note triplet ostinato, paving a groundwork for the other instruments to interject with longer pitches. Each section has prevalent usage of a new music technique, such as sul tasto, sul ponticello, overpressure, alternative bowing locations, rapid left hand passagework, harmonics, and pitch bending. This piece is Lachenmann’s most recent composition for the string quartet genre.

For this essay, representing the string quartet, such a historic and compositionally significant ensemble, was of importance. Lachenmann’s \textit{String Quartet No. 3, Grido} requires the utmost precision as an ensemble, needing difficult techniques and rhythms to fit together precisely for a successful performance.

\textbf{3.4. György Ligeti, \textit{Concerto for Violin and Orchestra}}

György Ligeti, a postmodernist, composed the \textit{Concerto for Violin and Orchestra} in 1990, with a revision and completion in 1992. It was both dedicated to and premiered by Saschko Gawriloff, a prominent German violin performer and pedagogue.\textsuperscript{59} The \textit{Concerto for Violin and Orchestra} was composed in Ligeti’s later period of life and is a culmination of his compositional styles, such as cluster chords, simple tonality, and “uncertain intonation.”\textsuperscript{60} The piece uses the ocarina, a just-intonation flute-like vessel, and natural brass instruments, giving some moments a purity and resonance from their natural intonation and other moments dissonance, helped along by slide whistles. A violin tuned a quarter tone sharp and a viola tuned

\begin{footnotesize}
\begin{itemize}
\end{itemize}
\end{footnotesize}
a quarter tone flat, within the ensemble, create discrepancies in the string ensemble’s intonation as well, with two intonation systems fighting, equal temperament versus just-intonation.

Ligeti’s Concerto for Violin and Orchestra is in five movements. The first movement, Praeludium, consists of continuous chromatic 16th notes in the solo violin to be performed in an improvisatory style. The second movement, Aria, Hoquetus, Choral, has a lyrical melody introduced by the solo violin, contrasted with the intonation of the natural horns and ocarina in the middle section, before returning to the initial melody. The third movement, Intermezzo, looks back on the previous movement’s melody clashed with natural harmonics before breaking apart and accelerating, forcefully crashing down and moving into the fourth movement, Passacaglia. The passacaglia is imbedded in the woodwinds, with the violin projecting above. The last movement, Appassionato, is a culmination of the previous movements, with themes, techniques, and motives of the other movements re-appearing. The concerto ends with a long solo violin cadenza, which is surprisingly interrupted by the orchestra at a previously agreed upon location between the soloist and conductor. Ligeti indicates that the cadenza, though written out, can be improvised as long as it incorporates thematic material from the rest of the concerto. Folk song and dance elements are interjected throughout the concerto. This piece distinguishes itself as a monumental new music violin concerto, and it has been featured frequently on performances around the world since its premiere, including the Los Angeles Philharmonic in 1993.
3.5. Kaija Saariaho, *Lichtbogen*

Kaija Saariaho’s compositions focus on tone color, descriptive lyrical writing, and slow transformations. Saariaho also frequently uses technology in her music, such as live electronic manipulation of sound using tape recording and live distortion of the recording. *Lichtbogen*, composed in 1985-1986, was the first work Saariaho composed that used the aid of a computer instead of tape. Saariaho describes the impetus for *Lichtbogen* on her website. “The name *Lichtbogen* stems from Northern Lights which I saw in the Arctic sky when starting to work with this piece. When looking at the movements of these immense, silent lights which run over the black sky, first ideas concerning the form and language for the pieces started to move in my mind.” Many of the new music techniques and live distortion evoke these soundless lights and sights to a soundscape.

The piece begins centered around a single pitch, F#, gradually distorted by different timbres, instruments, and pitch bending. Melodies start emerging in various instruments through oscillating patterns that permeate this section of the piece. Slow glissandos eventually morph into distinct scalar patterns, set on a veil of overpressure in the strings. Harmonics, trills, and oscillating pitches are used throughout. As a whole, the piece evolves slowly, like one watching the night sky unfold, changing gradually and only noticeable after the lapse of time. *Lichtbogen* was written for a large ensemble containing flute, string quartet, double bass, harp, piano, percussion, and live electronics. Sul tasto, sul ponticello, overpressure, pitch bending, and live computer distortion are used to bring this silent skyscape to aural life. The work was commissioned by the French Ministry of Culture and is dedicated to Paul Mefano, a French

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composer based in Paris. \textsuperscript{63} \textit{Lichtbogen} is a distinctive work in the repertoire and has been chosen for this essay because of its unique timbral effects. Achieving an effective timbre is a vital tool for any musician and is necessary for a successful performance of this piece, requiring a mastery of sul ponticello, sul tasto, overpressure, control of pitch bending, and rhythm.

\textsuperscript{63} Ibid.
CHAPTER 4: TECHNICAL GUIDE WITH EXAMPLES

This chapter is a technical guide with examples, referencing the technique builders in Chapter 5. The technique builders are placed in their own chapter for ease of extraction. Each technique is described in a sub-chapter and contextualized with excerpts from the five selected pieces, located at the end of the sub-chapter. The technical violin examples in the following section are not every single instance of the technique: they may appear multiple times within each composition. Technical examples only show the violin part, with 1st violin specified when necessary. Berio’s *Sequenza VIII* contains no distinct measures or bar lines. Therefore, excerpts will refer to line numbers for specific locations. Excerpts from Lachenmann and Saariaho reference measure numbers within the piece. Grisey samples are referenced by the movement or Interlude containing them and proximity in measures to a rehearsal number. Ligeti passages refer to the violin solo part, the movement, and measure number within the movement.

