Music 128 / CS 170
Stanford Laptop Orchestra: Composition, Coding, and Performance
Spring 2018 | Wednesdays, 7:30pm-10:20pm | CCRMA Stage

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Course Description
This course explores composing and coding for, and performance with, laptop orchestra. This is the full classroom/ensemble instantiation of the Stanford Laptop Orchestra (SLOrk), whose members consist of the students currently enrolled in this class. Topics and activities will include composing for laptop orchestras, sound synthesis, programming, instrument design, and live performance. Coursework includes designing laptop-mediated software musical instruments, crafting musical works, and live performance. To engage with these ideas most fully, students will write instruments, compose for these instruments, and perform live in two concerts during the spring quarter.

Musical Works
In addition to design and written assignments, students output in this class will consist of two significant musical works—including instrument design, sound design, programming, and crafting musical presentation—to be first performed two public performances. The first musical work will be a piece of 'chamber music' (for a small number of players – between 2-4), and the second musical work will be a piece for the full ensemble, to be performed at the final concert at Bing Concert Hall. Pieces typically average 4-7 minutes. Group work is encouraged—multiple students may work on the same composition.

Dress Code
For concerts, the dress code will be concert black, colored socks optional.

Grading Expectations
Grades will be assigned based on the following:
- attendance and engaged participation
- completion of assignments
- level of thoughtfulness and effort in your work
- helpfulness: setup / teardown / equipment care

Completion of assignments (50%); thoughtfulness and engagement (50%)

The importance of timely attendance and active participation in this class cannot be understated. As a performance ensemble, we are relying on each other to be present to perform and critique each other's work. Therefore, by joining this class, you are committing to attending every class period, as well as the following rehearsals/concerts (exceptions include family or health emergency and conflicting final exams):

Thursday (5/3) noon-5:30pm — group rehearsal by piece (by appointment)
Thursday (5/3) 5:30pm-7pm — dress rehearsal (everyone)
Thursday (5/3) 7:30pm — SLOrktastic Chamber Music (concert at 7:30pm)

Thursday (6/7) 2pm-10pm — load-in, setup, rehearsal in Bing Concert Hall (everyone)
Friday (6/8) 2pm-10pm — dress rehearsal #1 in Bing Concert Hall (everyone)
Saturday (6/9) 2pm-7:00pm — dress rehearsal #2 in Bing Concert Hall (everyone)
Saturday (6/9) 7:30pm — SLOrk in Bing (concert at 7:30pm)

Missing a concert or dress rehearsal for any reason, other than an excusable emergency or conflict, will result a failing grade for the course. Missing a regular class period or a scheduled rehearsal without an excusable emergency or conflict will lower it one letter grade; being late for a regular class period will lower it by .5 letter grade. Each class you will receive a ✓ if you come prepared to participate, are attentive in class, and demonstrate progress on your work. If you come and do not participate, are inattentive, or are unprepared, you'll receive a ✓-. Two ✓-'s will result in the lowering of a full letter grade. ✓+'s may be given out on occasion, and may result in the raising of your final grade.

Course Policies

1. *Late & missed assignments*. No late work will be accepted under any circumstances (except by prior consent of the instructors, or in case of a health or family emergency). No incompletes will be given except under extraordinary circumstances.
2. *Preparation*. Each assignment has specific, mandatory submission instructions (file name, type, etc.), and must be turned in to the SLOrk subversion repo / "mothership". Materials should be prepared no later than the assigned date (i.e., before class).
3. *No-screens policy*. Except for laptops as instruments, this is a laptop and device-free classroom, so please bring a notebook and pen to take notes. Enjoy being fully present to engage in discussion, rehearsal, and to hear one another, the lecturers, and the sounds we'll encounter together. Exceptions are only made with prior consent of the instructor.

Ways of Thinking / Ways of Doing Breadth Requirement

This course satisfies the following WAYS requirement:

- *Creative Expressive (CE)*

Provost's Statement concerning Students with Disabilities

Students who have a disability which may necessitate an academic accommodation or the use of auxiliary aids and services in a class must initiate the request with the Office of Accessible Education's Disability Resource Center (DRC). The DRC will evaluate the request with required documentation, recommend appropriate accommodations, and prepare a verification letter dated in the current academic term in which the request is being made. Please contact the DRC as soon as possible; timely notice is needed to arrange for appropriate accommodations (phone 723-1066; TDD 725-1067).

The Honor Code

Violating the Honor Code is a serious offense, even when the violation is unintentional. Students are responsible for understanding the University rules regarding academic integrity. In brief, conduct prohibited by the Honor Code includes all forms of academic dishonesty, among them copying from another's exam, unpermitted collaboration and representing as one's own work the work of another. If students have any questions about these matters, they should contact their fellow. The Honor Code is available at: http://studentaffairs.stanford.edu/communitystandards/honorcode.

