



UNLOCKING
CONSCIOUSNESS



BRIAN MIND FORUM

Appendix 048 References

New Scientist, Scientific American, Mind, Physics World

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<ul style="list-style-type: none">• Archive• Editor 2014		
	5	10 May 14
3DP Space Station	49	8 Sep 2012
3DP Challenge	27	30 May 2015
3DP Energy Cells	Sci Am p32	Dec 2014.
3DP Downloadable Drugs	8	21 April 2012
3DP & Knees	Sci Am p19	March 2015
3DP Large Objects	21	5 Oct 2013
3DP Lenses	19	22 Nov 2014
3DP Military	17	20 Oct 2012
3DP Redpath	IMIS	Sep 2012
3DP in Space	10	2 March 2013
3DP Teeth	17	24 Oct 2015
3D PEN	22	23 Feb 2012
3DP Bioprinting	19	15 April 2006 *
3DP & Distance Manufacturing	22	7 Sep 2013

3DP Prosthetic Robotic Hand	Sci Am 33	May 2013
3DP Digital Buildings	23	20 April 2013
3DP Kidneys	Sci Am 36	April 2013
AAA		
α value of: Electromagnetism:	41	9 Sep 2006 *
Also	Physics World 33	Feb 2007 *
Abstract Creativity		26 Feb 2011
Action Potentials discovered Hodgkin & Huxley (Nobel)	33	31 Aug 2013
Ability: Aspects of Self:	38	21 Mch 2015
Adaptive Immune System: Innate	41	17Aug 2013
Adenine Triphosphate (ATP) Protean Kinesin: Polymerase: Membrane Pumps	Physics World 27	Nov 2007
Addiction Drugs	38	23 Nov 2002
ADHD Sleep Disorder see Attention Deficit Hyperactivity Disorder		
Adolescent Neuroscience	Sci Am p23	June 2015
Agency & Experience (Mind Club)	45	23 April 2016
Ageing Blood	11	21 Jan 2017
Ageing Brain Simulation	12	7 Dec 2013.
Ageing: Cell Clocks. DNA Mutations	11	14 Nov 2015
Aging Glycan age, Epigenetic Age	30	1 July 2017
Ageing: Mitochondria. HIF -1 SIRT1 NAD+	13	4 Jan 2014
Age of Earth 4004 BC	48	4 Oct 2014
Aging, Slower Reactions	17	26 Nov 2011.
Aging, Senescence, Inflammation	30	19 Sep 2015
Ageing Gene NF-KB	8	4 May 2013

AI: Brian Aldiss. Stanley Kubrick	40	15 Sep 2001 *
AI Go Program v2	9	21 Oct 2017
AI: History of	35	23 April 2005 *
AI: Legal Artificial Intelligence	23	30 Jan 2016
AI: More Human: Child Learning: bottom up / top down Bayesian Pixels Plato Large datasets	Sci Am p56	June 2017
AI: Machine Learning	Sci Am p38	June 2016
AI: Medical care	36	15 July 2017
AI: Mind: Memory: Probability:	34	Aug 2013
AI; Poetry	14	15 July 2017
AI: Computer IQ	8	27 July 2013
AI Questioned. Need genes	23	26 March 2016
AI REINVENTED Bristol (Nello Cristianini) 38	29 Oct	2016
Alexithymia: Emotion deficit: Psychosomatic	Mind p68	July 2014
Alphabet Cave Codes Proto-	37	12 Nov 2016
Algorithms Polynomials	37	11 Aug 2012
Allen Institute AI Semantic Scholar	22	7 Nov 2015
Allen Mouse Brain Connectivity Atlas: Connectome 16	5 April	2014
Alloys	35	15 Oct 2016
Alpha: Value of	7 Sep	2002
Alpha Waves: Prefrontal Cortex	Mind 27	August 2012
Alzheimer's Age proofing	Mind p29	July 2016
Alzheimer's Blood test	18	29 July 2017
Alzheimer's jolt therapy	12	26 Nov 2011.
Alzheimer's: Not Plaques (Ben Barres)	35	9 Aug 2008 *
Alzheimer's Diabetes Diet Chocolate Insulin		

Acetylcholine Synapses	33	1 Sep 2012.
Senescent astrocytes		17 28 Sep 2012
Alzheimers Disease, Plaque Parkinson CDJ	7	25 July 2015
Alzheimers DNA Therapies for	9	8 Oct 2016
Alzheimers & Chess : Gary Kasporov Book Review	S Times	28 May 2017
Alzheimer's Research Nuns impervious.	Sunday Times p 34	1 May 2016
Alzheimer's Tests	Sci Am 21	Dec 2013
Also		5 Jan 18 2014
Alzheimer's & Epigenetics	13	23 Aug 2104
Alzheimer's Set Back. Not Plaque		18 14 Nov
2015		
Alzheimer's Tests: Triggers: Treatment: Etanercept	11	19 July 2014.
Alzheimer's Vaccine Plaque Immune system	11	4 June 2016
Alzheimer's Dementia: Six Types	31	29 April 2017
Alzheimer's Optogenetics.		
Present but not accessible	7	29 July 2017
American Presidents: Memory	31	17 Oct 2015
AMPK stimulates creation of Mitochondria	Sci Am p59	Sep 2016
Anaesthetics		20 Mar 1999
Also 5 types Synaptic ion channels	35	4 March 2017
Anaesthesia		
Consciousness under	49	26 Nov 2011
. also Christof Koch	p 24	Mind Sep 2012
Anaesthesia. Dangers	Sci Am 21	April 2014
Analogy: Douglas Hofstadter	8	4 May 2013
Androstenes: Hologenome Total performance Unit:	31	12 Jan 2013
Lamarck: Microbes		
Superorganism: Bacteria		
Anil Ananthaswamy Brighton	42	13 Feb 2016

Animal Consciousness?		30 June 2011
Also		25 22 Sep 2012
Animats (robots)		22 16 Aug 2008 *
Anti-Aging Stem Cells		9 29 July 2017
Anti-depressants Side effects		9 15 July 2017
Antikythera		37 13 Dec 2008 *
Also		10 26 Sep 2015
Anxiety	35	8 Oct 2016
Apple SIRI		
Language Processing Research	Sci Am	p56 Nov 2015
Number of Phonemes		
MEG Magnetoencephalography		
SQID Superconducting quantum Interference Device		
Arm Band Sensor bit.ly/thalamic	21	2 March 2013
Antibiotics		39 8 April 2017
Artificial Creativity	21	17 Nov 2012
Artificial Bacteria	16	11 June 2016
Artificial Intelligence	28	4 Nov 2012
Artificial Skin	26	30 Jan 2016
AI Society for the study of AI and Simulation of Behaviour.		
Beyond Turing	21	26 Sep 2015
Artificial Super Intelligence Bostrom	26	5 July 2014
ARTS in Learning	RSA Journal p 40	Issue 4 2016
Aristotle. Man is Goal seeking	44	6 Oct 2012
Aristotle Psche, Eidos, Hylozoism	46	20 Sep 2014
ArXiv Similar		
KAGGLE on-line market place for Brains	28	Dec 1 2012
	Also	NYT 1 Dec
ARXIV Cornell History	Physics World p 11	Aug 2016
Aspects of Self: Ability	38	21 Mch 2015

Associated Learning Consciousness 10 Signs	30	23 May 2017
Astrocytes Brain Barrier Endothelial Membrane 2 Photon Microscopy	Sci Am 44	June 2013
Astrocytes: Glia Cells: New Roles: Stats: Zydeco: Mind	17	May 2013
Atheism. Sunday Assembly: Stats	31	3 May 2014
Atomtronics	47	9 Feb 2008
ATP Adenine Tri Phosphate	8	19 July 2014
ATP in genes	12	30 July 2016
ATP Components. Phosphorous, Selenium ALSO DNA & Hormone levels	39	11 Nov 2017
Attention Deficit Hyperactivity Disorder ADHD Sleep Disorder	8	3 June 2017
Atto seconds 10^{-18} Wave nature of Light	36	9 April 2005*
Attractors	Sci Am p29	Mch 2014
Audio Data Sonification	Sci Am p39	Mch 2015
Autism Baby scans	10	17 June 2017
Autocatalysis	33	21 Jan 2012
Automatic Invention	32	29Aug 2015
Autopilot		9 28 Oct 2017
Avatar. Whole Life Model: Medical Diagnosis:	47	15 March 2014
Avatars: Mind controlled	Google Alert	26 June 2012
Avatars. Multiple personas	39	11 Aug 2012
Autogenesis Teleomorphic /Dynamics Deacon, Terence:		26 Nov 2011.
Autoimmune System: Parkinsons: Synuclein	11	24 June 2017
Automatic Cars	Sci Am	p47 July 2017
Autopilot	43	13 Feb 2016

Awake / Asleep: Dopamine Glutamate switches	10	6 Aug 2016
AXION 10 bn times lighter than electron	19	29 Oct 2016
Axon signalling: Nerve impulse	Sci Am NP Special Issue	2013
BBB		
Baby 3 parents. Mitochondria 37 Genes 3	8	1 Oct 2016
Baboon speech	12	14 January 2017
Barres, Ben: Alzheimer's: Not Plaques	35	9 Aug 2008 *
Bacteria / Virus / Phage	Sci Am p59	June 2012.
Bacteria (Programmable)	27	Jan 18 2014
Bases Reason for 4		15 April 2000
Bayesianism	35	10 May 2014
Beauty	44	6 May 2017
Bee Brain	45	24 Nov 2012
Also	12	26 Jan 2008 *
Beta Waves: Prefrontal Cortex	Mind 27	August 2012
Bias free: Interviews RS	Physics World p42	March 2016
Big Bang Questioned	12	8 Sep 2007
Big data	SCI AM p55	August 2014
Big Science Budgets	Sci Am p30	Oct 2015
Biocables Glia Bridges	8	19 July 2014
Bioelectricity. Controls patter formation	35	7 Jan 2017
Bioelectric Coding		
Reprogramming tumour cells		
Optogenetics		
Tufts	8	19 Mch 2016
Bioinformation	43	21 Oct 2017
Bioelectronic Medicine	Sci Am p22	March 2015

Biological Economics Haldane Bob May Strungmann Agent Zero	41	25 July 2015
Biological Houses	41	1 Sep 2012
Biological Positioning System John O Keefe UCL	Sci Am p25	Jan 2016
Biological Programming	43	30 Nov 2013
Biology & Physics	Physics World	28 Sep 1999 *
Biology: Synthetic	26	29Aug 2015
Bionic Connectors Prosthetics	Sci Am 46	Jan 2013
Bio mimetic systems: Robots	9	Aug 2013
Bioprinting 3DP	19	15 April 2006 *
Biotechnology : Software to programme life	29	31 Aug 2013
BioTech Timeline	38	11 Feb 2006
Birth Sequence	41	7 Sep 2013
Bit	26	17 Feb 2001 *
BITCOIN	35	31 Jan 2015
Blindness Laser Treatment Oxygen Failure	9	19 Jan 2013
Blakemore Colin: Neuron growth	p13	26 Nov 2005 *
Blockchain	35	19 Dec 2015
Blombas	p17	24 Ap 2004*
Blood bacteria	9	17 Sep 2016
Blood Brain Barrier	9	21 June 2014
Blood Brain Barrier. Immune system Neurological disorders. Inflammation of Brain: Cytokines. Lymphatic System. Endothelial cells. Blood brain barrier	35	18 March 2017
Blood Flow. Energy fMRI	Mind p 63	Sep 12 2012
Blood into Neurons	13	16 Aug 2014

Blood Pressure: Intelligence		47	9 Nov 2013
Blood Supply: Endothelial Cells	SA MIND p61		July 2014
Blue Sky research			
Liberate Scientists		24	22 Aug 2015
Body Clock. Circadian Rhythms		41	30 Nov 2013
Body Clocks		27	5 Sep 2015
Body Stats		p 39	16 March 2013
Body Microbes		43	17 May 21014.
Boltzmann. Universe a brain		12	25 May 2013
Books 2013		48	4 Jan 2014
Boolean Logic		33	14 April 2007
Bose Einstein Condensate		19	24 Ap2004*
Bostrom: Artificial Super Intelligence		26	5 July 2014
Also Koch	Mind	28	Sep 2015
Boredom		41	29 Aug 2015
Braille, Extrasensory Jacket,		26	10 Oct 2015
Brain Activity Headset	Google Alert		10 Aug 2012
BRAIN Activity map Obama		12	13 April 2013
Brain Bank Edinburgh IQ Cohort		27	31 Oct 2015
Brain to Brain Connections	Interface	28	4 June 2016
Brain Barrier Astrocytes Endothelial Membrane			
2 Photon Microscopy	Sci Am	44	June 2013
Brain Control of effort		39	30 Jan 2016
Brains are BUILT, not Born		15	29 Nov 2014
Brain Cells Unique to humans			1 Sep 2001
Brain Cell Circuits			12 June 1999
BRAIN ENERGY (Glucose shortage)			
Oestradiol			