4.1. Rhythm

Rhythm is itself a technique, and new music contains challenging beat divisions and entrances. Excerpts of difficult rhythms can be found in the selected works of Grisey, Ligeti, and Saariaho. Grisey’s passage, labeled Example 1, is from *Vortex temporum*, movement III, 3 measures before #7 to 2 measures before # 8. The next excerpt is Ligeti’s *Concerto for Violin and Orchestra*, movement III, m. 39, labeled Example 2. Saariaho’s *Lichtbogen* contains a challenging rhythm in 1st violin, mm. 87-92, labeled Example 3. These particular passages require a level of comfort to be performed easily, and the *Rhythm Builders* on p. 50 in

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64 Grisey, Example 1, p. 22.
65 Ligeti, Example 2, p. 23.
Chapter 5 is a template to assuage a demanding rhythm. This builder contains repeated pitches to gain comfort with different beat divisions, followed by a section working on string crossing within those beat divisions. A metronome is an important aid when practicing this section. The final step of the builder aims to help one develop proficiency with entrances and rhythms that are not on the obvious or strong beats. As stated earlier, the *Rhythm Builders* is a template, which can translate to other rhythms.

Example 1
Italy: Ricordi, 1995.
Example 2
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Example 3
LICHTBOGEN for 9 Musicians
By Kaija Saariaho
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4.2. Bow Contact Point Technique

Bow contact point control is a vital technique for violin playing. New music requires even more control than usual, with a variety of effects through bow contact point: sul ponticello, sul tasto, col legno and overpressure, as well as bowing in non-standard areas such as the scroll, combinations, and transitioning between all the above.

4.2.1. Bowing in Non-Standard Areas

Bowing in non-standard areas can seem daunting at first, requiring the performer to produce a sound on a part of the instrument that is rarely bowed, such as the scroll, directly on the bridge, or behind the bridge. Example 4, from Lachenmann’s *String Quartet No. 3 Grido*, 1st violin, m. 192, is a sample of bowing behind the bridge on a specific string, the D string in this instance. 67 Example 5 also from Lachenmann, 1st violin, mm. 318-319, is an example of bowing directly on the scroll, with the specific moment occurring in m. 319.68 Example 6, from Grisey, Interlude between movements II and III, #28, instructs the violinist to bow directly on the bridge.69

*Rhythm Builders* are used to develop bowing in non-standard areas, practicing these non-standard bowings with different rhythms as well as long tones.70 Before using the *Rhythm Builders*, the performer must first develop a sustained tone at the desired non-standard bowing area. Every bow, instrument, and performer require different bow weight, speed, bow tension, or even amount of rosin. Some experimentation is necessary in order to discover a specific spot to produce the coveted tone, especially if on the scroll; one is looking for at least some vibration

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67 Lachenmann, Example 4, p. 25.
68 Ibid., Example 5, p. 25.
69 Grisey, Example 6, p. 25.
70 *Rhythm Builders* is in Chapter 5 on p. 50.
with the bow and instrument. Once a satisfactory tone is achieved, one can apply the Rhythm Builders until the technique is mastered.

Example 4

Example 5

Example 6
4.2.2. Sul Ponticello and Sul Tasto

Sul ponticello and sul tasto are frequently used in new music to produce different timbres, ranging from playing nearly on top of the bridge to well over the fingerboard near the fingers of the left hand. Transitioning the bow’s sounding point or contact point from sul ponticello to normal to sul tasto can be an arduous task to perform smoothly without a “hiccup” in the sound. Two passages from the Lachenmann display sul tasto with a transition to sul ponticello. Example 7, Lachenmann, 1st violin, mm. 24-28, shows sul tasto to sul ponticello.\(^{71}\) Example 8, Lachenmann, 1st violin, mm. 19-20, shows col legno sul tasto to sul ponticello.\(^{72}\) Example 9, from Grisey, movement I, #53-54, is a transition from normal to sul ponticello to sul tasto.\(^{73}\) Example 10, from Ligeti, movement III, mm. 1-4, is a representation of sul tasto.\(^{74}\) Example 11, also from Ligeti, movement I, mm. 72-75, is sul tasto with an extremely quiet dynamic, \textit{pppppp}.\(^{75}\) A performer may practice sul ponticello and sul tasto with the Rhythm Builders if these bow contact points are uncomfortable. After one can perform these bow contact points with ease, the Bow Contact Point Transition Builder on p. 61 in Chapter 5 guides the performer towards mastery of these techniques with changing pitches as well as transitions between sul ponticello, normal, and sul tasto. The Bow Contact Point Transition Builder also builds up speed gradually, until the performer is content with the fluidity of their transitions. The order and usage of sul tasto, sul ponticello, and normal within the builder may be reordered to suit the performer, as not every instance of a technique will be ordered as the Bow Contact Point Transition Builder or the examples shown below. Sul ponticello should always excite the string

\(^{71}\) Lachenmann, Example 7, p. 27.
\(^{72}\) Ibid., Example 8, p. 27.
\(^{73}\) Grisey, Example 9, p. 28.
\(^{74}\) Ligeti, Example 10, p. 28
\(^{75}\) Ibid., Example 11, p. 29.
enough for a clear pitch to be heard, unless notated otherwise, and a composer’s goal with sul ponticello is usually to excite higher overtones through contact with the string as close to the bridge as possible. Sul tasto needs an airy or hollow sound, depending on the precise bow contact point.

