

IOT, DATA, AND THE NEW LAST MILE CITATIONS March 5-6, 2019 • Berkeley, California

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Citations (books, films, and TV series, listed by speaker)

Adam Millard-Ball Ray, Nicholas (director)	Rebel without a Cause	1955
Mickey McManus	Tillian That too to the French	0040
McManus, Mickey, Joe Ballay, and Peter Lucas	Trillions: Thriving in the Emerging Information Economy	2012
Carson, Rachel	Silent Spring	1962
Judith Estrin		
Estrin, Judy	Closing the Innovation Gap: Reigniting the Spark of Creativity in a Global Economy	2008
Zuboff, Shoshana	The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power	2019
McNamee, Roger	Zucked	2019
Lanier, Jaron	Who Owns the Future?	2013
Vaidhyanathan, Siva	Anti-Social Media: How Facebook Disconnects Us and Undermines Democracy	2018

Online Resources (by speaker, in order of appearance)

George Hotz

- https://github.com/commaai Comma.ai's top-level development page at GitHub.
- https://github.com/commaai/openpilot Comma.ai's openpilot page at GitHub.

Adam Millard-Ball

- https://people.ucsc.edu/~adammb/publications.html Listing of Millard-Ball's research publications.
- https://www.gartner.com/smarterwithgartner/5-trends-emerge-in-gartner-hype-cycle-for-emerging-technologies-2018 Gartner's 2018 hype cycle positions the plateau of productivity for level-4 autonomous driving more than ten years out.
- https://www.nytimes.com/2015/09/02/technology/personaltech/google-says-its-not-the-driverless-cars-fault-its-other-drivers.html Article by Matt Richtel and Conor Dougherty, first appearing in the New York Times on September 1, 2015, entitled "Google's driverless cars run into a problem: Cars with drivers."
- https://www.fastcompany.com/3063717/this-self-driving-car-smiles-at-pedestrians-to-let-them-know-its-safe-to-cross Article by Adele Peters, first appearing in Fast Company, entitled "This self-driving car smiles at pedestrians to let them know it's safe to cross."

Mickey McManus

- https://vimeo.com/7395079 Trailer for McManus's book *Trillions*.
- https://www.youtube.com/watch?v=TDaZUnoYdvs Video, published by Hackrod on April 25, 2018, entitled "This is Hackrod—Powered by Siemens."
- https://www.journals.uchicago.edu/doi/10.1086/691462 Full text of Ward, A.F., et al. 2017. Brain drain: The mere presence of one's own smartphone reduces available cognitive capacity. *Journal of the Association for Consumer Research* **2**:140–154.
- https://darkpatterns.org/types-of-dark-pattern The Dark Patterns website lists a whole host of strategies for inducing people to engage in unintended sign ups or purchases.

- https://www.youtube.com/watch?v=MFzDaBzBIL0 Watch Destin Sandlin's brain break with his backwards bicycle in this video, published by SmarterEveryDay on April 14, 2015, entitled "The backwards brain bicycle—Smarter Every Day 133."
- https://www.nature.com/articles/nature12486 Abstract and access options to paper by former TTI/Vanguard speaker Adam Gazzaley: Anguera, J.A., et al. 2013. Video game training enhances cognitive control in older adults. *Nature* 501:97–101.
- https://www.coursera.org/learn/the-science-of-well-being Yale University course, offered by Coursera and with Prof Laurie Santos, entitled "The Science of Well-Being."

Rodney Mullen

- https://www.youtube.com/watch?v=L6mJc7yeKPg Video, published by RodneyMullenNet on October 24, 2010, entitled "The best of Rodney Mullen."
- https://www.youtube.com/watch?v=ChWchYqNNJQ This might not have been among the many videos Mullen shared during his presentation, but this short video—"Rodney Mullen—The Impossible (2018)"—depicts his slow-motion execution of various tricks, all the better for appreciating the nuance and precision they require.
- https://console.bluemix.net/docs/services/vmwaresolutions/archiref/vcscar/vcscar-preface.html#preface
 A review of IBM Watson's skateboarding project.
- https://www.wired.com/story/when-bots-teach-themselves-to-cheat Article by Tom Simonite, first appearing in *Wired* August 8, 2018, entitled "When bots teach themselves to cheat."
- https://arxiv.org/pdf/1612.00796.pdf Full text of Kirkpatrick, J., et al. 2017. Overcoming catastrophic forgetting in neural networks. *arXiv* 1612.00796v2.