Myelin destruction (catabolise) Beta Amyloid	38	2 Sep 2017
Brain: Growing Brain Cells	14	14 Dec 2013
Brain Connections	30	24 Dec 2011
Brain Connectivity Dual Paths	21	12 May 2012
Brain: Counting Neurons Suzana Herculano-Houzel 16 billion Neurons in Cortex 2 % body mass uses 25% of all energy	Mind p38	March 2017
Brain Course	32	30 Nov 2013
Brain Courses	25	19 July 2014
Brain Damage. Impact bomb blast	Physics World	25 April 2013
Brain Development Timetable	36	1 Mch 2014
Brain Emulation	27	27 Oct 2012
Brain an expectancy m/c Daniel Dennett: Consciousness Explained	44	6 Oct 2012
Brain faster than CONSCIOUSNESS	Mind p 61	Sep 2016
Brain: Filing Systems: Categories	10	5 Jan 2013
Brain Fitness Course	11	Jan 18 2014
Brain Food (+ Water)	47	23 Sep 2006 *
Brain Implants: Memory Boost	8	18 Nov 2017
Brain Implants Injectable: Mesh	Sci Am p12	17 Mch 2016 25 Sep 2012
BRAIN IMPLANTS. Augment Perception	22	19 Mch 2016
Brain Implants KERNEL \$100m	12	29 Oct 2016
Brain: Left & Right: Timeline	13	4 Jan 2014
“BRIAN CREATES MIND?” Douglas Fields	Mind p 60	Sep 2016
Brain Probes Soft & Injectable	Sci Am p 26	Dec 2015

Brain Project Markram Sci Am p 34 June 2012

Brain : Human Brain Project. All welcome 28 19 July 2014

Brain Machine interface Mind p 45 May 2017

Brain Research (see Appdx) Sci Am p59 April 2014

Brain Research Listed 7 11 Ap 2015

Brain Research Lausanne, Sci Am p27 Mch 2014

Brain Research Centres in China Physics World 11 Mch 2014

Brain Scanning Physics World 34 May 2000 *

Brain Second in Intestines Ghrelin Hormone 41 15 Dec 2012

Brains in Silicon 21 24 Nov 2012

Brain Simulation Ageing 12 7 Dec 2013.

BRIAN, size weight & volume Sci Am Mind p23 Jan 2016

Brains from Stem Cells 17 31 Aug 2013

Brain Stimulants 6 13 Dec 2008 *

Brain Supplement: History, Maps, Mind
Mirror Neurons SPAUN 28 6 April 2013

Brain Timing 12 3 Nov 2012

Brain Training Sc Am MIND p 58 May 2016

Brain Waste Sci Am p37 Mch 2016

Brain Waves: Shock Discover Observer 3 June 2012

Brain Waves. Delta, Theta, Alpha, Beta, Gamma Mind p 60 Sep 2016

Brain Waves Thought control EEG cap P300 waves22 19 Sep 2015
Prof Eda Akman Aydin Gazi U Turkey
Takeshi Ogawa Kyoto Japan (Spectroscopy)
IE E E Eng in Medecine & Bio Soc Milan Aug 2015

Brains Built NOT Born 15 29 Nov 2014

Brains Linked together Google alert 28 Feb 2013

Broca's & Wernicke areas (speech)
Tumour Necrosis Factor[TNF] Sci Am p 25 March 2015

Broken Brains Rebuilt			
Silicon Brain. Memory Implants. Synchrony	35	7 June 2014	
(Michael) Brooks: Particle Fields: Space Time line:	51	2 March 2013	
MB Quantum Reality	26	3 Jan 2015	
Brooks. Stem Education	38	21 Dec 2013	
Brooks. Shoals, Flocks & Swarms	47	1 Feb 2014	
Brooks. Software	39	8 June 2013	
Brooks: Turing's Oracle	34	19 July 2014	
Buddhist Meditation	31	8 Nov 2008	
Building a better me	18	10 June 2017	
CCC			
Cadherin gene complexes in Neurogenesis			
Procadherin gene complexes	27	15 Sep 2001	
CAJAL Santiago Ramón y (cv & pic)	26	21 Jan 2017	
Calcium Imaging	Sci Am p27	Mch 2014	
Calculus, History of	Sci Am 69	April 2014	
Calories. Cusp of major breakthroughs	Sci Am p23	8 Feb 2017	
Cancer Treatment Nerve Blocking Therapies	34	21 Oct 2017	
CAPITALISM in CRISIS	Observer article in May	28 2016	
Cambridge Cognition Unit	14	4 Aug 2007	
Cancer Subroutines	25	5 Jan 2013	
Cancer Immune system kills	7	23 Nov 2013	
Capabilities of RNA	38	27Nov 2004*	
CAPTCHA Turing Test			
Completely Automated Public Turing Test to tell Computers and Humans Apart	21	2 Nov 2013	
Carbon 6	16	14 Jan 2017	

Carbon & Silicon, Software Protein Folding	17	14 June 2014
Causation Causal Logic Nonmonotonic Reasoning	37	27 Feb 2016
Cave Codes Proto Alphabet	37	12 Nov 2016
Cells		15 July 2000
Cells (Control Centre)		17 July 1999
Cell Electricity	43	12 Mch 2016
Cell forecasts: Software	17	14 June 2014
Cells: growing Brain Cells	14	14 Dec 2013
Cells: Simulating Living Cells	Sci Am 36	Jan 2014
Cellular Compass: Planar Polarity Proteins	sci Am p 61	Mch 2016
Centre for Intelligent Data Analytics Dr Martin Tungsten Observer		6 Dec 2015
Cerebellum	12	11 Oct 2014
Cheops: Pyramids	Sci Am p25	Nov 2015
Child learning: AI: More Human: bottom up / top down Bayesian Pixels Plato Large datasets	Sci Am p56	June 2017
Chocolate Insulin Diabetes Diet Acetylcholine Synapses Alzheimer's	33	1 Sep 2012.
Chocolate (fermentation)	55	27 Dec 2014
Chocolate Electrorheological fluids	Physics World p32	Nov 2016
Chromosomes: Designer	15	5 April 2014
Chomsky v Google: Mind: Memory: Probability: AI	34	10 Aug 2013
Chlorophyll & Haemoglobin		15 Aug 1999
Chinese Typing	67	31 Dec 2016
Chronic Fatigue Syndrome Mitochondria Dysfunction ME Myalgic Encephalomyelitis	15	11 November 2017
Churchill Quote 'not impressed)	24	25 Feb 2017

Churchland, Patricia Competition between experts	30	30 Nov 2103
Circadian & Homeostatic Rhythms		
Modafinil alert: Melatonin; Asleep	41	30 Nov 2013
Circadian Rhythms. Body Clock	Sci Am p43	Feb 2015
Neurotransmitters of sleep	Sci am p25	Mch 2016
Circadian Rhythms. Body Clock	30	16 April 2016
Circadian Rhythms. Special Report	Mind p37	Sep 2015
Circuit Board Printing	19	5 Oct 2013
Civilisation: Timetable	26	18 Sep 2004*
Claritons: Imagination Institute. Cambridge.	Physics World	p25 Oct 2016
Clark: Predictive Processing		
Surfing Uncertainty	Andy Clark OUP 42	9 April 2016
Clocks. Cell DNA Mutations Ageing	11	14 Nov 2015
Coates: John Book Review	48	9 June 2012
Code Club	21	27 July 2013
Also	38	6 Sep 2014
Coding a Memory Koch	Sci Am 28	Feb 2013
Coding Software	Physics World p28	March 2017
Cognitive computing: Synapse Chip IBM	The Register	09 08 2013
Cognitive bias	31	12 Dec 2015
Cognitive Decline Rebuttal	28	22 Mch 2014.
Cognitive Neuroscience Society	25	27 April 2013
Collaboration (Brain Research)	Sci Am p29	Mch 2014
Colour Constancy: Memory: Mark Lithgow UCL	TV program	Nov 2015
Colour Meme Kant Racism Med Trade	29	1 Sep 2012
Colour Vision	43	6 Aug 2016
Also Metamers	11	25 March 2017

Common Sense		29	12 Dec 2016
Competition for Dominance Elements of Thought		35	9 Feb 2013
Complexity Carl Zimmer	Sci Am p76		Aug 2013
Computational Art		84	31 Dec 2016
Computational Bandwidth			
Myelination: transmission speed	Sci Am p23		June 2015
Computer Assisted Learning: Language		41	31 Oct 2015
Computer Education Failure (BCS)	IT Now 13		March 2013
Computers & Brains			10 July 199
Computer Generated Law	Legal Software 22		14 Nov 2015
Computer IQ AI		23	27 July 2013
Computers that THINK IBM Dharmendra Modha			
Tool to test Hypotheses		28	8 Nov 2014
70 year old architecture that			
SEPARATES MEMORY from PROCESSING			
Computing in Arizona (context & Purpose)	Sci Am 28		Oct 2012
Concentration Near Infrared Spectroscopy fNIRS	19		23 Feb 2013
Conceptual metaphors: Qualia.	46		12 Jan 2008 *
Confucianism, neo Mind/heart	42		27 May 2017
Connectivity Dual Paths		21	12 May 2012
Connectome, Human	p7		Physics W Supplement Dec 2013
The Connectome: New Brain areas Hub connections		30	25 March 2017
Connectome, Brain Research,	Sci Am p27		Mch 2014
Connectome: Allen Mouse Brain Connectivity Atlas:	16		5 April 2014
Consciousness Access		19	23 Aug 2014
Consciousness as ART Nicholas Humphrey			Sci Am MIND p 67 My 2015
Consciousness: Disorders	Sci Am		p42 May 2014
Also	Mind		p47 Nov 2016
Consciousness: Global Workspace: Dehaene	Mind p26		May 2014

Consciousness: Whole greater than sum of Parts.
Integration: **Phi** 11 20 Feb 2016

Conscious Clothing Tech Monthly p4 Observer 11 Oct 2015

Conscious Hierarchy Sci Am Mind p28 Nov 2012

Conscious Infant: Timing: Koch Sci Am Mind p 25 Sep/Oct 2013

Conscious Unconscious Autonomics 31 1 Oct 2016

Consciousness: Autopilot 43 13 Feb 2016

Consciousness: disorders 6 states Mind p 47 Nov 2016

Consciousness = Experience +Sensation Book Michael Tye 43 14 Jan 2017

Consciousness Footprints Christof Koch Mind p 54 March 2017

Consciousness. In the Claustrom? Mind p 27 Nov 2014

Consciousness John Gray 47 14 Sep 2002

Blackmore, Susan 29 22 June 2002 *

Consciousness, Levels 37 18 Nov 2000 *

Consciousness Loewenstein Seth Lloyd Physics World 49 May 2013

Consciousness: Origins of 32 14 Feb 2004*

Consciousness: Physicist's View Physics World 58 Dec 1999 *

Consciousness Measured P3B Dehaene 14 7 Nov 2015

Consciousness Ravenous Brain Daniel Bor 51 25 Aug 2012

Consciousness under Anaesthesia 49 26 Nov 2011
. also Christof Koch p 24 Mind Sep 2012

Consciousness: Five axioms: Igor Aleksander 43 19 July 2003 *

Consciousness Global Workspace 18 8 Sep 2012

Consciousness **Meter** Koch Sci Am p 24 March 2013
Transcranial Magnetic Stimulation (TMS) see Facts & Stats File