Example 7

Example 8
Example 9
Italy: Ricordi, 1995.

Example 10
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4.2.3. Col Legno

Another bow contact point technique involves col legno, sometimes just labeled as legno. This skill is performed with the stick of the bow, sometimes striking, tapping, or drawing the bow, usually resulting in a percussive sound. Col legno tratto refers to drawing the bow with the wood of the stick and col legno battuto means to strike with the wood of the stick.\textsuperscript{76} Though a standard technique, col legno’s usage can have more nuances and variations of execution in new music, shown in the following passages. Example 8, on p. 27, shows col legno tasto transitioning to ponticello, created by starting over the fingerboard and drawing the wood of the bow towards the bridge in a single gesture.\textsuperscript{77} Example 12, from Saariaho, 1st violin, mm.

\textsuperscript{76} Strange, 35.
\textsuperscript{77} Lachenmann, Example 8, p. 27.
120-121, is sul ponticello col legno, ideally sounding as a pitched knocking.\textsuperscript{78} The \textit{Col Legno Builder} can be found in Chapter 5 on p. 65. This skill can harm one’s bow if done recklessly and should always be controlled, never forcefully hitting or grinding on the string to the point where it scratches or cracks the wood of the bow. If a performer is worried about harming their bow, a carbon fiber, synthetic material, or inexpensive bow can suffice for areas of extensive col legno.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{example.png}
\caption{Example 12 LICHTBOGEN for 9 Musicians By Kaija Saariaho Copyright © 1986 Edition Wilhelm Hansen AS, Copenhagen}
\end{figure}

\subsection*{4.2.4. Overpressure}

Overpressure is another skill requiring variance of bow contact point technique which is featured in three of the five selected pieces. Though directly produced with an abundance of arm weight, bow contact point is a vital consideration towards successful overpressure. Overpressure may sound as a pitched grind, a low rattle, or having a specific pitch notated. Lachenmann uses this skill frequently, with Example 13, 1\textsuperscript{st} violin, m. 188, being a uniquely pitched overpressure.\textsuperscript{79} Example 4, located on p. 25 is another instance elsewhere in the piece.\textsuperscript{80} Grisey uses sul tasto overpressure to produce a dry rattle, occasionally with a metal or wood mute, shown in Example 14, Interlude between movements I and II, 4 measures after #86.\textsuperscript{81} Saariaho

\textsuperscript{78} Saariaho, Example 12, p. 30.
\textsuperscript{79} Lachenmann, Example 13, p. 31.
\textsuperscript{80} Ibid., Example 4, p. 25.
\textsuperscript{81} Grisey, Example 14, p. 31.
uses overpressure similarly in 1st violin, mm. 110-111, Example 15. The *Overpressure Technique Builder*, on p. 67 in Chapter 5, focuses on developing a transition from a standard tone to maximum overpressure. The performer’s right hand must stay relaxed in order to appropriately apply weight. The specific bow contact point in relation to the bridge or fingerboard may differ between performers, as an ideal overpressure spot might be contrasting between varying violins, bows, or performers. A performer should begin a bit closer to the bridge, then move over the fingerboard if they are not getting the desired sound. Being closer to the bridge results in more of a pitched grind, while being over the fingerboard produces more of a rattle. Pitched overpressure should produce the pitches shown with no assistance from the left hand.

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*Example 13*


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*Example 14*


Italy: Ricordi, 1995.

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82 Saariaho, Example 15, p. 32.
4.2.5. Windshield Wiper

One final bow contact point technique is called the windshield wiper, requiring the performer to move the bow back and forth across a string vertically, going from sul tasto to sul ponticello rapidly, like the windshield wiper of a car. Lachenmann uses this technique several times in his string quartet, shown in the 1st violin part, mm. 307-314, Example 16.\textsuperscript{83} The performer swishes the bow back and forth with their pinky and index finger, on the A string in Example 16, while bowing up bow and down bow as normal. This technique should sound flautando or as the wind whistling. The \textit{Windshield Wiper Builder}, located in Chapter 5 on p. 69, works towards a rapid flautando transition with a definitive rhythm. In Example 16, several pitches are notated with the windshield wiper technique. It is possible to have this technique without a pitch, but none exist in the pieces selected for this essay.

\textsuperscript{83} Lachenmann, Example 16, p. 33.
4.3. Pizzicato

Though pizzicato is frequently taught at an early stage in violin pedagogy, several complicated pizzicato techniques appear in new music. There are four such places located in the five selected pieces of this essay: two finger pizzicato, rapid pizzicato transitions, and putting on a mute while simultaneously performing left hand pizzicato. The *Pizzicato Builder* is located in Chapter 5 on p. 70.

4.3.1. Two Finger Pizzicato

Two finger pizzicato is used in Lachenmann, 1st violin, m. 317, shown in Example 17.\(^4\) This technique is performed by grabbing both strings and pulling upwards, being careful not to snap the strings with a Bartok pizzicato. If done correctly, both strings will sound at the exact same time. Some composers desire two finger pizzicato while performing all pizzicato and no rolled pizzicato with a single finger unless indicated. Ligeti has an example of a spot designated

\(^4\) Ibid., Example 17, p. 34.
as being strummed pizzicato instead of multi-finger pizzicato in Example 18, movement II, mm. 75-83. Though not a part of the *Pizzicato Builder*, this excerpt shows the specificity of composers with such new music techniques. The rolled pizzicato in Example 18 is performed with both the standard bottom to top strum as well as top to bottom.

