

We introduce the BioDigital platform as the third Digital Turn, enabled by the incorporation of “BioElectrical Systems” (BES) into urban contexts (PHOENIX, 2022). Using metabolically generated electricity produced by microbial biofilms, BES are accessible by directly visualizing their electrical transactions on a screen (the BioDigital interface) and are characterized by three pedagogical and technological principles: i) (up to 12V) power generation, ii) (microbial) information and iii) biochemical transformation. Integrating life-flows between microbes (comprising the metabolic base of the biosphere), big (environmental) data governed by AI, electrochemistry and human inhabitation, this transactional platform is fundamentally environmental turning organic waste into electricity, cleaned water, bioremediation services, bodily monitoring, and biosynthesis.

Introducing a new degree of “smart” resource circularity within architectural systems the BioDigital platform operates within the carrying capacity of any given site (Armstrong et al., 2017). For example, pioneering installations by Organica Inc., and Pee Power® have been scaled to meet community needs to treat the collected wastes of between 5,000 to 30,000 people (Armstrong, 2022). Near future applications of the BioDigital include the laboratory prototype Living Architecture, which converts greywater/urine into bioelectricity, biomass and cleaned water; 999 years 13sqm (the future belongs to ghosts) a posthuman household gallery installation powered by microbes; and Active Living Infrastructure: Controlled Environment (ALICE), a prototype microbial/human biodigital interface powered by a microbial cyborg.

As pedagogical systems, the BioDigital helps the architectural imagination envisage and implement new 12V interfaces for its infrastructures starting within the home.

Establishing limits to consumption and generating domestic resource from waste, innovation is promoted in new kinds of housework, inviting new protocols for inhabiting space, establishing new environmental rituals, making possible new types of living spaces and through social systems, activating a range of commons from which new microeconomies can arise (Hughes and Armstrong, 2021).

Towards the 3rd architectural Digital Turn

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