Consciousness Ramachandran Qualia 40 29 July 2017

Consciousness

REALITY emerges from the accumulation of the sensations of all our experiences	33	11 Nov 2017
Consciousness Skills		
Group skill		
Anthropomorphism (life like)		
Beliefs		
Prejudices		
Feelings		
Decisions		
Herd function		
Nietzsche definition	27	15 Aug 2015
Consciousness 10 Signs (associated Learning)	30	23 May 2017
Consciousness: Theory of: Tononi Giulio:	39	9 Feb 2013
Consciousness: State of Matter: Tegmark	29	12 April 2014
Solid & Liquid Giulio Tononi		
Answer to Tegmark	29	3 May 2014
Consciousness. States of Mind	43	5 March 2016
Consequences Forecasting	25	11 Ap 2015
Constructor Theory David Deutsch	31	24 May 2014
Continuous flash suppression.		
Maths without thinking	14	17 Nov 2012
Timing & Consciousness		
Control of effort by Brain	39	30 Jan 2016
Convergence		
Initiative for the theoretical Sciences City U of NY		
Director: W Bialek	47	26 April 2014
Convergence of Brian imaging, Synaesthesia		
molecular biology epidemiology	MIND p67	Nov 2016
Convergence Davos Lee Howell	5	23 Jan 2016
Convolutional Networks		
Intelligence without sentience : Koch Sci Am p26		July 2015
1. Reinforcement Learning (Temporal Difference)		
2. Convolutional Networks		
3. Memory Replay		
Convolutional Neural Networks CNN		
New Diagnostic	Sci Am p25	Dec 2017

Cooke Ed. Life Long Learning Tests help recall	35	25 May 2013
Cooperative groups Functional assemblies (Engrams). Mind	p 60	Sep 2016
Copernicus	Sci Am 62	Jan 2014
Cord Blood TMP2	Grow new organs	18 29 April 2017
Core Brain Functions		11 10 May 2014
Corpus Collosum	Sci Am Mind	57 Jan 2013
Cosmology & Philosophy		16 8 Mch 2014
Creationism	Sci Am 7	Jan 2013
Creativity: Alpha Waves: Prefrontal Cortex	Mind	27 August 2012
Creativity: Artificial		21 17 Nov 2012
Creativity Definition		
No correlation with IQ. Dopamine	Sci Am Mind	p65 Jan 2016
Creativity: Hassabis: Intelligence: Intuition: Colton, Shanahan		19 25 June 2016
Creativity & Intelligence	35	22 Aug 1998*
Creativity Paul Nurse	Sci Am p72	Oct 2012
Creativity Special Issue		29 Oct 2005*
Creativity RSA Special Issue	RSA Issue 2	2014.
Power to create Adam Lent		
Closing the creativity Gap Hallgarten		
Creativity: Social context	SA MIND	p31 July 2014
Creativity Torrence Test	Sci Am Mind p52	Nov 2012
Creativity Imagination 40K years ago	53	16 Feb 2013
Crick: Pyramidal neurons: Pineal Gland: Descartes: Crick & Leibnitz	Mind p31	March 2015
Cryptochrome		
Magneto Receptors Direction	34	19 Mch 2016
CRISPR. Gene Editing	32	5 Dec 2015
Also	11	23 Jan 2016
Also	37	2 Jan 2016

Also US Embryos edited	7	5 Aug 2017
CRISPR Potential to harm	19	30 April 2016
Clustered Regularly Interspaced Short Palindromic Repeats		
CRISPR in China	7	3 June 2017
CRISPR US Embryo edited	6	5 Aug 2017
Clustered regularly-interspaced short palindromic repeats		
Crowdfunding: Spacehive, Kickstarter, Citizinvestor Neighbor.ly	22	Dec 1 2012
Cruise Control	30	9 Aug 2008
Curriculum problems	IT NOW p46	Dec 2012
Curriculum 'One size fits all' <i>Editor</i> (Also Secrets of Success	5 30)	8 Mch 2014
Cyanobacterium Oxygen release	12	8 Dec 2012
Cyborgs Scaffolding	12	1 Sep 2012
DDD		
Dance	Sci Am p60	July 2017
Daniel Dennett: Brain an expectancy m/c	Consciousness Explained 44	6 Oct 2012
Daniel Dennett Human Nature	38	24 May 2003 *
Dennett: Sense of Self I – Cub [Sheffield Robotics]	37	21 Mch 2015
Daniel Dennett: Transparency	Sci Am p39	Mch 2015
Darwin, DNA, Genetics, Evolution & Dawkins	40	27 Aug 2016
Data Vault	19	23 Aug 2014
David Deutsch: Constructor Theory	31	24 May 2014
Davos Convergence Lee Howell	5	23 Jan 2016
Dawkins: Molecular Genetics IT	41	21 Dec 2013
Dawkins, Darwin, DNA, Genetics, Evolution	40	27 Aug 2016

Deacon, Terence: Autogenesis Teleomorphic /Dynamics

Debating robots AI

Aristotle Logos, Ethos, Pathos. 68 10 Sep 2016
34 26 Nov 2011.

Decay of Neural Signal Elements of Thought 37 9 Feb 2013

Decision Making 4 Sep 1999
Also in monkeys 35 19 Jan 2008 *

Decision Making up your Mind 39 12 Nov 2011

Deduction & Induction RSA Journal p154 / 2013

Deep Brain Stimulation 38 24 Oct 2015

Deep Coder Cambridge and Microsoft Auto coding 11 25 Feb 2017

Deep Mind: Demis Hassabis

Koch: Intelligence with sentience Sci Am p26 July 2015
Also 35 19 Dec 2015

Deep Mind AI Learning tech Sci Am p24 Dec 2015

Deep Mind Healthcare deal24 15 July 2017

Deep Mind Medical Records 23 7 May 2016
Also 22 16 July 2016

Definition of Life

ATP Adenine Tri Phosphate 8 19 July 2014

Dehaene: Consciousness: Global Workspace: Mind p26 May 2014

Dehaene: Consciousness Measured P3B 14 7 Nov 2015

Dementia: testing: better results 32 11 Jan 2014

Dementia Research Institute 3 29 April 2017

Dementia: Six Types

Alzheimers 31 29 April 2017

Democracy: Wavers! Caitlin Moran p26 Times Mag 8 Sep 2012

Depression. Electric shocks 16 14 January 2017

Descartes: Reductionism: Brain Project Sci Am p34 June 2012

Quote		38	24 May 2003 *
Descartes: Crick & Leibnitz		Mind p31	March 2015
Descartes "Cats are Conscious"		Physics World p 11	Aug 2016
Desert Growing Food	p26	Observer Magazine	25 Nov 2012
Design Museum		47	17 Aug 2013
Designer Chromosomes		15	5 April 2014
Diabetes Diet Chocolate Insulin Acetylcholine Synapses Alzheimer's		33	1 Sep 2012.
Diabetes	Sci Am	p47	July 2017
Diagnosis on line		41	11 July 2015
Diagnosis by Software		18	29Aug 2015
New Diagnostic Convolutional Neural Networks CNN	Sci Am	p25	Dec 2017
Different Ideas Natural Philosophy Alliance		36	24 Dec 2011
Different Minds Neanderthals		35	5 Nov 2011
Diffusion Tensor Imaging		45	21 Jan 2012
Digital Animal: Worm Bot		21	29Nov 2014
Digital Information Seth Lloyd Zeilinger	Physics World		24 June 2012
Digital learning Age	RSA	p22	Journal 2 2015
DNA Components. Phosphorous, Selenium ALSO ATP & Hormone levels		39	11 Nov 2017
DNA Conference at the RI		27	28 Feb 2015
DNA Development (less better in humans	Sci Am	p40	May 2017
DNA Files	Physics W	p5	March 2013
DNA: Haploid and Diploid Cells		12	26 March 2016
DNA Historic		39	23 April 2016

DNA Immune System	28	14 Sep 2002 *
DNA Magic Numbers	38	8 April 2006 *
DNA Memory seeds (via Plants)	27	16 Jan 2016
DNA Modification	15	25 Sep 2012
DNA Programming	8	26 Oct 2013
DNA Recreate faces	15	22 Mch 2014.
DNA determines SEX	12	17 Oct 2015
DNA Longitudinal test Edinburgh	17	8 July 2017
DNA Software	9	27 July 2013
DNA Storage medium	11	15 July 2017
DNA Synthetic	18	12 July 2008 *
DNA Testing Repositive	5	8 July 2017
DNA Therapies for Alzheimers	9	8 Oct 2016
DNA X Factor in merging		12 Feb 2011
DNA Genome ENCODE project Histones 3.2m bases Ignorance of ignorance List problems	Sci Am p72	Oct 2012
DNA Replication	43	25 Jan 2014
DNA Therapies	8	8 Oct 2016
Doidge NeuroPLASTICITY	Observer Review p8	8 Feb 2015
Dolphin Language	19	29Mch 2014
Double split Light experiment: Thomas Young	36	9 April 2005*
R DOUGLAS FIELDS LEARNING Mind p58		Sep 2016
Dreaming. Brain Waves detectable	11	15 April 2017
Dreaming not significant	9	18 Sep 2004*
Dreaming, Imagination & Storytelling	29	8 Nov 2008 *

Dreaming Lucid	37		
Half brain always awake	15	30 April 2016	
Dreaming: REM sleep. Control Experiments	49	29 Mch 2014	
Dreaming: Synaptic relaxation in sleep	37	2 Feb 2013	
Dreaming: Synaptic Tension	Sci Am p31	Aug 2013	
Drinking Water Drugs	19	10 Sep 2016	
Driving a car Google X Tech Singularity	p45 Times Mag	8 Sep 2012	
Driverless Cars	23	14	May 2016
Driverless Cars: Ethics	10	21	Oct 2017
Drugs	38	23 Nov 2002	
Drugs 3DP Downloadable	8	21 April 2012	
Drug Sensors. Edible	19	10 May 2014	
Dual Paths Brain connectivity	21	12 May 2012	
Duncan John. 'G' Intelligence	29	4 Oct 2008 *	
D Wave Quantum Computer	p9	16 March 2013	
Dyson: Patterns of Organisation: Freeman	39	11 Feb 2006 *	
Dyslexia: Seeing Patterns	45	21 Jan 2012	
Dyslexia. Visual Attention	Mind p25	Feb 2015	
EEE			
EDITOR Jeremy Webb Sumit Paul-Choudhury	5	10 May 2014	
Early Civilizations	37	5 Oct 2013	
Early Life Forms	9	26 Nov 2011	
Early Memories: regained?	10	3 Dec 2016	
Earp @Oxford	37	22 Mch 2014.	
Ear and Eye co-ordination	12	29 July 2017	
Ears	Sci Am p41	Aug 2015	

Economic Neurons	49	25 Jan 2014
Economics: biological Haldane Bob May Strungmann Agent Zero	41	25 July 2015
Edible Drug Sensors	19	10 May 2014
Education McKinsey Review RSA vol 1 p12		April 2016
Education: Seeing Patterns (Diffusion Tensor Imaging)	45	21 Jan 2012
Education Brooks. Stem	38	21 Dec 2013
Education	p 62	Mind Sep 2012
Education: Games: Challenges Sci Am p43		Feb 14
Educational attainment: Genes only 20% of	19	23 July 2016
Education On line	8	8 Sep 2012
Education: Specialisation @14 X	51	29Nov 2014
Education Supplement Rules of Learning Physics World	p19	Mch 2014
Education (Curriculum 'One size fits all' Editor (Also Secrets of Success	5 30)	8 Mch 2014
Ed Cooke Life Long Learning Tests help recall	35	25 May 2013
Education MOOCS Student Control	19	3 Jan 2015
Ed X. MOOCS	Physics W p9	March 2013
EEG: Tatoo	25	27 April 2013
Egypt, before the Pharoas	34	13 Jan 2007
Electric Bacteria	9	19 July 2014
Electroceuticals: Neural Language: Immune	36	22 Feb 2014
Electrodes & Probes	37	5 Jan 2008 *
ElectroCorticoGraphy Oedema: Hydrogels: Memory Synchrony Optogenetics Source Code	35	7June 2014

Electroencephalography & InfraRed Spectroscopy	Sci Am Mind 56	March 2013
Electrocorticography Oedema: Hydrogels	35	7 June 2014
Electromagnetic Attraction: Flowers Bees	14	2 March 2013
Electromagnetism: Value of α	41	9 Sep 2006 *
Electrical signals in Neurons Ion channels 100 mV Cell Membrane 10nM thick	Physics W 47	May 2013
Electricity in the Brain	38	15 May 2004 *
Elements of Thought (Maths)	35	9 Feb 2013
Emergent Properties	Sci Am p25	Mch 2014
Emotion deficit: Alexithymia: Psychosomatic	Mind p68	July 2014
Emotion in Acquiring Knowledge	46	13 Sep 2014
Emotions Lists Darwin Quote Paul Ekman (1960s)	43	2 Jan 2016
Empathy	15	24 April 2004
Empiricism John Locke	Sci Am p50	Nov 2012
Emulation of the Brain	27	27 Oct 2012
Encephalization Quotient EQ Spindle Cells	Sci Am Mind p25	Jan 2016
Encyclopaedia	Sundat Times p33	1 May 2016
Endorphins: Grooming: Group Think	49	19 July 2014
Endothelial Membrane Brain Barrier Astrocytes 2 Photon Microscopy	Sci Am 44	June 2013
Endothelial Cells: Blood supply	SA MIND p61	July 2014
En ergy: 1 st & 2 nd Laws of Thermodynamics En tropy: Kelvin + Clausius	Physics World 27	Nov 2007
Energy Flow Gradient (see ERGS) Also	35 33	21 Jan 2012 1 July 2017