### 4.3.2. Rapid Pizzicato Changes

Example 19, from Grisey movement III, 4 measures before #9 to two measures after #9 shows a rapid change between arco and pizzicato. To build up speed, the *Pizzicato Builder* can be accelerated as fast as possible to work on rapid changes between pizzicato and arco. The final pizzicato quotation, Example 20 in Berio *Sequenza VIII* Line 72 and Line 81, contains left hand pizzicato. Though a canonical violin technique, putting on a mute while doing this is atypical. The performer should put the mute on as smoothly as possible while maintaining the timing outlined in the *Pizzicato Builder*.

![Example 19](image)

**Example 19**


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85 Ligeti, Example 18, p. 35.
86 Grisey, Example 19, p. 36.
87 Berio, Example 20, p. 36.
Example 18
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Example 19
Italy: Ricordi, 1995.

Example 20
Luciano Berio „Sequenza VIII | für Violine“
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4.4. Non-Tonal Passagework

Non-tonal passagework requires careful practice and development of left hand technique to perform effortlessly. Frequently in performing new music for strings, one comes across a long difficult passage, usually with a lot of fast left hand notes as well as rapid bow changes; the left hand adjustments are typically uncomfortable. The *Non-Tonal Passagework Builder*, located in Chapter 5 on p. 72, is a template on how to practice these types of passages. There are several excerpts showing non-tonal passagework from the five pieces selected for this essay.

The first excerpt, uniquely difficult due to the maximum speed marking, is from Berio Line 35, labeled Example 21.\textsuperscript{88} The second case, from Berio Line 50, requires an abundance of endurance, labeled Example 22.\textsuperscript{89} Not only is the section elongated, it is to be played continuously with chord interjections for 130 seconds, with a suggested order by Berio or quasi random. One portion from Lachenmann, 1st violin, mm. 118-119 labeled Example 23, is in a high register on the violin, requiring dexterity to sound effortless and perform in tune.\textsuperscript{90} Another selection from Lachenmann, 1st violin, m. 151 labeled Example 24, uses a similar acceleration to Example 21, accelerating and playing the gesture as fast as possible.\textsuperscript{91} The final non-tonal passagework extract, similar to Example 23, is from Ligeti movement IV, m. 91, labeled Example 25.\textsuperscript{92}

\textsuperscript{88} Ibid., Example 21, p. 38.
\textsuperscript{89} Ibid., Example 22, p. 38.
\textsuperscript{90} Lachenmann, Example 23, p. 38.
\textsuperscript{91} Ibid., Example 24, p. 39.
\textsuperscript{92} Ligeti, Example 25, p. 39.
Example 21
Luciano Berio „Sequenza VIII | für Violine“
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Example 22
Luciano Berio „Sequenza VIII | für Violine“
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Example 23
© by Breitkopf & Härtel, Wiesbaden.
Example 24

Example 25
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4.5. Quarter Tones

Quarter tones are used periodically in new music, usually to bring out a different timbre or highlight an alternative tuning system. The *Quarter Tone Builder*, located in Chapter 5 on p. 79, works on building up chromatic quarter tone technique, physically feeling out each quarter tone with the fingers of the left hand in first position as well as developing the ear to hear quarter tones. A chromatic tuner can help expedite the process as well as aid in specific frequency requests from a composer. A performer can transpose the builder to higher positions if necessary, starting on the first finger instead of open string. Table 1 shows all the examples for quarter tones.

<table>
<thead>
<tr>
<th>Composer</th>
<th>Score Position</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lachenmann</td>
<td>1st violin, mm. 126-127</td>
<td>Example 26(^93)</td>
</tr>
<tr>
<td>Lachenmann</td>
<td>1st violin, m. 291</td>
<td>Example 27(^94)</td>
</tr>
<tr>
<td>Grisey</td>
<td>movement I, #42-43</td>
<td>Example 28(^95)</td>
</tr>
<tr>
<td>Grisey</td>
<td>movement III, 2 measures before #4 to 2 after #4</td>
<td>Example 29(^96)</td>
</tr>
<tr>
<td>Ligeti</td>
<td>movement I, mm. 72-75</td>
<td>Example 11(^97)</td>
</tr>
<tr>
<td>Saariaho</td>
<td>1st violin, mm. 51-53</td>
<td>Example 30(^98)</td>
</tr>
<tr>
<td>Saariaho</td>
<td>1st violin, mm. 130-132</td>
<td>Example 31(^99)</td>
</tr>
</tbody>
</table>

Table 1-Quarter Tone Examples

\(^93\) Lachenmann, Example 26, p. 41.
\(^94\) Ibid., Example 27, p. 41.
\(^95\) Grisey, Example 28, p. 41.
\(^96\) Ibid., Example 29, p. 42.
\(^97\) Ligeti, Example 11, p. 29.
\(^98\) Saariaho, Example 30, p. 42.
\(^99\) Ibid., Example 31, p. 43.
Example 26
© by Breitkopf & Härtel, Wiesbaden.

Example 27
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Example 28
Italy: Ricordi, 1995.
Example 29
Italy: Ricordi, 1995.

