

Mukul N. Patel

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Writer–Researcher

Artist–Composer

Director, Ambient Information Systems

I am an investigator motivated by ethical concerns, with a broad aesthetic sensibility, and possessed by an urge to communicate. To my research I bring an analytical perspective honed by studies of philosophy and mathematics; novel vision from a pioneering intermedia arts practice, and a wealth of experience from the film, stage, music and publishing industries. Through my writing and artwork, I articulate and make vivid difficult, contested or technical concepts, using novel imagery and analogies to animate ideas and demystify jargon. My writing ranges from critical perspectives on social and technological infrastructures to film scripts voiced by Tilda Swinton, an acclaimed children's book on mathematics, and contributions to encyclopaedias on topics including abstract algebra, bioethics, GPS technology, and the politics of urban wireless networks.

In recent years I have been consulting Billings Jackson Design, a company that specialises in human-centred urban infrastructure with sensitivity to issues of personal data, public space and accessibility.

My current political concerns revolve around the possibility of autonomy in algorithmically managed spaces, and a humanist critique of the technological utopias centred on 'singularity' and 'artificial general intelligence'. In particular, I am developing a series of books on AI and ethics aimed at various age groups from primary schoolchildren to adults. The series seeks to reframe the debate in terms of the perspectives of individual and collective users, rather than those of corporations or the state.

SELECTED RECENT WORK

2020 *Algorithmic City* Augmented Reality-enhanced, smartphone-guided walk around Westminster leading to encounters with algorithmic systems that impinge on daily urban life, from church bell ringing to traffic control and algorithmic policing. Cocreated with Manu Luksch, in development.

2020 *Algorithms in Space* Talk at ACM/FAT 2020 conference, Barcelona, exploring the contingency of seemingly natural mathematical assumptions and their impacts on algorithmic analysis and representation of data. Participants received a customised conference bag depicting key issues.

2019 *3,159 Tweets* [coeditor and coproducer] English/Arabic A0-size poster/booklet about human rights defender Ahmed Mansoor, currently incarcerated in the UAE.

2019 *Algo-Rhythm* [cowriter/composer/programmer] Award-winning hip-hop musical film on online micro-targeting and electioneering.

2017 *Bristol Legible City* [ongoing] Consultant through Billings Jackson Design on personal data management and public engagement issues in a proposed 'smart' wayfinding system.

2016 *Dubai Creek Harbour tower* [ongoing] Consultant through Billings Jackson Design and Santiago Calatrava Architects on networked audio infrastructure design and content for a supertall public building and plaza, currently under construction.

PUBLICATIONS: TECHNOLOGY, ETHICS, ART

- 2020 'To be connected: perspectives on autonomy and risk from the Electric Age' [with Manu Luksch] in A. Chapman, N. Hume, & C. Newland, eds. *Coding and Representation from the Nineteenth Century to the Present: Scrambled Messages*. London: Routledge, forthcoming.
- 2020 'Prediction' [with Manu Luksch] in D. Agostinho, C. D'Ignazio, A. Ring, N. Thylstrup, & K. Veel, eds. *Uncertain Archives*. Cambridge: MIT Press, forthcoming.
- 2009 'A Brief History of Real Time' in W. Sützl, ed. *Creating Insecurity*. Plymouth: Plymouth University Press / Autonomedia.
- 2009 *Ambient Information Systems* [ed., with Manu Luksch] London: AIS.
- 2007 'Chasing the data shadow. A filmmaker's close-up encounter with the Data Protection Act' [with Manu Luksch] in G. Stocker & C. Schöpf, eds. *Ars Electronica: Goodbye Privacy*. Berlin: Hatje Cantz Verlag.
- 2003 'Wearable Computing and Wireless Networks' [with Manu Luksch] in E. Salmi & J. Lantto, eds. *Cumulus Working Papers: Tallinn*. Helsinki: University of Art & Design.

SELECTED PUBLICATIONS: POPULAR MATHEMATICS & SCIENCE

- 2020 *The Physics Book* [contributor] London: Dorling Kindersley
- 2019 *The Maths Book* [contributor] London: Dorling Kindersley
- 2013 *We've Got Your Number* [author] London: Kingfisher Books. Shortlisted: Royal Society Young People's Book Prize; longlisted: School Library Association Information Book Award
- 2000 *Scientific American's How Things Work Today* [consultant editor] London: Marshall Editions

ART AND MUSIC

Since 2001, I am codirector, with Manu Luksch, of critical intermedia arts studio Ambient Information Systems. Our work interrogates social and technological infrastructure, often through instigating processes or constructing participatory environments, and is presented at museums, theatres, galleries, art and film festivals, and in public spaces and academic contexts worldwide. Notable works include *Love, Piracy and the Office of Religious Weblog Expansion*, a performance and installation around literary censorship, and *Orchestra of Anxiety*, a collection of instruments that deploy security and surveillance technologies in playful contexts. The first instrument to be built is a steel harp with strings of razor wire, which requires the harpist to wear chainmail gauntlets.

ART AND MUSIC (contd.)

A significant aspect of my creative work is writing for film, notably:

2015 *Dreams Rewired* [cowritten with Manu Luksch, voiced by Tilda Swinton]
Core Collection, Academy of Motion Picture Arts & Sciences

2007 *Faceless* [cowritten with Manu Luksch, voiced by Tilda Swinton]
Collection Centre Georges Pompidou and BFI National Archive

As composer, I have collaborate extensively with artists (Isaac Julien, Oleg Kulik) and contemporary choreographers (Russell Maliphant, Shobana Jeyasingh), and have been commissioned by l'Opéra de Lyon; Royal Opera House, Sadler's Wells, Tate Modern, and the South Bank Centre, London; and Bayerisches Staatsballet, Munich, among others.

EDUCATION

2016 MSci Mathematics, Imperial College London
Master's project: *Quantum Computers and Public-Key Cryptosystems*, on a classical elliptic-curve based cryptographic scheme that is resistant to known quantum algorithms.

1992 BA Natural Sciences / Social & Political Sciences, King's College, Cambridge

SELECTED AWARDS

I have been awarded grants from: Arts Council England, Great Britain Sasakawa Foundation, the Japan Foundation; commissions from: Royal Opera House, Sadler's Wells Theatre, Opéra de Lyon, Bayerisches Staatsballett; and residencies at NIFCA (Helsinki), The Thing (New York), among others.

2014 Winton Capital Prize, Imperial College, London
Group project: *Functional Equations from Gamma to Zeta*

2001 The Berkeley Fellowship, University of California