Structured Observation with Polyphony: A Multifaceted Tool for Studying Music Composition. Garcia, et al. DIS. 2014.

What are the core research questions addressed by the work?

- Developing interactive systems to support composers' expression and exploration on paper while taking advantage of the computational power of computer-aided composition tools

What motivates the work?

- The lack of integrated digital support tools for music composition: Support for entire workflow from earliest, most creative phase to the final musical score

How does the work understand the usage, capabilities, and limitations of paper?

- Contemporary music composers often use paper to invent and work with personal representations of arbitrarily complex musical structures and models
    - Use paper not only to express musical ideas but also to explore and complete the detailed implementation of their final musical score
- Paper suggested to stimulate ideation, particularly effective in supporting nonlinguistic or spatial representations that are poorly supported by traditional interfaces
    - Ideal for sketching and iterative design
- Qualities that make it suitable for creative work: High display and input resolution, ergonomic form (thin, flexible, light), tactile, affordances for a range of natural actions, such as grasping, folding, physical positioning and navigating, and annotating

What is the target application domain of the work?

- Music composition

What are some proposed extensions to paper proposed by the work?

- Polyphony (the presented prototype) provides a unified user interface for capturing pen-based input, as well as musical performance on a piano keyboard, and typed or mouse-based input to control established music composition software
- Supported digital functionality
    - Free annotation with a digital or physical pen
    - Allow switching between two precision levels: whole piece, four-second increments
    - Simplified audio tools: start/stop, mute, gain, selector, etc

How are the proposed extensions implemented?

- Printed interface that fits on six pairs of A4-size paper
- Interaction using Anoto technology
- Desktop application

What findings have been obtained from either the implementation process or an evaluation of the proposed system?

- Paper interface in this system used more so for quick rough actions, for precision the digital interface was used
- Paper interface use differed from composer to composer
- Automatic recognition of symbols not always accurate
- Not much conclusive information on the usage of paper

- Live feedback in software use is appreciated