Music 220b
Compositional Algorithms, Psychoacoustics, and Spatial Processing
Winter Quarter
Instructor: Ge Wang (http://ccrma.stanford.edu/~ge/)

class time: T+Th 10-11:30am
location: CCRMA classroom (the Knoll)
prerequisite: Music 220a (or by instructor's permission)

course summary:
This is the second course in the 220 series. It investigates algorithmic composition, advanced sound synthesis techniques, as well as audio analysis, and elements of computer-mediated music composition and as they relate to psychoacoustics, and spatialization. Additionally, we will explore computer-mediated performance as well as issues of aesthetic in computer music. The course uses the ChucK programming language for assignments and projects. The format consists of in-class discussions and lectures, individual and group assignments, a final project, as well as an experimental live performance component.

synthesis / analysis topics:
- modulation / AM / FM synthesis / waveshaping
- timbre, sculpting, perception
- subtractive synthesis, filters
- bread-n-butter synthesis techniques (part two!)
- FFT / audio analysis / UAna in ChucK / resynthesis / event detection
- formant-based synthesis
- granular synthesis / FOF's / phism
- learning to program these via ChucK

computing + algorithmic composition topics:
- computational aesthetics
- algorithmic composition tools and approaches
- elements of computer-mediated composition
- algorithmic sonification
- rule-based, constraint-based systems
- state-machines / cellular automata / genetic algorithms
- grammars / L-systems / fractals
- aesthetics of computer-mediated composition and performance