Title: Lecture 4
Credit: Taught by Professor Mikael Giordi
Draft: 1

FADE IN:

INT. STANFORD CLASSROOM - DAY

The students file into the classroom for the fourth lecture,
each carrying their MIDI devices, except for one. They've
spent the week working on their assignments, focusing on
either MIDI clock synchronization or SysEx messages.
Professor Giordi, excited to see their progress, starts the
class.

                    PROFESSOR GIORDI
               (beaming)
          Welcome back, everyone! I'm eager to
          see the results of your hard work.
          Today, we'll start with your
          presentations. Who'd like to go
          first?

Clyde, one of the students, raises his hand and walks to the
front of the class. He looks nervous but determined.

                    CLYDE
               (uncertain)
          I worked on a MIDI sequencer that
          syncs with an external MIDI clock. I
          had some trouble with the
          synchronization, but after a few
          iterations, I managed to get it
          working smoothly.

Clyde demonstrates his sequencer, which successfully syncs
with an external MIDI clock source. The class applauds, and
Professor Giordi gives some positive feedback.

                    PROFESSOR GIORDI
               (smiling)
          Great work, Clyde! It's impressive
          to see your improvement in such a
          short time. Keep it up!

Next, Kate presents her MIDI device that sends custom SysEx
messages to control a specific parameter on another device.
She explains the challenges she faced during development and
demonstrates the successful implementation of the SysEx
messages. Professor Giordi praises her efforts and encourages
her to continue exploring SysEx functionality.

As the presentations continue, it becomes clear that one
student, Lee, has not brought a MIDI device. When asked about
his assignment, Lee hesitates before speaking.

                    LEE
               (ashamed)
          I didn't manage to complete my
          assignment this week. I struggled
          with the SysEx implementation and
          couldn't get it working in time.

Professor Giordi, though disappointed, offers a supportive
response.

                    PROFESSOR GIORDI
               (understanding)
          I appreciate your honesty, Lee.
          Don't worry, we all face challenges.
          Use this as an opportunity to learn
          and grow. I encourage you to seek
          help during my office hours, and
          let's make sure you succeed in the
          next assignment.

Finally, Raj and Noah present their projects. They have each
developed their own unique assignments, combining both MIDI
clock synchronization and SysEx messages. Raj has created a
drum machine that syncs with an external clock and allows for
custom drum sample uploads via SysEx messages. Noah has
developed a MIDI effects processor that synchronizes its
tempo-based effects to an external clock and can receive
SysEx messages to update effect parameters.

Professor Giordi is thrilled to see students going above and
beyond the assignment requirements and praises their
creativity and dedication.

                    PROFESSOR GIORDI
               (excited)
          Raj and Noah, you've both done an
          outstanding job! It's incredible to
          see you not only apply the concepts
          we've discussed but also innovate
          and combine them in new ways. Keep
          up the fantastic work!
          With the students' presentations
          finished, Professor Giordi moves on
          to the next topic of the course. He
          is excited to teach the students
          about MIDI software and the
          possibilities it offers for their
          projects.

                    PROFESSOR GIORDI
                (beaming)
            Now that we've covered MIDI hardware
            and communication extensively, let's
            delve into MIDI software. Today,
            we'll explore different types of
            MIDI software, their applications,
            and how you can use them to enhance
            your MIDI devices and projects.

Giordi switches on the projector and starts displaying slides
about various MIDI software types.

                    PROFESSOR GIORDI
                (continuing)
            First, let's talk about Digital
            Audio Workstations, or DAWs. These
            are comprehensive software
            applications that allow you to
            record, edit, and mix both MIDI and
            audio data. Popular DAWs include
            Ableton Live, FL Studio, and Logic
            Pro. DAWs provide a convenient
            platform for working with MIDI data
            and interfacing with your MIDI
            devices.

Next, Giordi introduces the students to software synthesizers
and samplers.

                    PROFESSOR GIORDI
                (continuing)
            Software synthesizers and samplers
            allow you to generate and manipulate
            sounds using your computer, without
            the need for dedicated hardware.
            These instruments can be controlled
            using MIDI data from your devices
            and integrated into your DAW for
            further editing and processing.

Giordi then discusses MIDI sequencers and arpeggiators in the
software realm.

                    PROFESSOR GIORDI
                (continuing)
            There are also standalone software
            MIDI sequencers and arpeggiators
            that can be used to create patterns,
            sequences, and arpeggios. These
            applications can receive MIDI data
            from your devices and send it back
            to control other devices, offering a
            new level of flexibility and
            creativity in your projects.

Finally, Giordi talks about MIDI utility software.

