Towards an integrated knot diagram editor on smartphone

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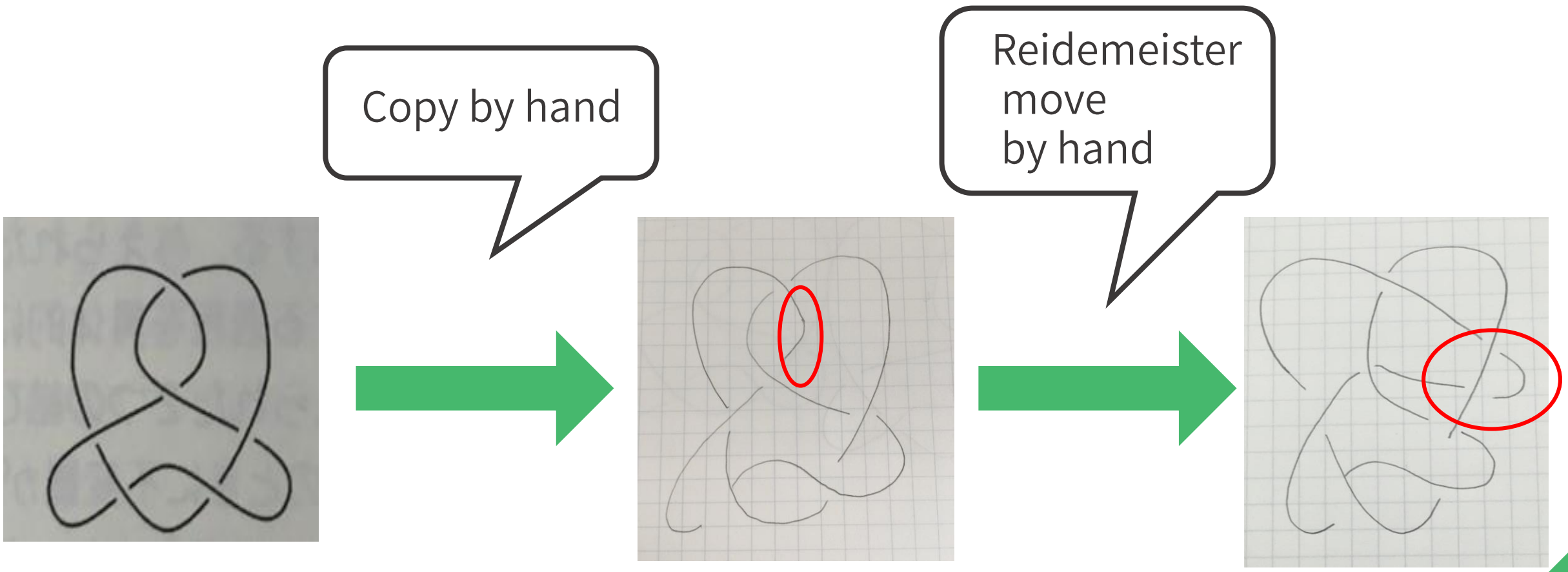
Reference : 「結び目の理論」河内明夫 著

1. Introduction

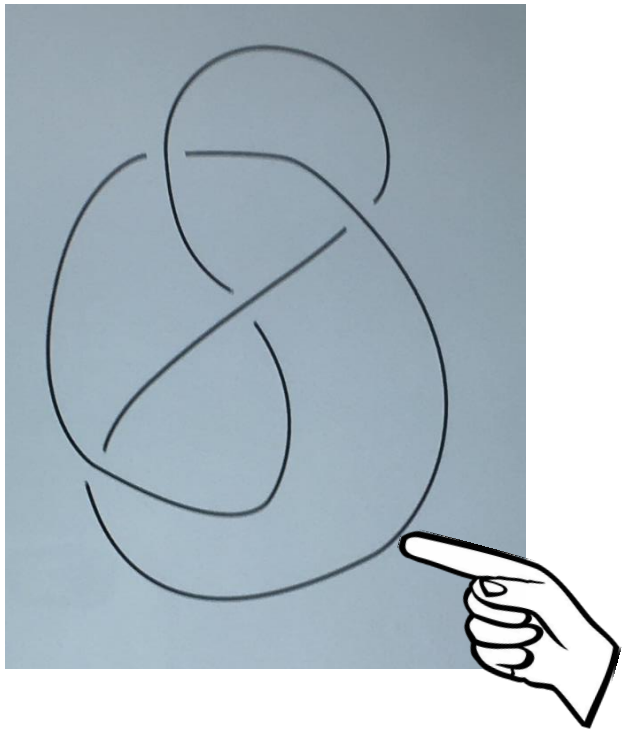


These processes are very stressful for anyone.