Example 30
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4.6. Harmonics

Harmonics, though frequently a standard violin technique, are used in unconventional ways in new music, such as arpeggios consisting of only harmonics and light finger touching. The *Harmonics Builder* on p. 85 of Chapter 5 begins with a passage to get used to light finger touching, called finger tremolo. Left finger tremolo helps a performer find the precise left finger weight to perform harmonics. Light finger touching, due to not always being in a natural harmonic location, will not speak as clearly as a natural harmonic. Natural harmonics occur at nodes on a violin’s strings, and if a node is not touched, a harmonic cannot speak. Light finger touching is when the performer places their left hand fingers in a specific indicated position as normal, just with the finger tips lightly touching the string instead of weighted down. Master the first section of the *Harmonics Builder*, left hand tremolo, before moving on to light finger touching.

Light finger touching is used periodically in Lachenmann, with Example 32, 1st violin, m. 297 being a glissando of light finger touching, with the composer requesting to linger and accent on non-natural harmonic pitches.\(^{100}\) Lachenmann uses light finger touching sustained in Example 8 on p. 27.\(^{101}\) Ligeti incorporates harmonics with string crossing, beginning to be

\(^{100}\) Lachenmann, Example 32, p. 44.
\(^{101}\) Ibid., Example 8, p. 27.
Arpeggiated in Example 33, solo violin, movement I, mm. 52-56. The Grisey contains arpeggiated harmonics, shown in Example 34, movement III, 3 measures after #31-#34. Arpeggiated harmonics are performed by rotating the elbow with a single finger touching all four strings. Two passages from Lachenmann share similar qualities. Example 35, 1st violin, m. 24, and Example 36, 1st violin, m. 200, show an optional way to perform certain harmonics by lightly touching both fingers on the same string, producing a harmonic pitch which, in certain circumstances, may save the performer time.

Example 32

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102 Ligeti, Example 33, p. 45.
103 Grisey, Example 34, p. 46-47.
104 Lachenmann, Example 35, p. 47, and Example 36, p. 47.
Example 33
Ligeti CONCERTO FOR VIOLIN AND ORCHESTRA
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Canadian agent for Schott Music GmbH & Co. KG, Mainz, Germany
Les ligatures sont destinées seulement à faciliter la lecture.
Example 34
Italy: Ricordi, 1995.

Example 35
© by Breitkopf & Härtel, Wiesbaden.

Example 36
© by Breitkopf & Härtel, Wiesbaden.
4.7. Unison Triple Stops

The unison triple stops at the beginning of the Berio are some of the most difficult moments in the violin repertoire. Not only does the intonation need to be pristine, but the bow must provide enough energy for all three strings to speak clearly. During the passage, it is critical that the left hand stays agile for note changes as well as the performer maintaining the stamina to make it through. Example 37, Berio Lines 1-3, show these unison triple stops.\textsuperscript{105} The *Unison Triple Stop Builder* on p. 90 of Chapter 5 prepares the performer for these difficulties, providing a lengthy building process for stamina as well as slurred triplets and sextuplets to motivate smooth changes with a relaxed left hand. For all three strings to speak at once, the performer should focus their arm weight onto the middle string, so some bow hair is in contact with all three strings at once. One may eventually wish to use vibrato on the triple stops, as well as roll them as some performers choose.

\textbf{Example 37}

Luciano Berio „Sequenza VIII | für Violine“
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\textsuperscript{105} Berio, Example 37, p. 48.
CHAPTER 5: TECHNIQUE BUILDERS

This chapter contains all of the technique builders, contained together for ease of finding, extracting, downloading, and printing them by teachers and performers, beginning on the next page.
Rhythm Builders

The following builder should always be practiced with a metronome that can subdivide into quintuplets, septuplets, or into groupings of even faster notes. The tempo may be adjusted to the performer's needs. A significantly faster tempo may be desired eventually. One should use a détaché bow stroke. If the subdivisions remain uncomfortable or difficult, vamping on a single pitch can be helpful. The starting tempo 60 bpm is just a starting point, specific pieces may require a faster or slower tempo, as well as rhythmic variations. There are three examples referenced for the Rhythm Builder: Grisey, Vortex temporum, movement III, 3 measures before #7 to 2 measures before # 8; Ligeti, Concerto for Violin and Orchestra, movement III, m. 39; and Saariaho, Lichtbogen, 1st violin, mm. 87-92.

A. Beat Division Comfort
The following section can be applied to any beat division. Quintuplets and septuplets are below. One might see nonuplets or a compound rhythm.

Quintuplets

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Septuplet String Crossings
B. Slurred Rhythms

Septuplet slurs

One may augment this section to other rhythms, with a few examples shown at the end of the section.
Examples of other quintuplet rhythmic groupings
Septuplet slurs

Examples of other septuplet rhythmic groupings

C. Building Entrance Confidence

The following section is for developing entrances with difficult subdivisions. The following passage can be applied to any rhythmic grouping.
Bow Contact Point Transition Builder

The Bow Contact Point Transition Builder references numerous examples: Lachenmann, *String Quartet No. 3*, 1st violin, mm. 19-20; Lachenmann, *String Quartet No. 3*, 1st violin, mm. 24-28; Grisey, *Vortex temporum*, movement I, #53-54; Ligeti, *Concerto for Violin and Orchestra*, movement I, mm. 72-75; and Ligeti, *Concerto for Violin and Orchestra*, movement III, mm. 1-4.