Energy fMRI Blood Flow.	Mind	p 63	Sep 12
Energy of life (Kelvin)	Physics World	25 Nov 2007 *	
Energy: Hidalgo. Cesar: Matter & Information	RSA Journal	p48 2 / 2015	
Energy Storage		29	5 Jan 2013
Entanglement, Phases, Superconductors	Sci Am	43	Jan 2013
Entropy		33	21 Jan 2012
Entropy v information			
Information Crystallised Imagination	Sci Am	p65	Aug 2015
Cesar Hidalgo MIT Seth Lloyd			
Enzymes		9	5 Jan 2008 *
Epigenetics		29	12 July 2008 *
Also		35	12 Dec 2015
Also K Layland U of St Andrews		42	24 Sep 2016
Epigenetics & Alzheimer's		13	23 Aug 2104
Epigenetics & Evolution Modern v Postmodern	42		24 Sep 2016
Epigenetics: Famine effect		18	19 July 2014
Epigenetics Father's Sperm		9	16 April 2016
Epigenetics Inheritance. More than DNA Lamark			28 Nov 1998
Epigenetic Inheritance Senses		34	29 Jan 2005*
Epigenetic Programming Transcription factors			
Transposons Histones		28	5 Jan 2013
Epigenetics. Transgenerational. Michael Meaney	McGill Wiki		2013
Epigenetics: Transgenerational Methylation: Glucorticoids		49	16 Nov2013
Epigenetic Programming Twins: Chemical labels added to DNA		46	31 Aug 2013
Epigenetics. Inheriting a memory		10	7 Dec 2013
Epitaxy. (memory in Water)		35	8 April 2006 *

ERGS		36	21 Jan 2012
Humans: 2m ERGS per gram per second			
ESCHER's Picture Gallery		31	18 Feb 2017
Etanercept: Alzheimer's Tests: Triggers: Treatment:	11		19 July 2014.
Ethical Algorithms	11		1 April 2017
Eukaryotes with Nucleus (Prokaryotes without)	41		9 Feb 2008 *
Eukaryotes Family of		55	19 April 2014
Evil & Brutality	43		14 Nov 2015
Evolution		35	21 Jan 2012
Evolution Inventions of	27		9 April 2005 *
Evolution in Europe		40	12 Mch 2016
Evolution of Imagination Steven Mithen	44	26	Aug 2017
Evolution. New Theory: Lamarck	29	26	Aug 2017
Evolution: Spacial Orientation	49		1129 Nov 2014
Evolution: Tools influence		11	13 April 2013
Evolution Tables		35+	1 March 2008
Evolution Time Line		35	16 Feb 2013
Evolution Operates. 1, variation 2, selection. 3,inheritance	35		26 March 2016
Evolution of Viruses	14		26 Aug 2017
Everett: Numbers part of Language: Book Caleb Everett	42		6 May 2017
Everyday Science Highfield Roger			19 Feb 2011
Examination research	Sci Am	p47	Aug 2015
Exam replacement ROBOTUTOR		22	2 Jan 2016
Exosomes Myelin Oligodendrocytes		33	21 Feb 2015
Exoskeletons & eye Control Aldo Faisal Imp Coll Sci Am	p24		Dec 2015

Eyes: Retinal Prosthetics. Kock Sci Am Mind p20 Jan 2013

Eyesight Dynamic Information 29 5 Sep 2015

ERGS 36 21 Jan 2012
Humans: 2m ERGS per gram per second

Eye Control Aldo Faisal Imp Coll Sci Am p24 Dec 2015

Eye MIND'S 35 23 April 2016

Eyes formation Sci Am p33 Nov 2012

Eyes as sensitive as Hands p 42 16 March 2013

Eye Sight Sci Am p 38 July 2013

Eyesight. Delusions 34 22 Mch 2014.

FFF

Face Recognition 37 15 Sep 2012
Also 14 10 June 2017

Famine effect thru' Epigenetics 18 19 July 2014

Fasting Good for Brain 9 29 April 2017

Feedback & Monitoring 33 5Nov 2016

Fields & Particles Sci Am p35 Aug 2013

Field programmable gate arrays
Parallel Processing: four types 43 17 Aug 2013

Fictional Models in Science Physics World p29 Feb 2014

Filing Systems in the Brain 10 5 Jan 2013

Finance Innovation Lab Jennifer Morgan RSA p22 Journal 2 2015

Fire together wire together
Hebb Donald 1949 '*The Organisation of behaviou*'
p13 Gazzaniga *Who's in Charge* 2011

First words 10 26 Nov 2011.

Flynn James Smarter? IQ book CUP
26 8 Sep 2012

Flocks of Birds	17	2 Aug 2014
Flocks of Birds	17	6 June 2015
fMRI Blood Flow. Energy	Mind p 63	Sep 12
fMRI Weaknesses	33	19 Oct 2013
fMRI Shadows on Plato's wall	41	16 Nov 2013
f NIRS Near Infrared Spectroscopy	19	23 Feb 2013
Forecasting Consequences	25	11 Ap 2015
Forces: four fundamental	37	12 Oct 2013
Formal Verification	16	14 June 2014
Foundation on Economic Trends Jermey Rifkin Finance Innovation Lab Jennifer Morgan	RSA p22	Journal 2 2015
Fractals	31	10 March 2007
Fractals in text sentence length	Sci Am p72	Feb 2017
Free Will Review Gazzaniga	53	12 Nov 2011
Free Will Christof Koch	Sci Am 22	May 2012
Free Will Gisin Nicolas	32	21 May 2016
Free Will: Hypnosis: Meditation	10	2 July 2016
Free Will Readiness Libet	10	11 Aug 2012
Free Will Mind Control Desire I think therefore I Can	9	30 May 2015
Free Will: sequence of Events	11	16 Jan 2016
Friendship affects Health	Sc Am MIND p 50	May 2016
Frisen Jonas Neurogenesis 1,400 per day Karolinska Stockholm	Mind p 53	Sep 2014
Functional Near- infrared Spectroscopy fNIRS	22	23 Feb 2012
Functional assemblies (Engrams). Cooperative groups	Mind p 60	Sep 2016

Fundsmith	11	14 May 2016
Future of Intelligence	32	19 Nov 2016
Future of Work: Supplement	29	25 June 2016
Future of the BRAIN Supplement	Mind p30	Nov 2014
GGG		
GABA	Sci Am p61	Feb 2016
Gamma-aminobutyric acid (neurotransmitter) Produced by the Parvalbumin-positive large basket cell)		
Game Theory	35	12 Rec 2015
Gebits Random Reality	p27	26 Feb 2000
Gene in Ageing NF-KB	8	4 May 2013
Gene APOE	12	2 Jan 2016
Gene Editing.	10	14 Nov 2015
Also	9	12 Dec 2015
Gene Editing CRISPR.	11	23 Jan 2016
Also Morality of Gene Editing	43	8 Oct 2016
Gene Editing DIY	22	18 Nov 2017
Genes Evolution of	44	22 Nov 2008
Genes Controlled by human thought	12	15 Nov 2014
Genetic Code. Editing. Adding two new bases	17	10 May 2014
Gene Editing: CRISPR	32	5 Dec 2015
Gene Editing E.Coli Artificial Amino Acids	10	27 August 2017
Genes only 20% of educational attainment	19	23 July 2016
Genes for Genius		25 May 2002
Gene Mutations	p35	9 June 2012
Gene Mutation From Gene to Behaviour KCNH7	Sci Am p24	Dec 2015
Gene Mutation Influence Intelligence 30% inherited	9	24 June 2017
Gene Therapy Immune System	8	9 April 2016

The GENE by Siddhartha Mukherjee			in 28 May 2016
Genes (Orphan) 54 in brain Opsins		43	19 Jan 2013
Genetic Geography of Brain	Sci Am 57		April 2014
Genetics, Darwin, DNA, Evolution & Dawkins		40	27 Aug 2016
Genome: National Service		22	2 Sep 2017
Genome: Editing Human		19	2 July 2016
Genius: Accidental	SCI AM p42		August 2014
Genius, Nurturing	Mind p40		Jan 2017
Genome		31	15 Sep 2012
Genome. Genotype Phenotype The whole greater than the sum of the parts		36	26 March 2016
Genomic Vaccines	Sci Am	p29	Dec 2017
Geometry of Curves		44	11 Nov 2017
Gershenfeld Neil Info Tech		55	17 March 2001 *
Gisin Nicolas Free Will		32	21 May 2016
Glia Article & references		45	12 Oct 2013
Glia Bridges: support Cell Stem Cell, doi.org/kr4	p5	16	March 2013
Glia Bridges Biocables		8	19 July 2014
Glia Cells & Memory	Sci Am Mind P10		Jul Aug 2012
Glia Cells: part of cognition		p5	16 March 2013
Glia Cells: New Roles: Stats: Zydeco: Astrocytes	Mind p17		May 2013
Glia Cells & Einstein		31	4 Oct 2008 *
Global Neuronal Workspace		40	23 Aug 2014
Glucorticoids (Hormones) Methylation Transgenerational Epigenetics		49	16 Nov 2013
Glucose shortage BRAIN ENERGY			

Oestradiol Myelin destruction (catabolise) Beta Amyloid		38	2 Sep 2017
Glutamate	Sci Am Mind p42		March 2013
Google X Tech Singularity		p45	Times Mag 8 Sep 2012
Ghrelin Hormone hunger: Brain Second in Intestines	41		15 Dec 2012
Gisin Professor Geneva Quantum Test of Consciousness	7		27 May 2017
Gödel (Hilbert)		49	26 July 2008 *
GO Beating it: Hassabis: Koch	Mind	p20	July 2016
Government policy Party Manifestos 2017		3	27 May 2017
		20	27 May '017
Governance of Data Bases RS + BA		5	15 July 2017
Graphene		Physics World p6	Oct 2015
Graphene: stacking 2D materials	Physics World p29		May 2016
Graphene Viewing Proteins		18	16 Jan 2016
Gravitational Constant		Physics World p34	Feb 2014
Gravity		31	27 Nov 2004*
Grid Cells Navigation		10	Aug 2013
John Gray. Consciousness Philosophy			14 Sep 2002
Gravity Equivalence & Inertia Define & Measure	33		19 Jan 2013
Grayling 7 hates of Reason		41	26 July 2008 *
Grid Cells. Kavli Trongheim Sense of Place	Observer		12 may 2013
Group Intelligence		37	26 May 2012
Group Learning		17	28 Sep 2012
			Justification for Knowledge
Group Think: Endorphins: Grooming		49	19 July 2014
Grow new organs Cord Blood TMP2		18	29 April 2017

Growing Biological Houses 41 1 Sep 2012

Growing a Motor Skill Mind p34 Nov 2014

Growing Neurons 9 26 July 2014

Growth Hormones to Brain 33 22 Aug 2015

Growth Shapes Protein Folding 39 1 Sep 2012

Grover's Algorithm Quantum Brain: Bases Reason for 4 15 April 2000

Guardian Masterclasses Tech Monthly p34 Observer 11 Oct 2015

HHH

Habituation Sci Am 25 June 2014

Haldane 28 10 Dec 2012

Haldane JBS Morality 1923 5 26 Sep 2015

Haldane New Ideas needed 29 28 Mch 2015

Hallucination. Anil Seth Anechoic (Silent Rooms) 31 5 Nov 2016

Hands as sensitive as eyes p 42 16 March 2013

Handwriting Report Sci Am Mind p 45 Sep/Oct 2013

Sauna Serotonin **Happiness** 14 26 Nov 2011.

Hassabis: Deep Mind: Demis
Koch: Intelligence with sentience Sci Am p26 July 2015

Hassabis: GO Beating it: Koch Mind p20 July 2016

Hassabis: Creativity: Intelligence: Intuition:
Colton, Shanahan 19 25 June 2016

HEAD TRANSPLANTS 10 28 Feb 2015

Also 35 19 Dec 2015

Also 6 23 Jan 1016

Also Spinal Repair 8 24 Sep 2016

Headset: Brain Activity Google Alert 10 Aug 2012

Health affected by Friendship Sc Am MIND p 50 May 2016

HEALTH CARE. Body Scanning. Craig Venter genetic sequences
Proactive, preventative, predictive personalised, 47 1 April 2017

Hear, How we 35 23 Feb 2008

Heart Beats: Interoception: guide to others feelings 10 6 May 2017

Heart Beats in all animals constant 3 Ap 1999

Heart Replaces 1% cells pa. 4-5 billion Cells Sci Am 33 April 2013

Hebb Donald 1949 *'The Organisation of behaviou'*
p13 Gazzaniga *Who's in Charge* 2011
- Problems with Mind p 50`Sep/Oct 2014

Hearables. Sri: Cortana:Alexa 20 2 July 2016

Here and Now. Zeno 31 10 Jan 2015

Hidalgo Cesar
Information Crystallised Imagination Sci Am p65 Aug 2015
Seth Lloyd Entropy

Hidalgo. Cesar: Energy, Matter & Information RSA Journal p48 2 / 2015

Hidden Talent 41 4 May 2013

Highfield Roger Everyday Science 19 Feb 2011

Higgs 44 4 Nov 2012

Higgs GeV -10^{18} micrograms 37 10 NOV 2012

Hilbert space: Space & Time 34 15 June 2013

Hilbert & Gödel 49 26 July 2008 *

Histones: Programming Epigenetic. 28 5 Jan 2013

History of Modern Mind Christof Koch Sci Am MIND p22 May 16

Hologenome Total performance Unit: Lamarck 31 12 Jan 2013
Superorganism: Microbes
Androstenes: Bacteria

Holograms: feeling 23 6 dec 2014

Holography 23 27 Ap 2002 *

Homo Deus Review Yuval Noah Harari	44	27 Aug 2016
Horgan: Mind Body Problem: End of Science:	32	4 June 2016
Hormones: Ghrelin Brain Second in Intestines	41	15 Dec 2012
Hormone levels Components. Phosphorous, Selenium ALSO ATP & DNA	39	11 Nov 2017
Hormones Review	31	12 Aug 2017
Hormones Glucocorticoids Methylation Transgenerational Epigenetics	49	16 Nov 2013
Hormone Therapies	39	2 Sep 2017
How we hear: Roots of music	29	23 Feb 2008
How we do science Storming the Ivory Tower Lee Smolin		2 Mch 2002
Human Behaviour	42	15 July 2017
Human Brain Project		Sci Am p34 June 2012
Update (problems)		Sci Am p26 Oct 2015
Human Brain Project. All welcome	28	19 July 2014
Human Brain Project Lausanne (Markram) 31,999 Neurons 37M synapses	14	17 Oct 2015
Human Cell Atlas	Sci Am	p27 Dec 2017
Human Computer Interaction Int Conf	20	15 Aug 2015
Human Connectom	p7	Physics W Supplement Dec 2013
Human Friedship	31	6 Dec 2014
Human Nature 10 articles	37	24 May 2003 *
Hume, David. "Stop Thinking Self Vanishes"	36	21 March 2015
Humphrey, Nicolas Consciousness as ART		Sci Am MIND p 67 My 2015
Huxley Aldous Brave New World	Sci Am p55	Sep 2016
Hydrogels Electrocorticography Oedema: Hydrogels		35 7June 2014

Hyper Rail	Musk	21	21 May 2016
Hypnosis		34	12 Mch 2016
III			
'I' and 'me'. William James Ulric Neisser		37	21 Mar 2015
IBM True North computer 4096 Neurosynaptic cores: Memristors	Sci Am p53		May 2015
I Cub		37	21 Mar 2015
Ideas, Thinking & Blending		30	22 Feb 2014
Image to Sound: Glasses produce acoustic signal	21	7 Nov	2015
Image Recognition		15	1 April 2017
Imagination & Civilisation		33	20 Sep 2014
Imagination Creativity 40K years ago		53	16 Feb 2013
Imagination, Dreaming & Storytelling		29	8 Nov 2008 *
Imagination: Evolution of Steven Mithen		44	26 Aug 2017
Imagination, Hofstadter, Kahneman Fault lines	Mind	p31	Nov 2015
Imagination Institute. Cambridge. Claritons	Physics World		p25 Oct 2016
Immortal Bacteria			28 Ap 2001
Immune system: Alzheimer's Vaccine Placque		11	4 June 2016
Immune System Control by Cold		27	23 Aug 2014
Immune System DNA			14 Sep 2002
Immune System, gene therapy		8	9 April 2016
Immune System Adaptive : Innate		41	17Aug 2013
Immune System: memory cells		16	16 Feb 2013
Immune System: Neural Language: Electroceuticals:		36	22 Feb 2014
Immune system Neurological disorders.			

Inflammation of Brain: Cytokines. Lymphatic System. Endothelial cells. Blood brain barrier	35	18 March 2017
Immunotherapy	44	21 May 2016
Implantable Information Crystallised Imagination Cesar Hidalgo MIT Seth Lloyd Entropy	Sci Am p65	Aug 2015
Inaccurate Facts	39	22 Sep 2012
Induced Pluripotent Stem (IPS) Cells	8	27 July 2013
Induction & Deduction	RSA Journal p154 /	2013
Industrial Revolutions of the 21 st Century: Stan Williams	Physics World	49 Dec 1999 *
Infinitesimals, Calculus, Pi: History. Hobbes Leviathan	55	19 April 2014
INFLAMMATION Immune System Plaques RESOLVINS Cytokines	29	17 June 2017
Inflammation, Senescence, Aging	30	19 Sep 2015
Information Hidalgo. Cesar Energy, matter. RSA Journal	p48 2 /	2015
Information Course	23	9 April 2016
Information Crystallised Imagination Cesar Hidalgo MIT Seth Lloyd Entropy	Sci Am p65	Aug 2015
Information Digital Seth Lloyd Zeilinger	Physics World	24 June 2012
Information Eyesight Dynamic	29	5 Sep 2015
Information: more important than Energy & Matter?	35	24 Sep 2016
Information: Physical. Bits & Chips. Gershenfeld		17 March 2001
Information Physical Quantity Gerard d'Hooft Information Physical Quntity	arXiv :1405.1548 Physics World p37	April 2017
Information: Laws of Physics	p25	30 Jan 1999
Information: Basis of Reality	17	28 Sep 2012
Information Maxwell's Demon	28	14 May 2016
Information: Quantum	Sci Am 35	Dec 2012

Information: Quantum (reality)			
Copenhagen			
Many Worlds			
Collapse			
Bayesianism			
Bohmian	31	8 April 2017	
Information retention 'Phi'	39	9 Feb 2013	
Information. Source of (special Issue)	33	1 April 2017	
Information is Physical Rolf Landauer	Michael Brooks	p 223	
All Physics is information : John Archibald Wheeler	"	p 281	
Information Dynamics: 3 Laws	Physics World	p23	Jan 2016
Quantum Thermodynamics			
Quantum machines built out of Quantum Engines			
Inheritance. More than DNA Epigenetics Lamark	28	Nov 1998	
InfraRed Spectroscopy &			
Electroencephalography	Sci Am Mind	56	March 2013
Inventions of Evolution (10)	27	9 April 2005 *	
Illusions	Sci Am Mind	p20	March 2013
Innate Immune System: Adaptive	41	17Aug 2013	
Institute for Brain, Cognition, and Behaviour			
Donders Hijmegan Boris Knrad	8	10 Sep 2016	
Insulin: Diabetes Diet Chocolate			
Acetylcholine Synapses Alzheimer's	33	1 Sep 2012.	
Integrated Information Theory			
Consciousness: State of Matter: Tegmark	29	12 April 2014	
ALSO Reality, Conscious Collapse? Guilio Chiribella			
Markus Müller David Deutsch Bayesianism	31	11 Nov 2017	
Interoception Heart beats guide to others feelings	10	6 May 2017	
Intelligence	New Theory Leaps forward	21 Ap 2001	
Intelligence: Artificial	28	4 Nov 2012	
Intelligence: Artificial Super	26	5 July 2014	
Intelligent Body: Network: Michael Hyland	33	26 May 2001 *	

Intelligence. Blood pressure	47	9 Nov 2013
Intelligence, Consciousness, AI		15 Sep 2001
Intelligence & Creativity	35	22 Aug 1998*
Intelligence Definition Plant Intelligence	34	6 Dec 2014
Intelligence, Drugs	32	19 Nov 2011
Intelligence enhancing Drugs	Sci Am 16	Mch 2016
Intelligence Group	37	26 May 2012
Intelligence: Hassabis: Creativity: Intuition: Colton, Shanahan	19	25 June 2016
Intelligence influenced by Gene Mutation 30% inherited	9	24 June 2017
Intelligence Koch QUOTE (no Definition) Mind	p27	Sep 2015
Intelligence: Plant	41	27 July 2002 *
Also	35	6 Dec 2014
Intelligence Pros & Cons	35	17 July 2004 *
Intelligence: Raven Test	Mind p61	Jan 2014
Intelligence without sentience : Koch	Sci Am p26	July 2015
1. Reinforcement Learning (Temporal Difference)		
2. Convolution al Networks		
3. Memory Replay		
Intelligence: Stone Age Art	39	23 Nov 2013
Intelligence Superior John Duncan	29	4 Oct 2008
Intelligent Textbook	19	4 Aug 2012
Intelligent without design The whole greater than the sum of the parts Learning Theory	36	26 March 2016
Interactome	16	14 June 2014
Internet : Meshnet	20	Aug 2013
Interview without bias RS	Physics World	p42 March 2016

Intestines Brain	41	15 Dec 2012
Intuition: Intelligence: Hassabis: Creativity: Colton, Shanahan	19	25 June 2016
Invention : Automatic by software	32	29Aug 2015
Invisible images Earp @Oxford	37	22 Mch 2014.
Ion Channels Electrical signals in Neurons 100 mV Cell Membrane 10nM thick		Physics W 47 May 2013
IQ & Warmth	45	24 Dec 2011
IQ Flynn James Smarter?		book CUP
	26	8 Sep 2012
Also	44	30 July 2016
IQ: Computer: AI	8	27 July 2013
IQ alternative. Rationality Quotient (RQ)	31	30 March 2013
Also Hub connections	30	25 March 2017
IQ over time	11	16 Sep 2017
IQ Scottish Cohort: Brain Analysis	27	31 Oct 2015
IQ Trends	5	23 Aug 2014
Intelligence Morphological Robots	49	12 Nov 2011
JJ		
John Locke Empiricism	Sci Am p50	Nov 2012
J P Morgan Chase \$2b loss	New York Times	June 3 2012
Jung; Word Association Rorschach Test of unconscious mind	43 8	April 2017
Junk DNA: Methelisation: Assembly instructions	31	30 July 2016
KKK		
KAGGLE on-line market place for Brains	28	Dec 1 2012
	Also	NYT 1 Dec
Kant "All in the mind"		
Quantum Bayesianism	35	10 May 2014.
Kant Racism colour Med Trade	29	1 Sep 2012

KAVLI FOUNDATION	Physics World	p13	Aug 2017
KAVLI PRIZE	Sci Am	p1	August 2016
Kavli Trongheim Sense of Place	Observer		12 may 2013
Kelvin. Thermodynamics Application to Brain	Physics World	p27	Nov 2007
KERNEL Brain Implants \$100m		12	29 Oct 2016
Khan Academy ROBOTUTOR		22	2 Jan 2016
Knockout: Mechanical Brain waves:		33	31 Aug 2013 *
Knots in DNA	Physics World	31	April 2013
Knowledge: Group Learning Justification for Knowledge		17	28 Sep 2012
Knowledge Special Issue, How much? Ontological, Epistemic, mental autonomy, self-control Wheeler, Paul Davies Quotes. Entropy Information common language of Relativity and Quantum		30	1 April 2017 p41
Koch, Christof Koch	Sci Am	22	May 2012
Koch: Coding a Memory	Sci Am	28	Feb 2013
Koch: Conscious Infant: Timing	Sci Am Mind	p 25	Sep/Oct 2013
Koch: Christof: Consciousness Footprints	Mind	p 54	March 2017
Koch Consciousness Meter	Sci Am Mind	p 24	March 2013
Koch: GO Beating it: Hassabis:	Mind	p20	July 2016
Koch: History of Modern Mind Christof	Sci Am MIND	p22	May 16
Koch: Intelligence without sentience Deep Mind: Demis Hassabis	Sci Am	p26	July 2015
Koch Intelligence QUOTE (no Definition)	Mind	p27	Sep 2015
Koch: Memory Building Blocks	Sci Am	25	Feb 2013
Koch. Modern Mind. George Makari Review	Mind	p22	May 2016