Readings
We will be engaged in topics such as the embodiment of sound in technology-mediated performance, meaningful instrument interaction between players, and indeed, the point of a laptop orchestra. This ranges from the philosophy of aesthetic design to the technical nuts and bolts of hardware and software.

As such, we've amalgamated a short reading list. The readings will be made available on Coursework the week they are assigned. Although we may not necessarily be discussing them directly in class, ideas will be drawn from them to frame activities and discussions in class. They will be good perspective for the course, and indeed, for your musical life.

ChucK
- *Programming for Musicians and Digital Artists: Creating music with ChucK* (ISBN: 1617291706). It provides many good examples of features in ChucK, and will be useful for quickly gaining fluency in the language.
- Kadenze online class: https://www.kadenze.com/courses/introduction-to-programming-for-musicians-and-digital-artists-iii

Laptop Orchestra
- Trueman, D. "Why a laptop orchestra?" *Organised Sound* 12(2):171-179 (2007).
- Fiebrink, R., Wang, G., and Cook, P.R. "Don't Forget the Laptop: Using Native Input Capabilities for Expressive Musical Control". *In Proceedings of New Interfaces for Musical Expression*. 2007.
- Smallwood, S., Trueman, S., Cook, P. R., and Wang, G. "Composing for laptop orchestra." *Computer Music Journal*. 32(1), 9-25 (2008).

Design
- Cook, P. R. "Principles for Designing Computer Music Controllers." *ACM SIGCHI, New Interfaces for Musical Expression (NIME) Workshop*, 2001.
- Wessel, D. and Wright, M. "Problems and prospects for intimate musical control of computers." *Computer Music Journal* 26.3:11-22 (2002).
- Wang, G. *Artful Design*. Stanford University Press, 2018. (preview)

Other
- Cook, N. "Between Process and Product: Music and/as Performance," *Music Theory Online* 7(2) (2001).
- Wan Rosli et al. "Ensemble Feedback Networks," in *Proceedings of the International Conference on New Interfaces for Musical Expression*. 2015.

Stanford Laptop Orchestra | Weekly Schedule *(subject to change)*

Week 1: Introduction **(April 4th)**
In-class: syllabus discussion; introduction to the ideas of laptop orchestra, how to set up laptop orchestra gear; two pieces from laptop orchestra repertoire; first ChucK instrument example.
Homework: Small Sound Sketch (design instrument + short musical statement for one station)
Reading: Trueman, 2007; Fiebrink et al., 2007

Week 2: (April 11th)
In-class: Small Sound Sketch presentation and critique; each person to give a mini-performance of 1-2 minutes; ensemble feedback workshop. Form groups for Milestone #1.
Homework: SLOrktastic Milestone #1
Homework: begin SLOrk archeology project (due May 2nd)
Reading: Cook, P. R. 2001

Week 3: (April 18th)
In-class: SLOrktastic milestone #1: initial work in-progress of piece; 3 minute performance. presentation on physical interaction design.
Homework: SLOrktastic Milestone #2

Week 4: (April 25th)
In-class: SLOrktastic Milestone #2: complete composition/performance; SLOrk archeology project (in-class presentation) due
Homework: Milestone #3 (polish your piece – the concert is next week!)

Week 5: (May 2nd, May 3rd)
May 2nd: SLOrktastic milestone #3: polished piece; rehearsal for the performance; SLOrk archeology project (written) due
May 3rd: Tech run-through during the day (by appt); 5:30pm call (dinner provided) for 7:30pm SLOrktastic Chamber Music Concert. Invite your friends!
Homework: Proposal / sketch for final musical work

Week 6: (May 9th)
In-class: proposal & sketch for final composition/performance; strategies and tools; networking.
Homework: Final Project Milestone #1

Week 7: (May 16th)
In-class: Final Milestone #1: initial full ensemble rehearsal for each piece in-progress
Homework: Final Project Milestone #2

Week 8: (May 23rd)
In-class: Final Project Milestone #2: full ensemble rehearsal for complete piece in-progress, with score presentation as you see fit
Homework: Final Project Milestone #3

Week 9: (May 30th)
In-class: Final Milestone #3: full ensemble rehearsal for complete piece in-progress, with score
presentation as you see fit.
Homework: Final Project Milestone #4: Polish

Week 10: (June 6th)
In-class: Final Project Milestone #4; last workshopping and rehearsal of pieces for the Bing concert. The pieces should be finished by this date; this rehearsal will be focused on ensemble coordination and performance.

Final Performance (June 7th, 8th, 9th)
June 7th: 2pm-10pm, load-in, setup, and rehearsal for final concert
June 7th: 2pm-10pm Dress rehearsal # 1 for final concert
June 9th: 2pm-7:00pm Dress rehearsal #2 for final concert
7:30pm: SLOrk @ Bing 2017 (Spring Concert)