**The Future of Knitting Machine Programming**
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One of our goals at the Carnegie Mellon Textiles Lab is to improve the way knitting machines are programmed. We are doing this both by developing our own high-level design tools; and by creating the low-level infrastructure required to enable others to develop their own tools.

The core idea of our high-level tools is to enable knit programmers to specify *what* they want knitting machines to make without being distracted by the details of *how* the machine will make it. This has required us to develop a notion of machine knittability, along with various combinatorial search and heuristic algorithms to tackle the difficult problems of scheduling knit stitches to knitting machine needles.

Our low-level infrastructure work is far less complicated. We have specified a simple, text-based, assembly-language-like machine knitting format called "knitout"; and maintain translators from this language to various manufacturer-specific formats (and 3D yarn paths). Our hope is that having a simple output format for design tools (and -- for that matter -- input format for simulators) will allow more researchers to engage with the difficult problems of machine knitting and free them from worrying about learning the quirks of various machine-specific formats.

**More information:**
  General:
    http://www.cs.cmu.edu/~jmccann
    http://textiles-lab.github.io
  High-level tools:
    http://visual.knit.zone
    http://auto.knit.zone
  Low-level format:
    https://textiles-lab.github.io/knitout/knitout.html
    https://textiles-lab.github.io/posts/2017/11/27/kout1/
    http://db.knit.zone