1. Introduction

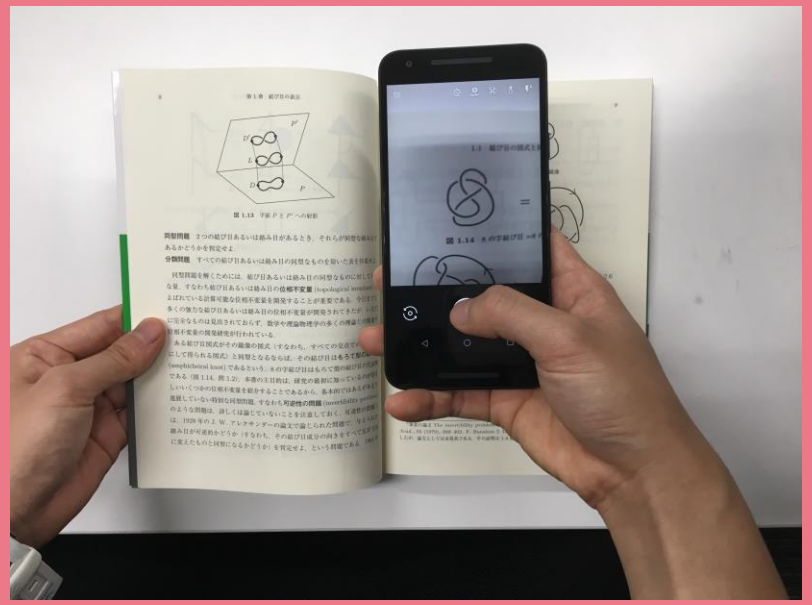
Reference : 「結び目の理論」河内明夫 著

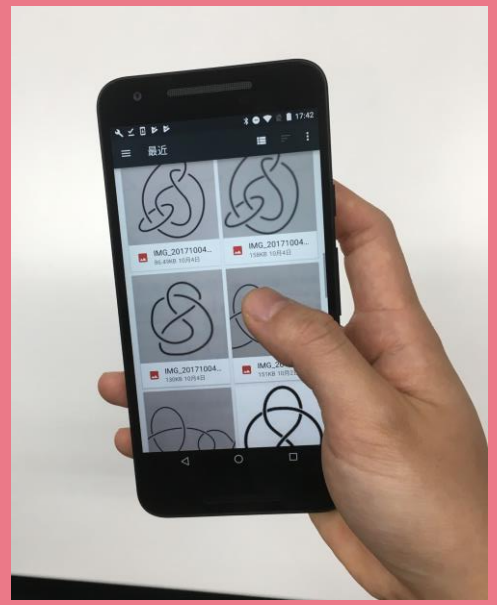
Snap!!!

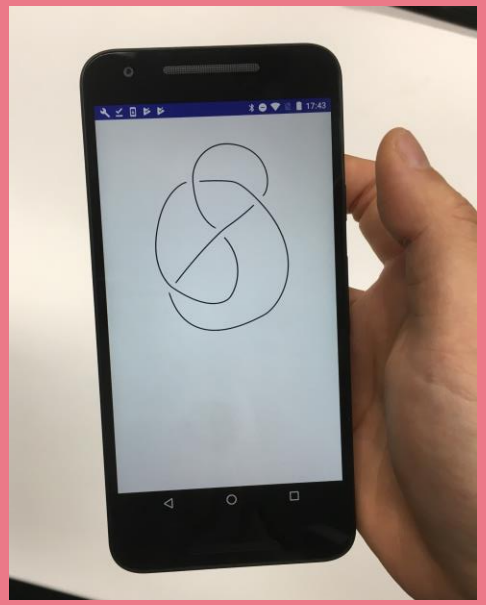


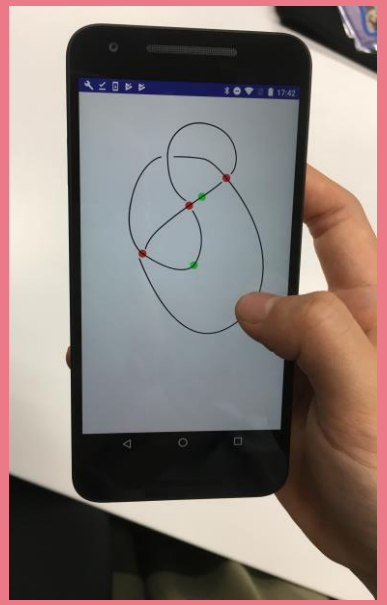
We want a system which can recognize an image and extract the data of a knot diagram.

2. Towards an integrated knot diagram editor on smartphone









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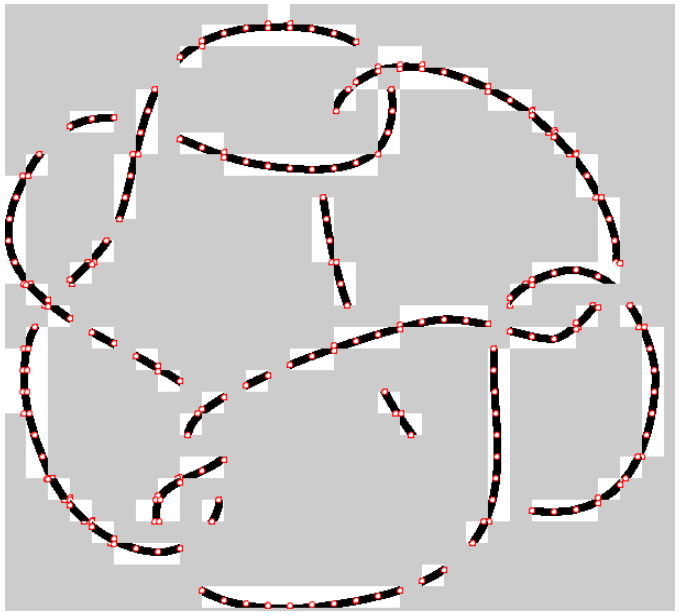
If we have a picture of a knot diagram on smartphone, this system can recognize the image and it allows users to modify the knot diagram on the touch screen.

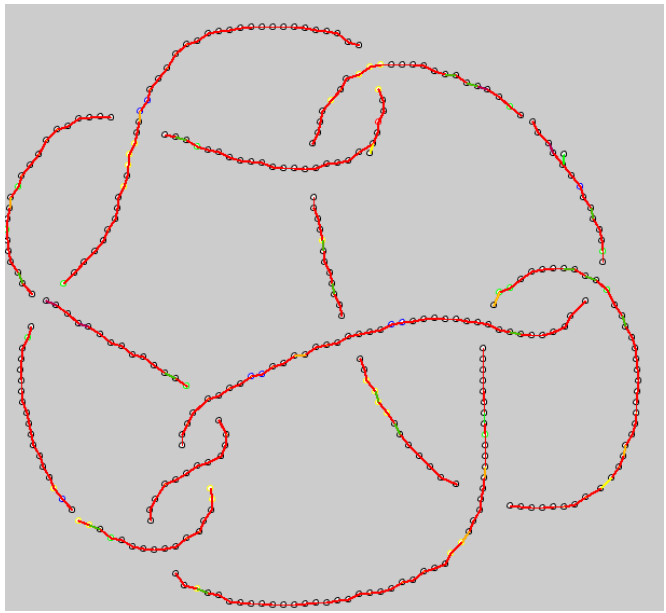
3. Demonstration

4. Algorithm

①This system divides the screen into small squares and it recognizes a line segment which is appearing in each square.

