

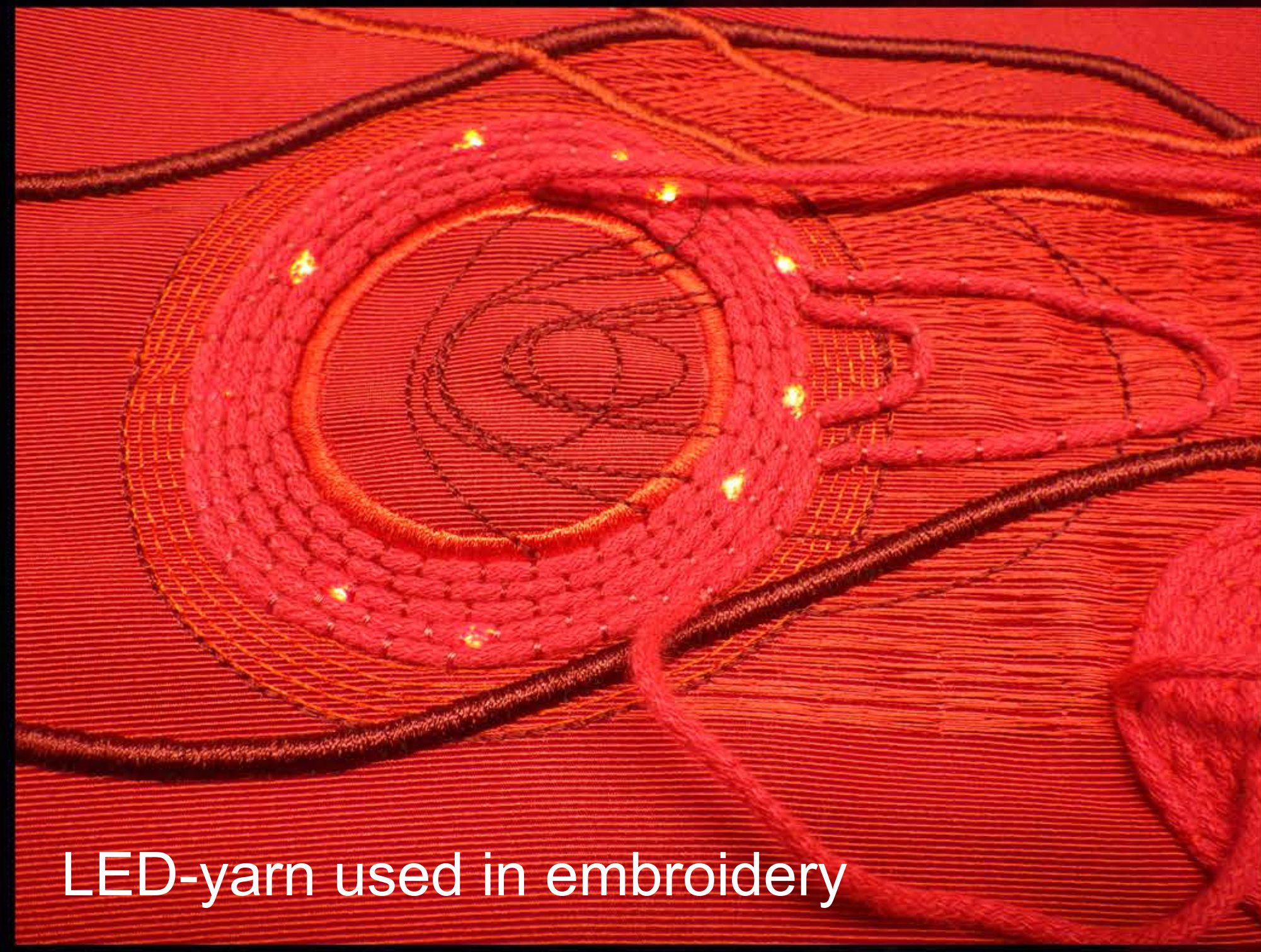
Textiles illuminated with electronic yarn

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Inclusion of lighting within textiles opens up possibilities for illumination of fabrics. These can be used in applications such as clothing and interiors. The current state of the art includes strips of light-emitting diodes (LEDs), LEDs attached to wires, and fibre optics. These impede the drape and stretch of the textiles to which they are attached. This problem can be overcome through use of electronic yarns that contain LEDs within the yarn core. These electronic yarns have a textile exterior surrounding a conductive core that incorporates package dies, so they can be included within conformable textiles. Examples are shown that include LED-yarns incorporated into weave; knit; and embroidered onto the surface of stretch fabrics. This demonstrates the way in which electronic yarns can be incorporated into flexible, illuminated textiles. Use of different types of package die within electronic yarns means that this technology can now be used to create textiles with a range of sensing functions and outputs.