Adrian Westaway and Clara Westaway

- https://www.microsoft.com/buxtoncollection Explore Bill Buxton's collection of devices important to
 the history of pen computing, pointing devices, touch technologies, and, more generally, the evolution of
 input and interactive design.
- http://specialprojects.studio/project/out-of-the-box Special Projects' "out of the box" project: innovative packaging/user manual for intuitive smartphone unboxing to humanize tech for elderly mobile users.
- http://specialprojects.studio/project/nfc-cards Part of the "out of the box" project, Special Projects' "NFC cards" are physical cards that serve as components of a context-specific user manual.
- http://specialprojects.studio/project/magic-ux Special Projects' "magic UX" project to leverage physical space to seamlessly switch and move content between apps.
- http://specialprojects.studio/project/bit-planner The "bit planner" is a wall-sized Lego calendar that the Westaways designed when at Vitamin.

Judith Estrin

- https://www.youtube.com/watch?v=4p-w_te5sGk TEDx Talk by Estrin, published by TEDx Talks on October 22, 2014, entitled "Balancing Our Digital Diets."
- https://medium.com/@judy_estrin/authoritarian-technology-attention-e4c34585d114 Part I of Estrin's *Medium* article, first appearing September 11, 2018, entitled "Authoritarian technology: Attention!"
- https://medium.com/@judy_estrin/authoritarian-technology-reclaiming-control-594c910be1b Part II of Estrin's Medium article, first appearing September 11, 2018, entitled "Authoritarian technology: Reclaiming control."
- https://gizmodo.com/i-cut-the-big-five-tech-giants-from-my-life-it-was-hel-1831304194 Culminating
 article on Gizmodo by Kashmir Hill, about her early-2019 experiment to successively (and then
 simultaneously) block Amazon, Facebook, Google, Microsoft, and Apple from her life, a week at a time:
 "I cut the 'big five' tech giants from my life. It was hell."

Casey Lindberg

- https://www.ncbi.nlm.nih.gov/pubmed/6857273 Abstract and access options for Spengler, J.D., and K. Sexton. 1983. Indoor air pollution: A public health perspective. *Science* **221**:9–17.
- https://www.researchgate.net/publication/326376898_Occupation_Correlates_of_Adults'_Participation_i n_Leisure-Time_Physical_Activity_A_Systematic_Review Abstract and access options for Kirk, M.A., and R.E. Rhodes. 2011. Occupation correlates of adults' participation in leisure-time physical activity: A systematic review. *Journal of Preventative Medicine* 40:476–485.