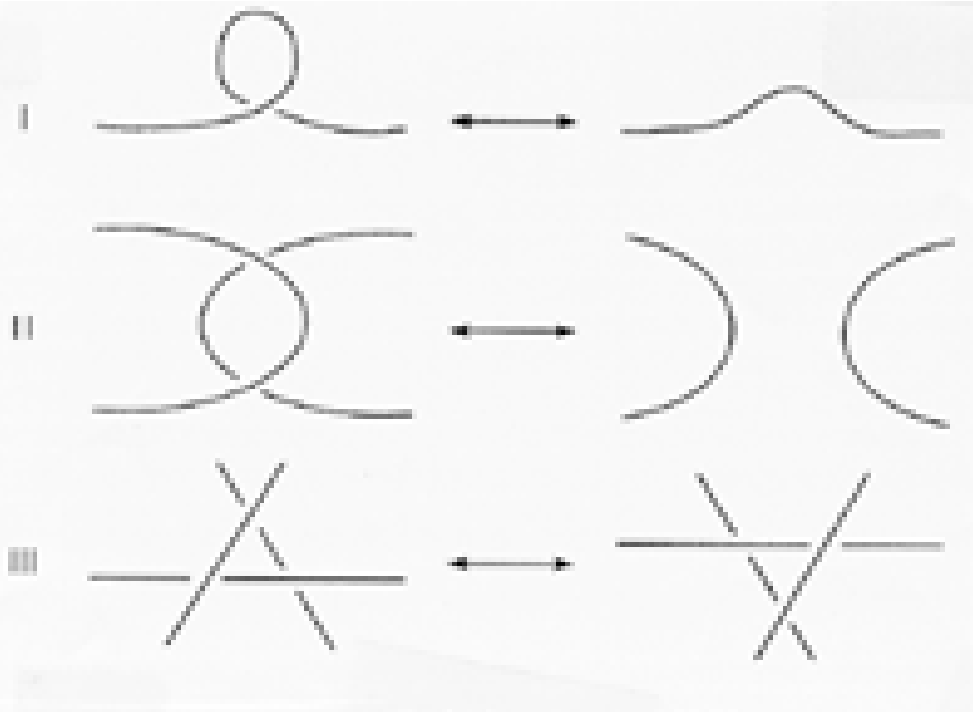


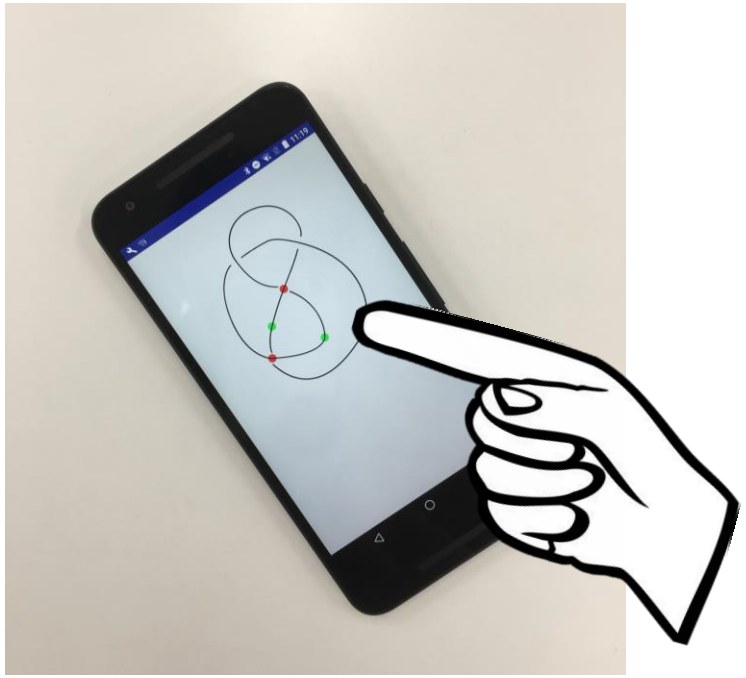
②It removes thorn shaped segments and adds a segment at a gap and recognizes the shapes of crossings.



5. Future plans

We want to implement a function of manipulating Reidemeister moves on the touch screen.





http://www.sci.osaka-cu.ac.jp/~kawauchi/InternetLecture/01.html

5. Future plans

- **BeadsKnot (processing ver.)**

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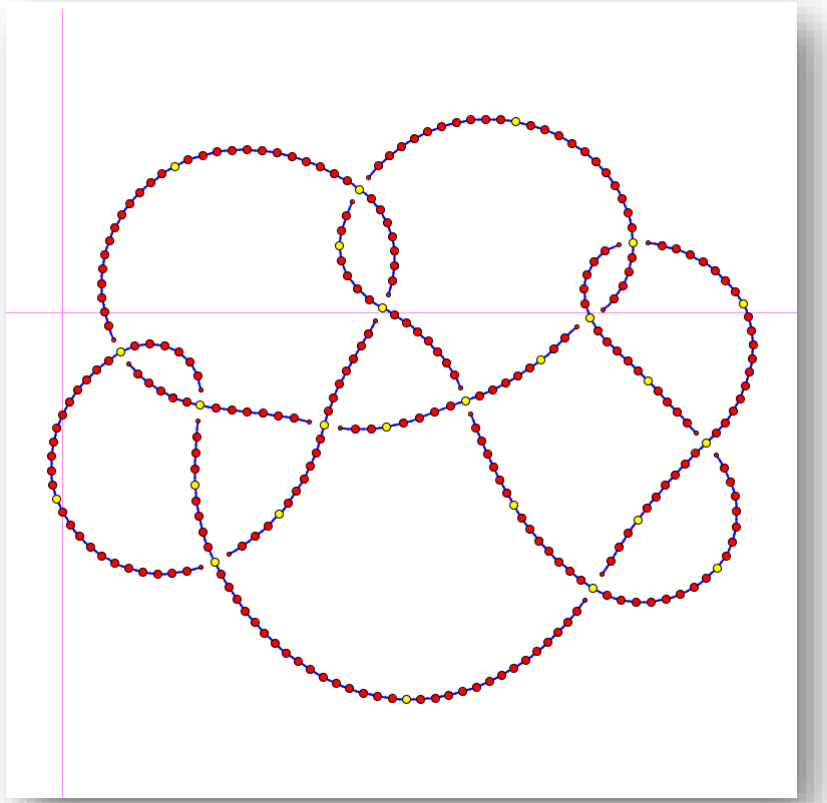
1. This uses the thinning method of recognition of a picture of a knot diagram.

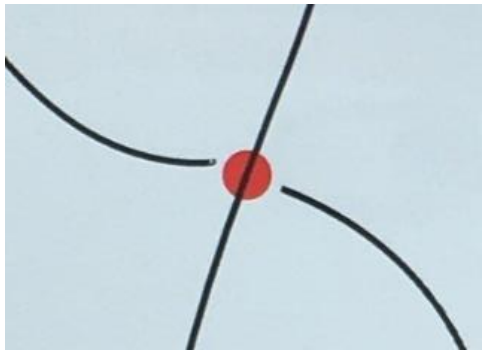
2. This allows us to manipulate Reidemeister by double clicking or dragging.



Beads Knot Demonstration

5. Future tasks (smart phone ver.)

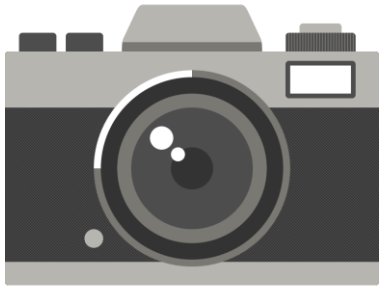
★When the intersection number becomes larger, it is trouble some for us to manipulate by touching.



★Is it good for us to modify a knot diagram on smartphone?

5. Future tasks (smart phone ver.)

★When you take a picture, it may be hard to recognize the image because of reflection of light or blurring of the image.



★We want to propose some puzzles using our system, where we feel knot theory fun.

5. Future tasks

★proposal of better user Interface

What kind of user Interface is the best one for us to manipulate Reidemeister move instinctively?

★clarification of user

Please tell us how specialists want to use our system.