A. Sul Tasto to Normal to Sul Ponticello on One String

Bow contact point may be reordered in any desired way, starting sul ponticello or normal, going in any direction. Transitions should be played as smoothly as possible. Repeat as needed. After the marked tempo and bowing is mastered, begin slurring notes together while doubling the time. The ultimate goal is to slur two measures together while successfully executing the bow placement shift.

\[ \text{\textcolor{blue}{\textbf{\textit{\textbb{\textbullet}}}} \textbf{\textbullet} = 40, \ \textbb{\textbullet} = 40, \ \textbb{\textbullet} = 40, \ \theta = 40} \]

\( \text{\textcolor{blue}{\textbf{\textit{\textbb{\textbullet}}}} \textbf{\textbullet} \text{ sul G} \rightarrow \text{normal} \rightarrow \text{sul pont} \rightarrow \text{normal} \rightarrow \text{sul tasto} } \)

\( \text{\textcolor{blue}{\textbf{\textbullet}}} \text{ sul D} \rightarrow \text{normal} \rightarrow \text{sul pont} \rightarrow \text{normal} \rightarrow \text{sul tasto} \)

\( \text{\textcolor{blue}{\textbf{\textbullet}}} \text{ sul A} \rightarrow \text{normal} \rightarrow \text{sul pont} \rightarrow \text{normal} \rightarrow \text{sul tasto} \)

\( \text{\textcolor{blue}{\textbf{\textbullet}}} \text{ sul E} \rightarrow \text{normal} \rightarrow \text{sul pont} \rightarrow \text{normal} \rightarrow \text{sul tasto} \)

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B. Sul Tasto to Normal to Sul Ponticello on Two Strings

After the marked tempo and bowing is mastered, begin slurring notes together while doubling the time. The ultimate goal is to slur two measures together while successfully executing the bow placement shift.

\[ \frac{\text{dotted quarter notes}}{\text{dotted half notes}} = 40, \frac{\text{quarter notes}}{\text{half notes}} = 40, \frac{\text{eighth notes}}{\text{quarter notes}} = 40 \]

\[
\begin{align*}
&\text{sul G} & \rightarrow & \text{sul D} & \rightarrow & \text{sul pont} & \rightarrow & \text{sul G} & \rightarrow & \text{sul tasto} \\
&\text{sul tasto} & \rightarrow & \text{normal} & \rightarrow & \text{sul pont} & \rightarrow & \text{normal} & \rightarrow & \text{sul tasto} \\
&\text{sul D} & \rightarrow & \text{sul A} & \rightarrow & \text{sul pont} & \rightarrow & \text{sul D} & \rightarrow & \text{sul tasto} \\
&\text{sul A} & \rightarrow & \text{normal} & \rightarrow & \text{sul pont} & \rightarrow & \text{normal} & \rightarrow & \text{sul tasto} \\
&\text{sul tasto} & \rightarrow & \text{normal} & \rightarrow & \text{sul pont} & \rightarrow & \text{normal} & \rightarrow & \text{sul tasto} \\
&\text{sul G} & \rightarrow & \text{sul D} & \rightarrow & \text{sul pont} & \rightarrow & \text{sul E} & \rightarrow & \text{sul G} \\
&\text{sul G} & \rightarrow & \text{sul D} & \rightarrow & \text{normal} & \rightarrow & \text{sul pont} & \rightarrow & \text{normal} & \rightarrow & \text{sul E} \\
&\text{sul D} & \rightarrow & \text{sul A} & \rightarrow & \text{sul pont} & \rightarrow & \text{sul A} & \rightarrow & \text{sul D} & \rightarrow & \text{sul G} \\
\end{align*}
\]

C. Sul Tasto to Normal to Sul Ponticello on Four Strings

After the marked tempo and bowing is mastered, begin slurring notes together while doubling the time. The ultimate goal is to slur two measures together while successfully executing the bow placement shift.

\[ \frac{\text{dotted quarter notes}}{\text{dotted half notes}} = 40, \frac{\text{quarter notes}}{\text{half notes}} = 40, \frac{\text{eighth notes}}{\text{quarter notes}} = 40 \]
D. Subito Contact Point Changes

This final section is to be practiced with the marked subito placement changes, as well as gradual changes. Contact point changes are written out to be made every two beats and can be changed as needed.

\[ \textbf{D} = 40, \textbf{Q} = 40, \textbf{J} = 40, \textbf{O} = 40 \]
sul E
sul A
sul pont
sul D
sul pont
sul G

\forall
Col Legno Builder

The following section should first be mastered col legno tratto, drawing the wood of the bow along the string, with the bow between the fingerboard and bridge, normal. After col legno tratto is proficient, work towards col legno tratto sul ponticello and col legno tratto sul tasto. A pitched percussive sound is desirable with sul ponticello col legno. Sul tasto col legno should sound a distinct pitch with a light tap. The Col Legno Builder references two examples from Lachenmann, *String Quartet No. 3*, 1st violin, mm. 19-20 and Saariaho, *Lichtbogen*, 1st violin, mm. 120-121.

A. Col Legno Tratto Open Strings

![Open Strings Example]

B. Col Legno Tratto with Pitches

The next section's goal is to master a timed slide while playing col legno tratto.

![Pitches Example]

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C. Col Legno Tratto Long Tone

The final section of this builder is for the development of col legno tratto played with long bow strokes and the bow placed on the side of the stick. After normal col legno tratto has been solidified, col legno sul tasto and col legno sul ponticello should be mastered. Each crescendo should start at piano and go to forte. One can use either down bow or up bow, whichever is preferred.
Overpressure Technique Builder

The Overpressure Technique Builder references several examples: Lachenmann, *String Quartet No. 3*, 1st violin, m. 188; Lachenmann, *String Quartet No. 3*, 1st violin, m. 192; Grisey, *Vortex temporum*, Interlude between movements I and II, 4 measures after #86; and Saariaho, *Lichtbogen*, 1st violin, mm. 110-111.