Koch: Visual Invariances	Sci Am 27	February 2013
Kuhn Structure of Scientific Revolution		19 Feb 2000
Big Idea Paradigm Shift		28 20 Oct 2012
LLL		
Lamarck: Hologenome Total performance Unit: Superorganism: Microbes Androstenes: Bacteria	31	12 Jan 2013
Jean-Baptiste Pierre Antione de Monet Chevalier de Lamarck (1744-1829)		
Lamarck: Evolution New Theory:	29 26	Aug 2017
Lane, Nick: Source of Life	32	16 Aug 2014
Language Bug		18 Jan 2003
Language 500 Chomsky		21 Aug 1999
Language Chomsky overturned	Sci Am p65	Nov 2016
Language: Conversation m/c : Recursion: Reaction Time Communicating and Processing Information	43	11 Nov 2017
Language: Day dreaming: Gesture and Mind	45	8 April 2017
Language. English uses 50 Phonemes	36	10 Dec 2011
Language History	p27	26 Feb 2000
Also Whispers Software Trees	34	7 Sep 2013
Language 10% Kernal 5% Minimum	11	31 Aug 2013
Language Limitations	42	5 Jan 2008 *
Language (Beyond Words) Visual language		10 July 1999
Language Myth (rebutting Pinker) Vyvyan Evans	48	18 Oct 2014
Language Processing Research Number of Phonemes Apple SIRI MEG Magnetoencephalography SQID Superconducting quantum Interference Device	Sci Am p56	Nov 2015
Language: Relational Frame Theory	41	3 June 2017
Language of scientists.	Physics World p 34	Feb 2017

Language Sources		Sci Am p55	May 2016
Language Start early			24July 1999
Language Second		33	5 May 2012
Languages of the World		38	8 Dec 2012
Laughter		Mind p 45	May 2017
Laws of Nature (?)	Lee Smolin	31	12 Sep 2006 *
LAWS of NATURE			
Emergent properties of probabilities of different configurations		32	11 Nov 2017
Laws of Physics Information		p25	30 Jan 1999
Leadership		42	14 June 2008 *
LEARNING R DOUGLAS FIELDS		Mind p58	Sep 2016
Learning: adaptive personalised: Rosalind Potts UCL	40		31 Oct 2015
Learning: Role of Emotion		46	13 Sep 2014
Learning Force of Habit New research		31	16 Jan 2016
Learning Whole Brain Activity States of Mind			20 Ma 1999
Learning Report	Sci Am Mind	p 45	Sep/Oct 2013
Learning: Rules of		Physics World p49	Mch 2014
Learning by Small Increments Darwins Unfinished Symphony		44	17 June 2017
Learning science of,		SCI AM p59	August 2014
Learning TEN ASPECTS		31	28 Mch 2015
Learning Styles: debunked		27	31 Aug 2013
Learning system: Susskind		31	16 Feb 2013
Learning Theory		36	26 March 2016
Left Brain Phonemes Right Brain Intonation		11	29 Nov 2014

Left Brain Right Brain Theory debunked		3 July 1999 27 31 Aug 2013
Left Brain Right Brain Left phonemes: Right Rhythm Intonation	11	29 Nov 2014
Left & Right Brain: Determines Timeline	13	4 Jan 2014
Legal Artificial Intelligence		23 30 Jan 2016
Legal Rights for Brains?		25 17 June 2017
Legal Software Computer Generated Law		22 14 Nov 2015
Libet Free Will Readiness		10 11 Aug 2012
Leibnitz: Mill: Pyramidal neurons: Pineal Gland: Descartes: Crick & Leibnitz	Mind p31	March 2015
Life Long Learning Tests help recall		35 25 May 2013
Definition of Life ATP Adenine Tri Phosphate		8 19 July 2014
Life Definitions of NASA		53 18 Nov 2000* 13 27 July 2002 *
Life Form NEW in Gut	19	14 Nov 2015
Life, Meaning of		p30 5 Oct 2002
Life Science Prize Yuri Milner	29	2 March 2013
Life, Source of		21 Sep 2002
Light Metal		23 28 Feb 2015
Liquids in Brain Communications		13 Mar 1999
Lloyd Seth: Information Digital Zeilinger		Physics World 24 June 2012
Lloyd Seth: Information Crystallised Imagination Cesar Hidalgo MIT Seth Entropy	Sci Am p65	Aug 2015
London Writing AD 43	9	4 June 2016
Lovelace Ada	Tech Monthly p5	Observer 11 Oct 2015
Lovelace: Mathematical laws: Calculus of nervous system		ITNOW p55 Dec 2015

LSD	14	29 April 2017
Luck Research Grants etc	41	22 Aug 2015
Lying. Pupils dilate	37	22 Mch 2014.
MMM		
Machines & Emotion	Sc Am p51	Nov 2015
Machine Learning		
AI	Sci Am p38	June 2016
Alpha Go : Quantum processing	Physics World p28	March 2017
Machine Life: Synthetic Biology	Sci Am p51	April 2016
Magnetic Wormholes	12	29 Aug 2015
Magneto Receptors Direction		
Cryptochrome	34	19 Mch 2016
Maker Lab	23	19 July 2013
Markram (Human Brain Project Lausanne)		
31,999 Neurons 37M synapses	14	17 Oct 2015
Mass	22	3 Feb 2001 *
Mass Decent of,	Physics World	p25 Oct 2016
Master Algorithm Review	45	31 Oct 2015
Mathematics: All Just		Physics World p22 Feb 2014
Maths: Beauty of	27	31 Jan 2015
Maths without thinking	14	17 Nov 2012
Continuous flash suppression.		
Timing & Consciousness		
Maths of Thinking (Elements)	35	9 Feb 2013
Maths: Origin of		
What is?		
Why hated?		
Invented / Discovered	31	2 Sep 2017
Maths invented or Discovered	p 27	16 March 2013
Matter: Hidalgo. Cesar: Energy, Information	RSA Journal	p48 2 / 2015

Max Tegmark, MIT	34	17 Aug 2013
Maxwell's Demon	31	14 May 2016
ME Mitochondria Dysfunction Chronic Fatigue Syndrome ME Myalgic Encephalomyelitis	15	11 November 2017
Meaning of words	8	17 Nov 2012
Meaning: Conceptual metaphors: Qualia.	46	12 Jan 2008 *
Meaning Making Engine Language Myth (rebutting Pinker) Vyvyan Evans	48	18 Oct 2014
Measurement, 7 Standards Time, distance, light, weight, temperature, current, substance.	40	3 Oct 2015
Mechanical Brain waves: Knockout	33	31 Aug 2013
Meditation Supplement	Sci Am	Nov 2014
Medical Science Donating Brains to:	46	24 Sep 2016
Medical Diagnosis: Avatar. Whole Life Model	47	15 March 2014
Medical Records NHS 2018	24	2 Jan 2016
Medical Records Deep Minds	23	7 May 2016
Medicine & Physics	Physics World	28 Sep 1999 *
Meditation Zen Buddhist	31	8 Nov 2008
MEG Magnetoencephalography Language Processing Research Number of Phonemes Apple SIRI SQID Superconducting quantum Interference Device	Sci Am	p56 Nov 2015
Memes Colour Kant Racism Med Trade	29	1 Sep 2012
Memories: Exceptional	Moonwalking	Foer p53
Memory	32+	3 Dec 11
Memory: Atomic	10	23 April 2016

Memory Building Blocks Koch	Sci Am 25	Feb 2013
Memory Boost Brain Implants	8	18 Nov 2017
Memory Cells: immune system	16	16 Feb 2013
Memory: Coding Koch	Sci Am 28	Feb 2013
Memory: Colour Constancy: Mark Lithgow UCL TV program		Nov 2015
Memory: Confucius "Palest ink better than most powerful memory"	47	2 Nov 2013
Memory Concepts: Number of	Sci Am 28	Feb 2013
Memory Creation: QUANTUM: Posner Clusters	31	% Dec 2015
Memory Distant Past	Sci Am 26	Feb 2014
Memory in DNA Axel Dietrich Amsterdam Three types: 1, evolutionary: 2, experience: 3, immune –past infections	25	15 Sep 2001 *
Memory Failure Patient HM	14	1 Feb 2014
Memory Formation Meter Dylan Haynes UCL	11	30 April 2005*
Memory & Glia	Sci Am Mind P10	Jul Aug 2012
Memory: Growing networks of living cells		Physics World 45 Sep 1999 *
Memory in the Hippocampus	Mind p41	May 2014
Memory Implants. Synchrony Rebuilding Broken Brains	35	7 June 2014
Memory: Lela Waves: State of Brain Alpbach Austria 2016	9	2 July 2016
Memory: Role of Insulin	17	30 Nov 2013
Memory Reinforcement Restoration Recognition: Recall	Mind p35	May 2014
Memory Replay Intelligence without sentience : Koch	Sci Am p26	July 2015
4. Reinforcement Learning (Temporal Difference)		
5. Convolutional Networks		
6. Memory Replay		

Memory: Mind: Probability: AI	34	10	Aug 2013
Memory Supplement			6 Oct 2012
Memory Supplement Observer			October 2014
Memory Synchrony ElectroCorticoGraphy			
Oedema: Hydrogels:			
Optogenetics Source Code	35	7	June 2014
Memory Test : Alternative pictures		Moonwalking	Foer p26
Memory Webs	Sci Am	p22	July 2017
Memristors	Sci am	p49	Feb 2015
Memristors Synapses Variable width		35	5 Aug 2017
Memristors IBM True North computer			
4096 Neurosynaptic cores:	Sci Am	p53	May 2015
Meshnet : Internet		20	Aug 2013
Metacognition	Sci Am	p49	Aug 2015
Methylation: Glucorticoids (Hormones)			
Transgenerational Epigenetics	49	16	Nov 2013
Michael Brooks: Particle Fields: Space Time line:	51	2	March 2013
Microbes in the body		43	17 May 21014.
Microbiome		16	21 May 2016
Also. Cusp of major breakthroughs	Sci Am	p 8	Feb 2017
Microscopy 2 Photons Brain Barrier Astrocytes	Sci Am	p44	June 2013
Migraine		23	12 Nov 2005*
Migraine		16	17 Oct 2015
Migraine Pain Special Report	Mind	p 30	May 2017
Mimetic systems Robots		9	Aug 2013
Mimicking the Brain with Physics	Physics World		27 Feb 2002 *
Mind Adapts to Machines Tufts			
Transcranial Direct Current Stimulation (tDCS)	20	21	Nov 2015
MIND 7 attributes (supplement)	34	4	Oct 2014

Mind & Brain Separate. Quantum Consciousness Penrose Sci Am p47 July 2017
(Gisin)

Mind Body Problem: End of Science: Horgan	32	4 June 2016
Mind controlled Avatars	Google Alert	26 June 2012
Mind Club (Agency & Experience)	45	23 April 2016
Minds of Animals (Leeches etc)		20 June 1998
Mind, History of Modern. Christof Koch	Sci Am MIND p22	May 16
Mind improvement : Young Blood	17	20 Oct 2012
Mind over Matter		
Material Engagement Theory (MET)		
Reason to have brain is to move		
Cognitive Prosthesis		
Lambros Malafouris	28	7 Sep 2013
Mind: Memory: Probability: AI	34	Aug 2013
Mind Myths of,	49	6 Dec 2014
Mind Power of	29	12 March 2016
Mind Reading	35	31 Dec 2016
Mind Unconscious	Sci Am 20	Jan 2014
Mirror Neurons		27 Jan 2001
Also in birds	15	19 Jan 2008 *
Mirror Neurons affect behaviour	29	17 May 14
Misguided therapy	39	27 Aug 2016
Mistakes		
Confirmation Bias		
Fixation error		
Outcome bias		
Group Think		
Default Mode		
Technology Clash	33	15 Aug 2015
Mithen Steven: Evolution of Imagination	44	26 Aug 2017
Mitochondria	p27	26 Feb 2000