LED-yarn next to a 30 mm-long pin



LED-yarn used in embroidery

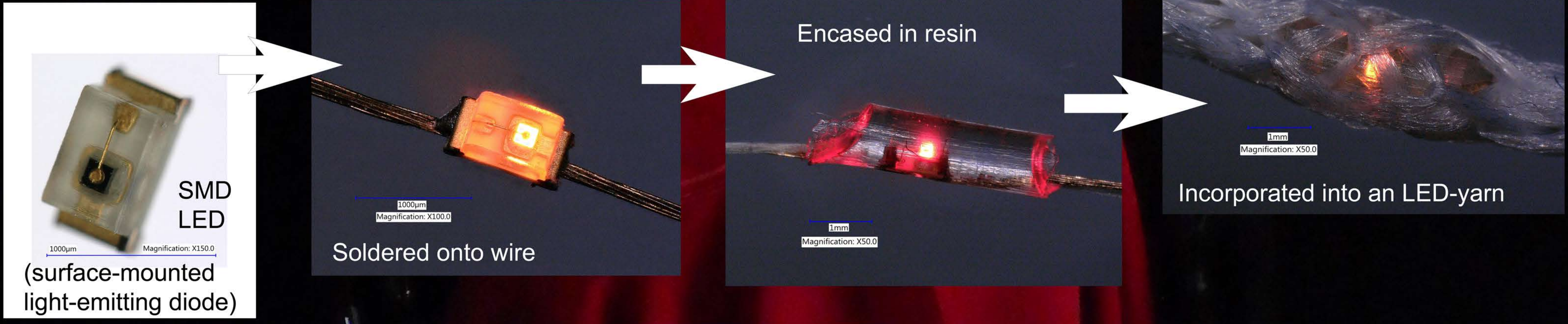


Red dress created by Bonnie Binary, using LED-yarns made by the Advanced Textiles Research Group



LED-yarn semi-automated manufacturing process

Patent: WO2016/038342 A1 Electronically Functional Yarns

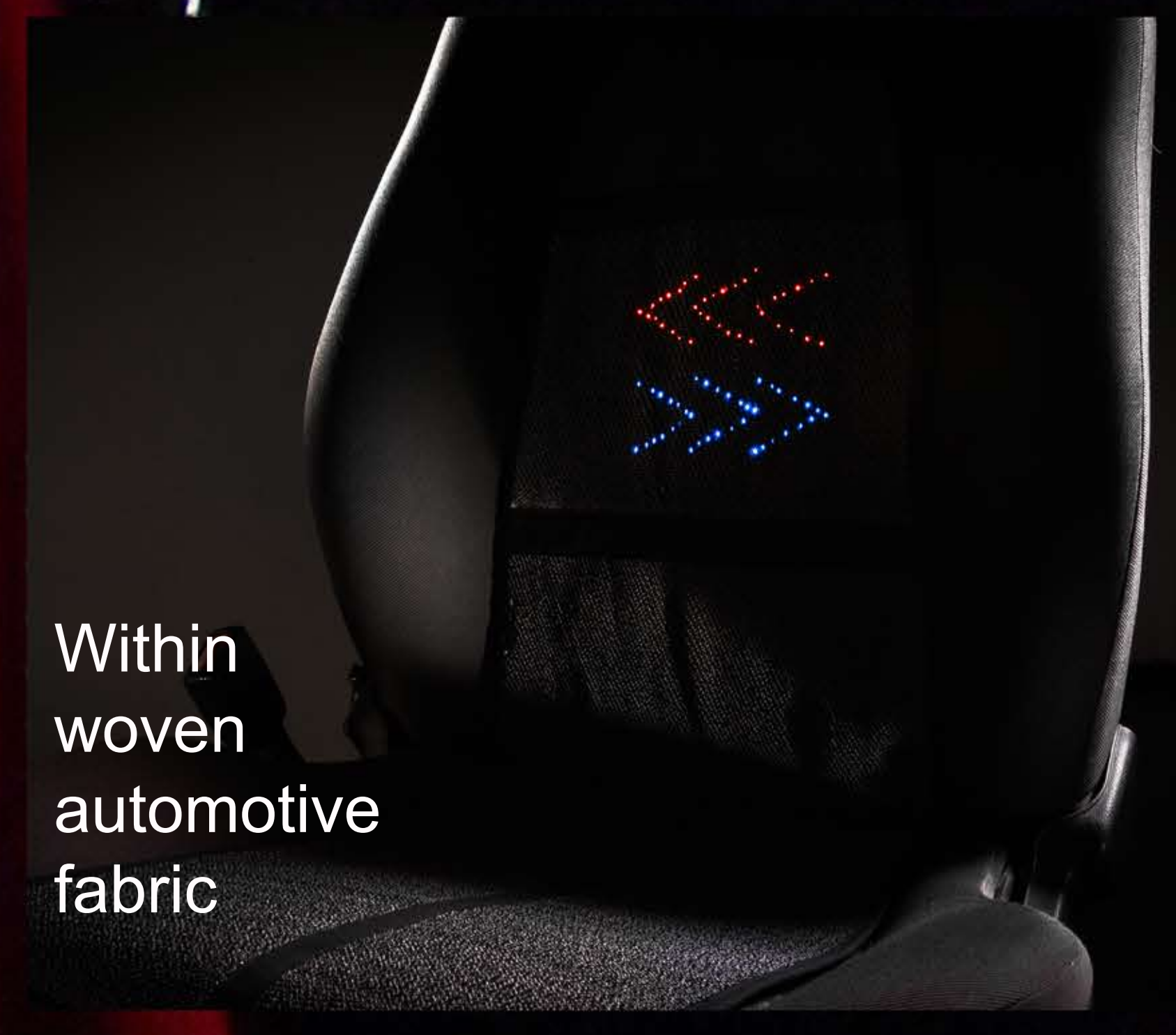


Prototypes made with LED yarn

Incorporated within flexible, woven fabric



Embroidered onto stretch material in a carnival costume



Within woven automotive fabric

Funded by:

