Paper 02, 32 and 40

Similarities, Differences, Ideas we can use, Other papers to read

* **Trap Design for Vibratory Bowl Feeders (Paper 02)**

This paper focuses on the design of vibratory part feeder filters. Usually parts in a feeder are correctly oriented using mechanical filters like wiper blades, grooves, gaps and balconies. In this work they’ve specifically considered design of the two filters: gaps and balconies. They’ve also proposed an algorithm for deciding if a polygonal part will be accepted or rejected by the filter. The analysis is done in 2D and a complete algorithm for automatically synthesizing feeder tracks for any given part still needs to be done.

**Differences:** Part feeders keep rejecting/dropping the part to the bottom of the feeder until it is correctly oriented. In our work we’ll run the process for any given part only once and decide if the part is faulty or not.

For error detection we would need to know the interior information of the given shape

(e.g. location of the holes) but in this paper, they’re only concerned about the orientation of the parts.

**Similarities:** Part feeders use vibration to move the parts and it is a global control input. We also aim to develop layouts which are controlled globally.

**Ideas we can use:** I don’t think the ideas of designing gaps or balconies from this paper are very relevant to our work because they are based on the center of mass of the part. In our case, we’d need complete information about the exterior and interior of the given part to detect it correctly. We want to make an obstacle layout which rejects the faulty parts using global control input sequence (e.g. right, down, left and up) and, in this work the part slides past the filter once and it is either allowed to pass to the exit of the feeder or dropped down.

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* **Toward a Theory of Geometric Tolerancing (Paper 32)**

This paper involves a lot of geometry of the parts and is primarily aimed at proposing a theory for representing part tolerance information in the computerized geometric modeling systems for automatic tolerance analysis. Tolerancing information is very important for planning part manufacture and tight assembly operations.

This theory still needs to be tested for its effectiveness in industrial applications and assembly planning.



**Similarities:** None

**Differences/Ideas we can use:** Currently, we’re interested in the problem of error detection/ part sorting and this paper deals with the proper representation of the part tolerances so there’s not much similarity between the two projects.

* **Sensor-Based Manipulation Planning as a Game with Nature**

Reading pending. I will update this document after I’ve read this paper

**Other Papers to Read**: Pending