CCT Colloquium Series

Transformational Music - Theoretical Applications Using GAP

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Johnston Hall 338
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Abstract:
GAP (an acronym for Groups, Algorithms, and Programming) is a system of computational discrete algebra. The GAP software, which is free and downloadable via anonymous FTP, provides a programming language, a library of thousands of algorithms, and data libraries of commonly used algebraic objects. GAP has been used widely by mathematicians and other computational scientists since its first release in 1986. It has not, however, received attention in music-theoretical research. Nonetheless, GAP offers music theorists a powerful tool, particularly in the investigation of transformation theory and other mathematically oriented music theories. In particular, it includes applications which are not readily available elsewhere to music theorists, and which will assist them in experimentation with the increasingly sophisticated mathematical techniques being used in the discipline. Examples display how a music theorist may use GAP to build relatively complex algebraic structures efficiently. Once these structures are then formed, the theorist may explore them by using further GAP utilities. GAP is capable of building virtually any finite group-theoretical structure. Its usefulness and relevance to music-theoretic analysis is potentially vast, as it is adaptable to numerous musical applications.

Speaker's Bio:
Robert Peck is Associate Professor of Music Theory at Louisiana State University. He serves as founding co-Editor of Journal of Mathematics and Music, and as a founding member of the Executive Board for Society for Mathematics and Computation in Music. His research appears in Journal of Music Theory, Perspectives of Music, Integral, Music Theory Online, among other publications. He is a frequent presenter at meetings of the Society for Music Theory, and has organized four special sessions on math and music topics at meetings of the American Mathematical Society.

Refreshments will be served.
This lecture has a reception.

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