

The rise of the Maker Movement and open source prosthetics: An example of Braidotti's 'critical posthuman subject'

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Introduction

- *The Posthuman* (Braidotti, 2013)
- Rise of the Maker Movement
- Examples of prosthetic hands/arms
- Open source prosthetics as an example of a critical posthuman subject



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The Posthuman (Braidotti 2013)

- See forthcoming paper in *Subjectivity* by Goodley, Lawthom & Runswick-Cole
- “Affirmative politics combines critique with creativity in pursuit of alternative visions and projects” (p54)
- New models of the self, in “relations with multiple others” (p50)
- Stresses “radical relationality, non-unitary identities and multiple allegiances” (p144)



Life beyond the self: Rethinking enhancement

- Becoming-machine (Deleuze & Guattari)
 - Blurring of demarcation between ontological categories
 - Cyborg as dominant social and cultural formation
 - Rethink bodily materiality in directions which are “diametrically opposed to the spurious efficiency and ruthless opportunism of advanced capitalism” (p92)
 - Need to avoid being seduced by enhancement, risk of promoting ableist assumptions (Wolbring, 2012)
- Learning to think differently, reinventing “subjectivity as a set of mutant values” (p93)
- Acknowledgement that power imbalances remain



The Maker Movement

- 2005: Launch of Make magazine
 - Cheap and easy electronics platforms (eg, Arduino, Raspberry Pi)
 - Affordable digital fabrication tools, e.g. laser cutters & 3D printers
 - Highly social and Internet-based
 - Lots of sharing, Open Source ethos, e.g. Thingiverse
- Alternatives to traditional manufacturing
 - Production moved from factory to home - amateur digital manufacturing
 - Fast process from idea to product
 - Highly customizable, one-off products, cheap to produce



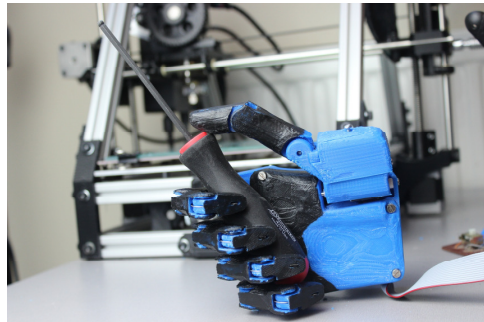
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Open Hand Project

<http://www.openhandproject.org/>

- Dextrus v1.2 hand: Made from 3D printed plastic parts, tendons, electronics, nuts, bolts



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Robohand

<http://www.robohand.net/>

- Disabled man wanted functional 'trade-friendly' hand
- International collaboration & use of digital technology to design/test prototypes in hours, not weeks
- No electronics, purely mechanical
- Design files and instructions for basic hand freely available to download from Thingiverse
- Maker Movement crucial to enabling this product to emerge



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Robohand: Dylan



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Not Impossible Labs: Project Daniel

- Providing upper limb prosthetics in South Sudan
- Crowdsolve the 3D-printable prosthesis
 - Robohand inventor – information on how to put together Robohand/Roboarm, design the 'Daniel Arm'
- Took pre-printed parts, 3D printers, PLA stock, software to South Sudan with two goals:
 - To find Daniel – does he want this prosthetic?
 - To set up viable 3D-printing prosthetic lab
 - Now produces 2 arms/week
 - PLA stock and weekly phone calls from US
- Impact on Daniel/community – 'Daniel Arm' as a unifying statement for amputees, pride rather than stigma



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DIY prosthetics: An example of posthuman subjectivity?

- Maker Movement
 - Facilitates rise of 'citizen designers' who solve real world problems
 - Challenges advanced capitalism - 'do it for themselves', open source ethos
 - Promotes community building, 'ethics of becoming' e.g. e-NABLE – online map connecting 3D printing hobbyists with those needing a hand/arm prosthetic



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DIY prosthetics: An example of posthuman subjectivity? (cont'd)

- The prosthetic
 - Deliberate choice to move away from 'aesthetic prosthetic' which 'fakes normality'
 - Creating new identities based on pride rather than stigma
 - Role of science fiction in naturalising these prosthetics (*Robohand, CyborgBeast, Talon Hand*)
 - Does this imagery association work for all genders?



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DIY prosthetics: An example of posthuman subjectivity? (cont'd)

- Disabled person as producer/consumer
 - Control lies with user e.g. can print new parts as needed
 - Alternative to traditional (expensive) medical/professional provision
 - Increased sense of ownership/identity towards prosthetic?
 - Example of becoming-machine



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