                    PROFESSOR GIORDI
                (continuing)
            MIDI utility software offers various
            tools for working with MIDI data,
            such as MIDI monitors, which display
            incoming and outgoing MIDI messages,
            and MIDI mappers, which can be used
            to remap MIDI data to different
            controllers or channels. These
            utilities can be invaluable when
            troubleshooting or customizing your
            MIDI devices and projects.

Professor Giordi concludes the lecture by emphasizing the
importance of understanding MIDI software as an integral part
of the MIDI ecosystem.

                    PROFESSOR GIORDI
                (continuing)
            Becoming proficient in MIDI software
            will enable you to create more
            complex and versatile MIDI projects,
            opening up new possibilities for
            your devices and performances. In
            our next lecture, we'll dive deeper
            into working with specific MIDI
            software tools, so you can apply
            these concepts to your own work.

The students, excited about the potential of MIDI software,
are eager to learn more and experiment with these new tools
in their projects.

After demonstrating his MIDI software development
environment, Professor Giordi's eyes sparkle with mischief.
He pauses for a moment before giving the class an evil grin.

                    PROFESSOR GIORDI
                (grinning)
            Now, for some things you won't get
            taught in college...

The students exchange curious glances, intrigued by Giordi's
sudden change in tone.

                     PROFESSOR GIORDI
                  (continuing)
              Throughout my years working in the
              industry, I've picked up a few
              tricks and techniques that you won't
              find in textbooks or traditional
              courses. Today, I'll share some of
              these with you. But remember, use
              this knowledge wisely and
              responsibly.

Giordi proceeds to discuss some unconventional MIDI practices
he learned during his time in the industry.

                     PROFESSOR GIORDI
                  (continuing)
              First, let's talk about MIDI
              feedback loops. While these are
              typically considered undesirable,
              you can actually use them creatively
              to generate interesting textures and
              patterns. By carefully controlling
              the feedback loop, you can coax
              unexpected and evolving sounds from
              your MIDI devices.

Giordi then talks about MIDI hacks and workarounds that he
has encountered in the industry.

                     PROFESSOR GIORDI
                  (continuing)
              In the world of MIDI, sometimes
              you'll encounter situations where
              you need to "bend the rules" to
              achieve a desired result. One
              example is the use of "dummy clips"
              in Ableton Live. By creating an
              empty MIDI or audio clip with
              automation data, you can control
              parameters on other tracks or
              devices without having to trigger
              any actual notes or audio.

Next, Giordi shares an unusual but effective technique for
live performances.

                         PROFESSOR GIORDI
                    (continuing)
               When performing live, you may
               sometimes need to change the
               settings of multiple MIDI devices
               simultaneously. To achieve this, you
               can use a MIDI controller with
               multiple knobs or sliders assigned
               to various parameters on different
               devices. By manipulating these
               controls, you can create complex,
               synchronized changes in real-time,
               adding a new level of depth and
               interaction to your performances.

Finally, Giordi shares a secret weapon he often uses for
sound design and experimentation.

                         PROFESSOR GIORDI
                    (continuing)
               For sound design, I often use a
               technique called "MIDI mangling."
               This involves taking a MIDI clip and
               deliberately altering, corrupting,
               or otherwise manipulating its data
               to produce unpredictable and unique
               results. This can lead to the
               discovery of new sounds and textures
               that you might never have stumbled
               upon otherwise.

                         PROFESSOR GIORDI
                    (smiling)
               Now that we've explored some of the
               more unorthodox practices in the
               MIDI world, let's return to the
               syllabus material. This week, I'd
               like you to dive into MIDI software
               and explore how it can enhance your
               projects.

Giordi lists the components of the assignment, which focus on
MIDI software.

                         PROFESSOR GIORDI
                    (continuing)
               For this week's assignment, I'd like
               you to:

Choose a Digital Audio Workstation (DAW) to work with.
Familiarize yourself with its interface and features, and
create a simple project using MIDI data.

Experiment with at least one software synthesizer or sampler.
Learn how to control it using MIDI data from your devices or

your chosen DAW.

Use a MIDI utility, such as a MIDI monitor or MIDI mapping tool, to analyze or manipulate MIDI data in your project.

Finally, incorporate one of the unconventional MIDI techniques we discussed today into your project. This can be a creative MIDI feedback loop, a MIDI hack or workaround, or even some MIDI mangling.

The students take notes on the assignment, excited to dive into the world of MIDI software and apply some of the unconventional techniques they've just learned.

                    PROFESSOR GIORDI
                (continuing)
          Remember, the goal is to explore and
          experiment with MIDI software and
          its applications. I encourage you to
          think outside the box and push the
          boundaries of what you can achieve
          with MIDI. Good luck, and I look
          forward to seeing your creations
          next week!

The class concludes, and the students eagerly leave the room, ready to dive into their assignments and explore the world of MIDI software.

FADE OUT.