Also		42	1 Nov 2003 *
Mitochondria. AMPK stimulates creation of	Sci Am p59		Sep 2016
Mitochondria Dysfunction Chronic Fatigue Syndrome ME Myalgic Encephalomyelitis		15	11 November 2017
Mitochondria Engines of Maintenance		43	20 Sep 2014
Mitochondria and sex		11	8 May 2004 *
Models	Physics World p29		Feb 2014
Modern Mind. George Makari Review	Christof Koch	Mind p22	May 2016
Molecular Genetics IT Dawkins		41	21 Dec 2013
Molecule Synthesis Richard Whitby U of Southampton		37	11 July 2015
Molecules: Left / Right handed		15	2 July 2016
Monitoring & Feedback		33	5Nov 2016
MOOCS in Arizona		Physics W	p12 June 2015
MOOCS ed X (Kahn Academy) Massive On-line Open Courses		Physics W p9	March 2013
MOOCS: Feed back & Guidance		21	23 Nov 2013
MOOCS: A lesson in Learning		24	8 Mch 2014
MOOCS Report	Sci Am p40		Aug 2013
MOOCS Mch 2014 + Utube		Physics World p43	Mch 2014
MOOCS SERVICES for sale	Times p65		April 30 2016
Moore's Law		35	12 Dec 2015
Monitoring the body. 2 medical Apps		11	18 Feb 2017
Morality		42	12 Mch 2016
Morphogenesis		17	14 June 2014
Morphological Intelligence Robots		49	12 Nov 2011
Motion Processing in Locusts		Physics W 41	Nov 2013

Motor Skill Growth	Mind	p34	Nov 2014
MRI Scans			21 Sep 2002
rtf MRI Scans [Real Time functional MRI]	Sci Am Mind	March 2013	p52
cfMRI Functional connectivity MRI	Sci Am	p17	Jan 2016
Multi-dimensional Thoughts: Deep Blue Markram 4D Cliques: cavities Direction of Flow Karl Friston UCL		31	30 Sep 2017
Multi-model Neural Network (Super operating System)		16	1 July 2017
Multiple personas, Avatars		39	11 Aug 2012
Multi-tasking Software		27	10 March 2007
Musk Elon Hyper Rail		21	21 May 2016
Music represented algebraically Lovelace: Mathematical laws: Calculus of nervous system			ITNOW p55 Dec 2015
Music as Medicine	Mind	p35	Mch 2015
Music: Roots of: How we hear		29	23 Feb 2008
Music Perfect Pitch			26 Feb 2011
Mutation From Gene to Behaviour KCNH7	Sci Am	p24	Dec 2015
Mutations Older males pass on more		20	30 Sep 2017
Myelin Oligodendrocytes Exosome		33	21 Feb 2015
Myelination: transmission speed Computational Bandwidth	Sci Am	p23	June 2015
Myths of the Mind		49	6 Dec 2014
NNN			
Nanotubules		19	24 July 2004*
National Institute of Mental Health Core Brain Functions		11	10 May 2014

Nature v Nurture	RSA	vol 1 p 23	April 2016
Different Ideas			36 24 Dec 2011
Natural Philosophy Alliance			
Navigation	Grid Cells		10 Aug 2013
Near Infrared Spectroscopy fNIRS			19 23 Feb 2013
Different Minds			
Neanderthals			35 5 Nov 2011
Neanderthals: Symbolic thought:			12 4 June 2016
Neanderthal Language		41	17 May 2014.
Necker Cube. Here and Now. Zeno			31 10 Jan 2015
Nerve Blocking Therapies Cancer Treatment		34	21 Oct 2017
Nerve impulse			Sci Am NP Special Issue 2013
Neumann, John von			Physics World 29 Dec 2003 *
Neural Language: Electroceuticals: Immune			36 22 Feb 2014

Neural Networks (and flocking)

'Resting State Networks': collective activity: Chialvo UCLA

'Self organised criticality' Coordinated, but highly responsive to external disturbance.

Balance between orderliness & adaptability:

Cavagna. Institute for complex systems Rome

Bialek. Princeton

Manfred Eigen 1967 Nobel Prize

'Critical Phase Transition'

'Scale invariance'

'Critical 'Casimir force'

'Signalling cascades'

(See also 'What is Life' Erwin Schrödinger)

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Neural Networks Deep Mind (Google) 21 11 July 2015

Neuroengineering. Deisseroth. Optogenetics Clarity Sci Am p 3 Oct 16

Neurogenesis: Magnet stimulation	15	26 May 2007 *
Also	16	6 Sep 2008 *
Neurogenesis: Cadherin gene complexes		
Procadherin gene complexes	27	15 Sep 2001
Neurogenesis 1,400 per day Jonas Frisen		
Karolinska Stockholm	Mind p 53	Sep 2014
Neurogenesis from stem cells	38	21 Jan 2017
Neurogenesis Hormesis	38	9 Aug 2008 *
Neurogenesis: Anxiety	Sci Am p 48	July 2014
Neuromodulation	Brain cell communication	8 April 2000
Neuron Growth		12 Sep 1998
Also Formation (Nutrients & Oxygen)	47	9 Nov 2013
Neuron Firing	Sci Am 28	Oct 2012
Siny Stellate Neurons		
Neuron reception field		
Basket Cells		
100 Hertz		
Theta Band 4-8 Htz		
Neurons that are unique	7	1 Sep 2001 *
Neurons by Blood	13	16 Aug 2014
NEURON GROWTH Demonstrated	17	19 Mch 2016
Neuron Regeneration	16	15 June 2013
Neuron Receptive Field	Sci Am p 51	Oct 2012
Neuronal Assemblies	Physics World p39	May 2013
Neurons: Wireless Control of	p45	9 June 2012
Neuron Electrical signals Ion channels		
100 mV Cell Membrane 10nM thick	Physics W 47	May 3013
Neuroscience from Stone Age	Sci Am p20	April 2016
Neuroscience Societies	p11	16 July 2016
Neurotransmitters of sleep	Sci am p25	Mch 2016

Neurotrophic Factors		47	9 Nov 2013
New Words: ..omes.	Sci Am	p27	Dec 2017
New Zealand: Prohibition		41	8 Mch 2014
NHS On line		18	24 Oct 2015
Nietzsche definition of Consciousness		27	15 Aug 2015
fNIRS Functional Near- infrared Spectroscopy		22	23 Feb 2012
Nobel Prize Migration	Physicd World	p16	Nov 2015
Nonmonotonic Reasoning Causation Causal Logic		37	27 Feb 2016
Number of Memory concepts	Sci Am	28	Feb 2013
Numbers part of Language: Book Caleb Everett		42	6 May 2017
Numbers: Abstract concept Fibonacci. zero, imaginary, Laplace, set theory,		36	26 Aug2017
Nurse Paul Creativity	Sci Am	p 44	Oct 2012
Nutrients & Oxygen in Neuron Growth		47	9 Nov 2013
Nutrient Path. Poverty low IQ	Sci Am	p36	March 2017
Nutrient Path. Metabolism Chronic Fatigue Pyruvate dehydrogenase feeding mitochondria		11	18 Feb 2017
OOO			
Obama & Science	Sci Am	7	Jan 2013
Also		12	13 April 2013
Obama Map project	Mind	17	May 2013
Oedema: Electrocorticography Oedema: Hydrogels		35	7June 2014
Oligodendrites: Glia: New Roles: Stats: Zydeco:	Mind	17	May 2013
Oligodendrocytes Exosome Myelin		33	21 Feb 2015
John O Keefe UCL Place cells. Method of Loci Biological Positioning System	Sci Am	p25	Jan 2016
On-line dating 30% accurate		10	21 Oct 2017

Open Access Publishing	Physics World p23	Aug 2013	
Operating System of Genes DNA: exons + introns = mRNA		31	8 June 2002 *
Opsins. Genes (Orphan) 54 in brain		43	19 Jan 2013
Optimisation: Quantum advances	Sci Am	p31	Dec 2017
Optogenetics	Sci Am	28	Oct 2012
		20	Jan 2013
Also		35	7 June 2014
Also	Mind	p64	Mind 2014
Also (Karl Deisseroth)		39	25 June 2016
Optogenetics. Alzheimer's Present but not accessible		7	29 July 2017
Optogenetics & Deafness		p 10	16 July 2016
Optogenetics Neuroengineering. Deisseroth. Clarity	Sci Am	p 24	Oct 16
Optogenetics: ElectroCorticoGraphy Oedema: Hydrogels: Memory Synchrony Source Code		35	7 June 2014
Optogenetics. Reprogramming tumour cells Bioelectric coding Tufts		8	19 Mch 2016
Organoids. Brains in dishes		12	14 January 2017
Also		11	1 April 2017
Orientation. Maps		47	19 Jan 2013
Orienting: Spatial Maps:	Mind	p 60	Sep 2016
Origins of Consciousness		32	14 Feb 2004*
Oxygen		34	21 Jan 2017
Oxygen Cyanobacterium		12	8 Dec 2012
Oxygen Failure Blindness Laser Treatment		9	19 Jan 2013
PPP			
Pain	Sci Am Mind	March 2013	p50

Pain Illusions	Sci Am Mind	Sep/Oct 2013	p20
Pain: All in the Mind		10	17 Jan 2015
Pain Special Report (inc Migraine)		Mind	p 30 May 2017
Paradigm Shift Big Idea		28	20 Oct 2012
Kuhn Structure of Scientific Revolution			19 Feb 2000
Paradox. Proliferation default state		30	10 Dec 2011
Parallel Processing: four types			
Field programmable gate arrays	43		17 Aug 2013
Particle Fields: Space Time line: Michael Brooks	51		2 March 2013
Particles & Fields	Sci Am	p35	Aug 2013
Parkinson's In Gut		8	3 Dec 2016
Parkinson's Treated with Pig Cells Dopamine		6	17 June 2017
Paths to Progress: David Marquand		RSA Issue 2	2014.
Patterns of Organisation: Freeman Dyson		39	11 Feb 2006 *
Perfect Pitch			4 Dec 1999
Periodic Table More Complex		38	12 July 2014F
Perovskites Solar Promise		Physics W	p31 May 2015
Personality		43	29 Ap 2006 *
Also 5 Traits		36	9 Feb 2008 *
Also (creativity)	Sci Am Mind	p64	Jan 2016
Also Your true Self Temperament		29	22 April 2017
Personhood: Spindle cells: monkey Prosthetics	17		2 July 2016
Peter Shor		29	23 Nov 2013
PET Scans: Positron Emission Tomography		Physics W	p5 Dec 2015
(Ambulatory Microdose using Silicon Photomultipliers			
Phages / Bacteria / Virus /	Sci Am	p59	June 2012.
Pharmaco genomics		Sci Am	p39 Oct 2016
Phenotype			
Genotype			

The whole greater than the sum of the parts	36	26 March 2016
Phi: Measuring information retention	39	9 Feb 2013
Phi: Consciousness: Whole greater than sum of Parts. Integration:	11	20 Feb 2016
Philosophy John Gray		14 Sep 2002
Philosophy Jesse Prinz. Art of possible (book) Nurture more important than Nature	27	21 Jan 2012
Phonemes English uses 50	36	10 Dec 2011
Phonological Loop Moonwalking		Foer p 61
Phosphorous, Selenium In ATP, DNA & Hormones	39	11 Nov 2017
Photons Debunked	35	24 July 2004*
Photons: variable shapes Physics World p4		9 Sep 2012
Photographs: Software Analysis	13	19 June 2014
Photosynthesis		2 Feb 2013
Photosynthesis: Synthetic Genes	23	12 July 2014
Photovoltaic Paint	40	26 Nov 2011
Physics & Medicine Physics World	28	Sep 1999 *
Physics & Biology Physics World	28	Sep 1999 *
Physics Primer	47	17 Oct 2015
Physical Intelligence. Torbjorn Vestberg	16	4 March 2017
Physiolome: network Physiology Physics World p29		Feb 2016
Pineal Gland: Descartes: Crick & Leibnitz Mind p31		March 2015
PISA tests Sci Am p49		Aug 2015
Also		5 12 Dec 2015
Pituitary glands (glucocorticoids) [TNF Tumour Necrosis Factor]	Sci Am p 25	March 2015
Placebos	98	Sep 2012

Also		33	12 Dec 2015
Also		33	12 Mch 2016
Placebos	Sci Am Mind p38		March 2013
Placebos Hormone effect		14	29Aug 2105
Place cells, Grid Cells. Kavli Trongheim Sense of Place	Observer		12 may 2013
Placque Alzheimers Disease, Parkinson CDJ		7	25 July 2015
Placque: Alzheimer's Vaccine Immune system	11		4 June 2016
Planar Polarity Proteins : Cellular Compass: Sci Am p 61			Mch 2016
Plant Intelligence		41	27 July 2002 *
Plant Intelligence		34	6 Dec 2014
Plasticity		7	11 Jan 2014
Polynomials Algorithms		37	11 Aug 2012
Polysomnograph PSG	Sleep	34	17 May 2014
Popper Karl Our imaginations die for us	Sci Am p23		June 2015
Positron Emission Tomography PET Scans (Ambulatory Microdose using Silicon Photomultipliers)	Physics W p5		Dec 2015
Prediction. Elements of Thought (Maths)		35	9 Feb 2013
Predictive Processing Surfing Uncertainty	Andy Clark OUP 42		9 April 2016
Prefrontal Cortex: creativity	Mind	27	August 2012
Prejudice		26	1 Oct 2016
Preons	Sci Am p27		Nov 2012
PRIME numbers not random		12	19 Mch 2016
Printable Transistor		15	8Nov 2014
Printing Light		23	6 Dec2014
Prize: Life Science Yuri Milner		29	2 March 2013

