



# Evolving Music Collectively

## Gerard Roma



*" During most of the time Jenkins was there, there was a fixed number of [bird] songs on the island, a kind of 'song pool' from which each young male drew his own small repertoire. But occasionally Jenkins was privileged to witness the 'invention' of a new song, which occurred by a mistake in the imitation of an old one."*

Richard Dawkins, *The Selfish Gene*. 1976

- Evolutionary computation has been widely used for solving optimization problems as well as computer-aided design. Can it be used to model collective music creativity?
- Music creation can be regarded as a social process, music innovation is also an effect of replication errors.



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### Freesound

- Online collaborative database of sound samples
- Users upload field recordings, music fragments
- Strong description culture, tag folksonomy

### Is text based search enough for music applications?

- Many interesting sounds rest undiscovered to users that don't know about them
- Music material discovery is in itself a musical activity
- Sound browsing can be made interesting by organizing sounds in a musical process

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### Sample patch

- Simple and quick way to represent music ideas
- Expressed as a function of sounds in the database
- Can be shared, mutated, crossed with other patches

### Hybrid human-based genetic algorithm

- Human and computational agents evolve music by applying genetic operations to patches.
- Fitness function replaced by human (collective) rating
- Mutation: a sample is swapped by similar or random sample
- Crossover: a patch is obtained by connecting fragments of other patches

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### How to evaluate?

- Doubling objective: sound discovery and music process
- Users should discover interesting sounds that they would not have found using text search
- The collective discovery process should allow them to test and find combinations that they like
- Like games, music activity is a goal in itself (especially in a social context)
- Usage information can be used to evaluate
- Evaluation may in turn lead to improvements (feedback loop)

### Can the program itself be evolved by the community?