A. Overpressure on Open Strings

For this builder, begin first with the open string. A smooth rasping of the string is the desired effect. The bowing and overpressure changes may be mixed up as desired.

From Normal to Overpressure

From Overpressure to Normal

\[ \text{From Normal to Overpressure} \quad \text{Overpressure} \]

\[ \text{From Overpressure to Normal} \]

\[ \text{Overpressure} \]

\[ \text{Overpressure} \]

\[ \text{Overpressure} \]

\[ \text{Overpressure} \]

\[ \text{Overpressure} \]

\[ \text{Overpressure} \]

\[ \text{Overpressure} \]

\[ \text{Overpressure} \]

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B. Overpressure on Fingered Pitches

A sudden release of weight in the bow arm is necessary when transitioning from overpressure to subito normal, with the opposite necessary for subito overpressure. The string choices are merely suggestions, as well as the slurs.

C. Pitched Overpressure

Though rare, pitched overpressure is difficult to perform effectively. The left hand is not used to change the pitch, notes are generated purely by the bow and right hand. The bow firmly engages the string, with slow consistent speed and extreme weight, resulting in a rattle that is pitched in relation to the bow and the bridge instead of the left hand and the nut.

The notated pitches are the desired sounding pitches. Begin playing all pitches down bow, eventually incorporating up bows.
Windshield Wiper Builder

Windshield wiper bow technique is performed by oscillating between the bridge and over the fingerboard. For this builder, the performer can use the top of the line as the bridge or fingerboard, though usually the top is the bridge. Gradually build up speed and control. The bow should travel from bridge to fingerboard while maintaining a consistent sound. Each line indicates a single bow. Use up bow or down bow as desired. Practice on each open string. Once mastered, the performer should begin adding pitches, always striving for a clear flautando sound, such as the Db, Bb, and F in the example from Lachenmann, *String Quartet No. 3*, 1st violin, mm. 307-314.

\[
\begin{align*}
\text{\(\frac{4}{4}\)}
\end{align*}
\]

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Pizzicato Builder

The Pizzicato Builder references numerous examples: Lachenmann, *String Quartet No. 3*, 1st violin, m. 317; Ligeti, *Concerto for Violin and Orchestra*, movement II, mm. 75-83; Grisey, *Vortex temporum*, movement III, 4 measures before #9 to two measures after #9; and Berio, *Sequenza VIII*, Line 75 and Line 81.

A. Two Finger Pizzicato

The pizzicato is performed with the first and second finger of the bow hand. The two pitches should sound exactly together.

\[ \dot{\text{\textbf{\textit{mf}}}} \]

\[ \text{\textbf{Sul G and D pizz.}} \]

\[ \text{\textbf{Sul D and A}} \]

\[ \text{\textbf{Sul A and E}} \]

B. Arco Two Finger Pizzicato Transition

This section promotes a rapid arco to pizzicato transition. Master up bow first, followed by down bow, then alternating directions. The tempo should be increased to a faster speed once slower speeds are mastered.

\[ \dot{\text{\textbf{\textit{mf}}}} \]

\[ \text{\textbf{Sul G and D arco pizz. \quad \textbf{arco pizz. \quad \textbf{arco pizz. \quad \textbf{arco pizz.}}}} \]

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C. Mute and Pizzicato Transition

The goal of this section is to put on a practice mute with the right hand while maintaining a steady left hand pizzicato. The sound should not deviate in dynamic. Add the mute exactly where indicated, managing a steady tempo and rhythm. Practice this section with other mutes if desired.
Non-Tonal Passagework Builder

The Non-Tonal Passagework Builder is a model that can be applied to any similar passage. The following examples show a variety of ways to practice a difficult passage. There are two main challenges with a fast non-tonal passage. First, the performer must develop the dexterity required to play the passage in tune. Second, the performer must work towards matching the bow with the left hand fingers. There are numerous examples of non-tonal passagework referenced: Berio, *Sequenza VIII*, Line 35 and 50; Lachenmann, *String Quartet No. 3*, 1st violin, mm. 118-119 and m. 151; and Ligeti, *Concerto for Violin and Orchestra*, movement IV, m. 91.

A. Sample Non-Tonal Passage

\[ \text{\textbf{\( \frac{1}{\text{\textbf{\( j \)}}} = 100 \)}} \]

\[
\begin{align*}
\text{\( \frac{1}{\text{\textbf{\( j \)}}} \) & = 100} \\
\text{\( \frac{1}{\text{\textbf{\( j \)}}} \) & = 66} \\
\text{\( \frac{1}{\text{\textbf{\( j \)}}} \) & = 66} \\
\text{\( \frac{1}{\text{\textbf{\( j \)}}} \) & = 66} \\
\text{\( \frac{1}{\text{\textbf{\( j \)}}} \) & = 100} \\
\end{align*}
\]

B. Repeated Note Practice

This section maintains the up bow and down bow pattern of the sample non-tonal passage and the tempo of the bow changes. The double repeated pitches in mm. 5-8 help speed up the left hand.

\[ \text{\textbf{\( \frac{1}{\text{\textbf{\( j \)}}} = 66 \)}} \]
C. Overlap Bowing Practice