Procadherin gene complexes in Neurogenesis	27	15 Sep 2001
Probability: Mind: Memory: AI	34	Aug 2013
Probability	33	12 Dec 2015
Processing Motion in Locusts	Physics W 41	Nov 2013
Programmable Bacteria	27	Jan 18 2014
Programming DNA	9	26 Oct 2013
Programming Epigenetic. Transcription factors Transposons Histones	28	5 Jan 2013
Programming Epigenetic: Twins: Chemical labels added to DNA	46	31 Aug 2013
Progress, Paths to : David Marquand	RSA Issue 2	2014.
Prohibition: New Zealand	41	8 Mch 2014
Prokaryotes (Eukaryotes with Nucleus)	41	9 Feb 2008 *
Proliferation default state	30	10 Dec 2011
Prosthetic Brain DARPA Grant	Mind p70	Nov 2015
Prosthetic Grip	10	16 April 2016
Prosthetic Design	Sci Am 46	Jan 2013
Prosthetic Memory Theodore Berger U of S Calif	28	19 Dec 2015
Prosthetic Hands Also	Mind p17	20 5 Dec 2015 July 2016
Prosthetics. Retinal: Eyes Kock	Sci Am MIND p20	Jan 2013
Prosthetics: Skin Jacket	24	17 Oct 2015
Extrasensory Jacket, Braille	26	10 Oct 2015
Prosthesis, Cognitive Mind over Matter Material Engagement Theory (MET) Reason to have brain is to move Lambros Malafouris	28	7 Sep 2013

Protean Folding Systems Biology Growth Shapes	39	1 Sep 2012
Also	Physics World 39	Sep 1999 *
Protein Folding, Software, Carbon & Silicon	17	14 June 2014
Proteins	60	17 Mch 2001 *
Proteins: A few nanometers: Tens of thousands of atoms:	Physics World p27	Nov 2007
Protons. New ideas	Sci Am 26	Feb 2014
Prozac	Sci am p33	Mch 2016
PRS: Venkatraman Ramakrishnan	Observer	6 Dec 2015
Psychosomatic : Emotion deficit: Alexithymia: Mind	p68	July 2014
Psychosomatic cure	41	21 May 2016
Pyramidal neurons: Pineal Gland: Descartes: Crick & Leibnitz	Mind p31	March 2015
Pyramids Cheops	Sci Am p25	Nov 2015
QQQ		
Qualia: Meaning: Conceptual metaphors:	46	12 Jan 2008 *
Quantum advances Optimisation:	Sci Am p31	Dec 2017
Quantum Bayesianism Kant "All in the mind"	35	10 May 2014.
Quantum Brain: Bases Reason for 4	Grover's algorithm	15 April 2000
Quantum Breakout QKD	11	17 Oct 2015
Quantum Cloud IBM	7	7 May 2016
Quantum Computer D Wave	p9	16 March 2013
Quantum Computer D Wave	Article in	May 28 2016
Quantum Computer First from IBM	Times p16	May 4 th 2016
Quantum Computers Variable	Sci Am p45	May 2016
Quantum Computer: 2 Entangled photons (Lloyd)	19	16 Feb 2013

Quantum Computer solves Primes	17	23 March 2013
Quantum Conference Vienna	14	14Nov 2015
Quantum Cracks 3 Slit. New Theory	8	5 Nov 16
Quantum Cryptography	Sci Am p43	Feb 2016
Quantum Cryptography Chinese satellite	16	27 Aug 2016
Quantum Learning: Alpha Go :	Physics World p28	March 2017
Quantum Key Distribution Zeilinger + Jian-Wei Pan (China)	Physics World p9	Nov 2017
Quantum MRI	Sci Am p49	May 2016
Quantum Reality	29	11 Nov 2017
Quantum Thermodynamics: 3 Laws Thermodynamics Information Dynamics Quantum machines built out of Quantum Engines	Physics World p23	Jan 2016
QED	37	31 Oct 2015
Quantum Gate in silicon	Physics World p4	Nov 2015
Quantum: Information	Sci Am 35	Dec 2012
Quantum Information (reality) Copenhagen Many Worlds Collapse Bayesianism Bohmian	31	8 April 2017
Quantum Information bit	33	16 July 2016
Quantum Key Distribution	37	31 Oct 2015
Quantum Microscope		30 Oct 1998
Quantum Loopholes		26 Feb 2011
Quantum Memory Creation: Posner Clusters	31	% Dec 2015
Quantum & Beyond Ekert & Deutsch	Sci Am Sep 2012 p70	
Quantum Program	11	1 Nov 2014

Quantum Reality (MB)	26	3 Jan 2015
Quantum Report Vlatko Vedral	28	6 July 2013
Quantum Solution Five fold definition	37	11 Ap 2015
Quantum: Spin Revolution:	41	11 Jan 2014
Quantum Teleportation	10	24 Sep 2016
Quantum Test of Consciousness Gisin Professor Geneva	7	27 May 2017
Quantum Uncertainty Wave v Particle Timeline	39	5 Jan 2013
Quarks	36	6 June 2015
Qubits DARPA IBM	7	12 Dec 2016
Questioning Quantum Speeds	Physics World p 39	Jan 14
RRR		
Racism Memes Colour Kant Med Trade	29	1 Sep 2012
Random Reality Gebits	p27	26 Feb 2000
Rat Brains Linked together Also	Google alert	28 Feb 2013 9 March 2013.
Rationality Quotient (RQ)	31	30 March 2013
Readiness Potential: Free Will: Libet	10	11 Aug 2012
Reading Brain Waves Thought control EEG cap P300 waves Prof Eda Akman Aydin Gazi U Turkey Takeshi Ogawa Kyoto Japan (Spectroscopy) I E E Eng in Medecine & Bio Soc Milan	22	19 Sep 2015
Reality Bruce Hood	MIND	p 43 Sep 2012
Reality Check	31	23 June 2007
REALITY emerges from the accumulation of the sensations of all our experiences (Consciousness)	33	11 Nov 2017
Reality. Spacetime, superposition, entanglement, Hilbert, Shannon. Time Markov.	33	4 February 2017

Reality, Quantum	29	11 Nov 2017
Reality: Information: Basis of	17	28 Sep 2012
Reason : 7 hates Grayling	41	26 July 2008 *
Reason and Anger	RSA Journal p 40	Issue 4 2016
Recursion: Language: Conversation m/c: Reaction Time Communicating and Processing Information	43	11 Nov 2017
Red Shift	45	17 Oct 2015
Rees Lord: Starmus Festival 2016 Tenerife	in	25 June 2016
Regeneration of Neurons	16	15 June 2013
Relativity Definition	28	18 June 2016
Reinforcement Learning		
Intelligence without sentience : Koch Sci Am p26		July 2015
7. Reinforcement Learning (Temporal Difference)		
8. Convolution al Networks		
9. Memory Replay		
Religion in decline		
Atheism. Sunday Assembly: Stats	31	3 May 2014
Religion. Morality Ethics. Nicolas Baumard	35	30 April 2016
Replacement Mouse Gest Glove gyroscopes, accelerometers, magnetometers	7 Tech Monthly Observer	Dec 2015
Repositive of Cambridge DNA Testing	5	8 July 2017
Representation of Inf: See with Brain not Eyes. Mind p63 Sep 2016		
Reprogramming tumour cells. Bioelectric coding Optogenetics Tufts	8	19 Mch 2016
Resistance to IT Churchland, Patricia Competition between experts	30	30 Nov 2103
Rhythm. Brain waves		4 Aug 2001
Rhythm. Light		28 Nov 1998
Resilience	SCI AM	March 2011
RNA Capabilities of	38	27Nov 2004*

RNA in Lab	15	21 May 2016
RNA Revolution in Medicine	Sci Am p39	April 2014
Robot Ap	21 28	May 2016
Robotics. Am I human: Turing tests	Sci Am p51	March 2017
Robots: Bio mimetic systems	9	Aug 2013
Robots: creative	Tech Monthly p9	Observer 11 Oct 2015
Robot Interface	10	11 March 2017
Robot Journalists	23	29 Mch 2014
Robot Synergy	23	16 Feb 2013
Robots SNARC	23	12 Nov 2011
Robots & Emotion	Sc Am p51	Nov 2015
Robots: Honda	39	4 Feb 2006
Robots Morphological Intelligence	49	12 Nov 2011
Robotics I-Cub (Robot) Sheffield	37	21 March 2015
Robots: Telepresence	39	10 Nov 2012
Robots (Walking)	Sci Am p57	July 2016
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Williams, Stan: Industrial Revolutions of the 21 st Century:			
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Work: Future of Supplement		29	25 June 2016
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Young Blood Youth elixir 8 10June 2017

Young, Thomas (energy) Physics World 30 Mch 2006 *

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Zeno Here and Now. 31 10 Jan 2015

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Anton Zeilinger: Information Digital, Seth Lloyd, Physics World 24 June 2012

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Also China Quantum Internet. 12 24 June 2017

Zydeco: Glia Cells: New Roles: Stats: Astrocytes Mind 17 May 2013

Zimmer Carl Sci Am p76 Aug 2013

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GLIA BRIDGES

SYNAPTIC TENSION

EPIGENETICS

INNOVATION & CREATIVITY

TEACHING & LEARNING

KACC Knowledge , Art, Culture & Commerce

KITS Knowledge, Instruction Training & Skills

L³ Life Long Learning

Brain Research Projects

Reprinted from Scientific America April 2014

Several well-funded, multiyear projects are under way in the U.S. and Europe to disentangle the daunting complexity of the brain. Some are tracing neural connections within brains. Others are making ultrahigh-resolution three-dimensional models of the human brain or mapping gene "expression," or activity, in the brains of other animals.

SyNAPSE is a DARPA program that aims to create digital analogues of the brain from neuro-synaptic chips that include 10 billion electronic neurons joined by 100 trillion synapses. In 2012 a group at IBM reported that a proof-of-concept supercomputer simulation at Lawrence Livermore National Laboratory had simulated half a second of activity among 530 billion highly simplified neurons connected at almost 137 trillion synapses.
<http://research.ibm.com/cognitive-computing/neurosynaptic-chips.shtml>

Mouse Brain Connectivity Atlas

project at the Allen Institute for Brain Science in Seattle infects neurons with viruses that make fluorescent proteins as they work their way down the cells. The glowing viruses trace the extended, branching arms of the nerve cells, which link up in complex, extended circuits.
<http://connectivity.brain-map.org>

Non-Human Primate Brain Atlas

project is mapping gene expression in the brains of rhesus macaque monkeys as they develop from an early prenatal stage to four years old.
The NIH-funded project is now under way at the Allen Institute. <http://Ablueprintnhpatlas.org>

Big Brain project, a collaboration of scientists in Germany and Canada, has produced a 3-D model of a human brain from a 65-year-old woman at a resolution of 20 microns, which is nearly sharp enough to make out single cells. <https://bigbrain.loris.ca>

Human Connectome Project,

which was launched in 2010 by the NIH and a consortium of universities, is recruiting 1,200 healthy adults—including hundreds of pairs of twins and their nontwin siblings—to gather detailed brain images, genetic sequences and behavioral profiles for a reference database.
<http://humanconnectome.org>

Eye Wire, developed at the Massachusetts Institute of Technology, lets members of the public do some of the work involved in mapping the paths of brain neurons. <http://eyewire.org>

Blue Brain Project, a joint effort started in 2005 by IBM Research and the Swiss Federal Institute of Technology in Lausanne, has been using a supercomputer to build a virtual brain in software. The project has simulated a pinhead-size column of about 10,000 layered neurons from a rat's cortex. <http://bluebrain.epfl.ch>

Human Brain Project, a successor to the Blue Brain Project, was launched in October 2013 by the European Union. The 10-year project has a budget of \$1.6 billion and aims to create a "CERN for brain research," with high-powered computing capabilities comparable to those used by the particle physics center outside Geneva that runs the Large Hadron Collider. <http://humanbrainproject.eu>

Also

SpiNNaker Manchester

A model of neurons using a million ARM chips

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