D. Rhythm Examples

The first example is a shorter more standard rhythm, while the second is an example of a longer and complicated rhythm.
E. Fast Isolation Practice Example

Isolate a small section, a beat, two beats, or even a measure.
The faster than normal tempo speeds the learning process.

\[ q = 200 \]

F. Suspending the Problem Note

Put a fermata on problem notes to check intonation and ease of arrival.

\[ q = 100 \]

G. Accumulation Practice

Add a single note at a time, to build on a foundation. A performer may do this process in reverse.
Quarter Tone Builder

The goal of the Quarter Tone Builder is to develop the ear to hear a quarter tone and the finger finesse required to play numerous quarter tones, with the final goal being a quarter tone trill. Use the following sections to build up pitch memory for a quarter tone, while feeling out the finger spacing required. One may find the corner of the fingers is more agile for quarter tones. The tempo may be changed slower or faster. The entire builder can be transposed to other strings as needed. A performer may need to reference a chromatic tuner while developing the ear.

The Quarter Tone Builder references a multitude of examples: Lachenmann, String Quartet No. 3, 1st violin, mm.126-127 and m. 291; Grisey, Vortex temporum, movement I, #42-43 and movement III, 2 measures before #4 to 2 after #4; Ligeti, Concerto for Violin and Orchestra, movement I, mm. 72-75; and Saariaho, Lichtbogen, 1st violin, mm. 51-43 and mm. 130-132.

A. Ear Training

The first section works on developing the ear, always returning to the open A string for reference. This section should be transposed to the other open strings as needed. The suggested bowing may be changed as needed, as well as the tempo. The fingered pitches were selected for their ability to be tuned to an open string.

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B. Ear Training in Context

This section works on developing quarter tone intonation within the context of a simple finger pattern. As with the previous section, there are frequent returns to the open A string for reference, with the quarter tones landing on notes that are easily tuned to an open string. One may transpose this section to other strings as needed.
C. Quarter Tone Trill

The final section of this builder focuses on building a quarter tone trill, to develop the fine motor skills required to tune, adjust, and place a quarter tone quickly. The tempo and bowing may be changed as desired.

\[ \text{\textbeam{\textnotes{\textnotes{\textnotes{\textnotes{j = 60}}}}}} \]

1

4

7
Harmonics Builder

The Harmonics Builder references several examples: Lachenmann, *String Quartet No. 3*, 1st violin, mm. 19-20; Lachenmann, *String Quartet No. 3*, 1st violin, m. 24; Lachenmann, *String Quartet No. 3*, 1st violin, m. 200; Lachenmann, *String Quartet No. 3*, 1st violin, m. 297; Ligeti, *Concerto for Violin and Orchestra*, movement I, mm. 52-56; and Grisey, *Vortex temporum*, movement III, 3 measures after #31-#34.

A. Left Hand Finger Tremolo

The left hand fingers must be on their exact tips, accurately lifting until a harmonic speaks. The bow needs a firm weight and consistent speed. The performer should begin with separate bows before proceeding to the marked slurs. Transpose this builder as desired to other strings and harmonics.
B. Light Finger Touching

Light finger touching is when one is touching the string with the left hand fingers in a normal position with as little pressure as possible. Slur by measure when separate bow is mastered. Begin with the marked tempo of 80 bpm before increasing to 120 bpm.

C. Harmonic String Crossings

One might also call this harmonic bariolage. Once a standard natural harmonic is controlled, move on to other more difficult harmonics. The 5th and 6th partials are written out, but one can apply this builder to any arpeggiated harmonics.
Unison Triple Stop Builder

This builder develops an agile, stable, relaxed, and confident left hand when performing unison triple stops. Every triplet, sextuplet, and triple stop should be fingered 4, 1, 0, with the 4 on the G string, 1 on the D string, and 0 being the open A string. Achieve left hand note changes as cleanly as possible, with little or no slide. This builder references Berio, *Sequenza VIII*, Line 1-3.

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After the previous section is comfortable, move to the next section, beginning with down bows. Mix in up bows as desired. Each triple stop should be played with an accent.
In violin performance, building up a skill is of vital importance to developing comfort with a technique, resulting in a more effective performance. New music skills for the violin not only stretch a performer physically, but also musically. The technique builders above act as a vehicle in aiding the development of new music skills, helping convey a convincing performance through technical mastery and musicality. Returning to Szewczyk’s treatise, a performer’s conviction, unplayability, and audience acceptance are barriers in a successful new music performance. “As the roles of composers and performers have diverged and the tradition of violinist-composers atrophied in the 20th Century, a new extreme compositional approach has emerged: over-intellectualization, which alienated the performer from the composer and the audience.”\textsuperscript{106} Though performer and composer collaboration is common in new music, with Szewczyk’s Violin Futura Project, one still should strive to master difficult techniques and overcome unplayability barriers.

Though this project is fairly complete in its current form and scope within the context of these masterworks, a continuation is necessary. Expansion of the technique builders section with other skills throughout the vast and ever-increasing new music repertoire is a logical step. As new music and techniques emerge, fresh builders are needed to stretch a performer’s abilities towards fluency, with the idea and style behind the builders remaining the same. The technique builders will remain their own volume, with the possibility of future publishing. Violin technique will forever be full of exploration and pushing boundaries by composers, thus always requiring an expansion of this technical guide and further study of the guide by a performer.

\textsuperscript{106} Szewczyk, p. 9.
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