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2963526 Full text of Katzmarzyk, P.T. 2010. Physical activity, sedentary behavior, and health: Paradigm paralysis or paradigm shift? *Diabetes* 59:2717–2725.
- https://www.ncbi.nlm.nih.gov/pubmed/18252901 Abstract and access options for Healy, G.N., et al. Breaks in sedentary time: Beneficial associations with metabolic risk. *Diabetes Care* **31**:661–666.
- https://www.ncbi.nlm.nih.gov/pubmed/21767729 Abstract and access options for Thorp, A.A., et al. 2011. Sedentary behaviors and subsequent health outcomes in adults: A systematic review of longitudinal studies, 1996–2011. American Journal of Preservation Medicine 41:207–215.
- https://www.ncbi.nlm.nih.gov/pubmed/19922052 Abstract and access options for Sisson, S.B., et al. 2009. Profiles of sedentary behavior in children and adolescents: The US National Health and Nutrition Examination survey, 2001–2006. *International Journal of Pediatric Obesity* **4**:353–359.
- https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-13-296 Full text of Parry, S., and L. Straker. 2013. The contribution of office work to sedentary behavior associated risk. *BMC Public Health* **13**:296.
- https://escholarship.org/uc/item/2gq017pb Full text of Kim, J., and R. de Dear. 2013. Workspace satisfaction: The privacy–communication trade-off in open-plan offices. *Journal of Environmental Psychology* 36:18–26.
- https://www.tandfonline.com/doi/full/10.1080/09613210412331313025 Abstract and access options for Heerwagen, J.H., et al. 2007. Collaborative knowledge work environments. *Building Research & Information* 32:510–528.
- https://facstaff.elon.edu/ehall/Assets/Articles/2000/EkkekakisJBM.pdf Full text of Ekkekakis, P., et al. 2000. Walking in (affective) circles: Can short walks enhance affect? *Journal of Behavioral Medicine* 23:245–275.
- https://www.ncbi.nlm.nih.gov/pubmed/23014593 Abstract and access options for Kouvonen, A., et al. 2013. Chronic workplace stress and insufficient physical activity: A cohort study. *Occupational Environmental Medicine* 70:3–8.
- https://www.ncbi.nlm.nih.gov/pubmed/8379800 Abstract and access options for McEwen, B.S., and E. Stellar. 1993. Stress and the Individual. Mechanisms leading to disease. *Arch Internal Medicine* 153:2093–2101.
- https://www.researchgate.net/publication/279572811_Criteria_or_human_exposure_to_humidity_in_occ upied_buildings — Abstract and access options for Sterling, E.M., et al. 1985. Criteria for human exposure to humidity in occupied buildings. ASHRAE Transactions 91:611–622.
- https://research.tue.nl/en/publications/effects-of-noise-on-arousal-in-a-speech-communication-setting —
 Abstract and access options for Cvijanovic, N., et al. 2017. Effects of noise on arousal in a speech
 communication setting. Speech Communication 88:127–136.
- https://www.ncbi.nlm.nih.gov/pubmed/12930487 Abstract and access options for Wirtz, D., et al. 2003. What to do on spring break? The role of predicted, on-line, and remembered experience in future choice. *Psychological Science* 14:520–524.
- https://www.iarpa.gov/index.php/research-programs/mosaic Learn more about IARPA's MOSAIC (multimodal objective sensing to assess individuals with context) program, which seeks innovative approaches to unobtrusive, passive, and persistent measurement to predict an individual's job performance.
- http://stories.hksinc.com/ideas/taking-measure-of-the-living-lab An HKS story by Tommy Zakrzewski, first appearing on November 1, 2018, entitled "Taking measure of the Living Lab."

Jim Cantrell

• https://vector-launch.com — Learn more about the Vector-R and Vector-H launchers.

Jeremiah Pate

 https://lunasonde.com/gossamer — Learn more about Lunasonde's aspirations for its Gossamer satellite array.

Dipankar Raychaudhuri

- https://www.ece.rutgers.edu/dipankar-raychaudhuri-0 List of Raychaudhuri's academic publications, research interests, and more.
- https://cosmos-lab.org Learn more about the Rutgers-Columbia-NYU COSMOS (cloud-enhanced open software-defined mobile wireless testbed for city-scale deployment) advanced wireless testbed.
- https://www.youtube.com/watch?v=bH_WaEMLRhg Video published by Columbia Engineering on April 9, 2019, entitled "COSMOS: A new generation of wireless technologies."

- https://advancedwireless.org Learn more about—and how to become involved with—the NSF's Platforms for Advanced Wireless Research (PAWR) consortium.
- http://www.winlab.rutgers.edu/~gruteser/papers/hotmobile17-final28.pdf Full text of Qiu, H., et al. 2017. Augmented vehicular reality: Enabling extended vision for future vehicles. Proceedings of the 18th International Workshop on Mobile Computing Systems and Applications.
- https://www.nytimes.com/2019/03/06/opinion/trump-5g-wireless.html Opinion piece by Kevin Werbach, first appearing in the *New York Times* on March 6, 2019, entitled "Trump's 5G plan is more than a gift to his base."
- https://www.ics.uci.edu/~corps/phaseii/Weiser-Computer21stCentury-SciAm.pdf Article by Mark Weiser, first appearing in *Scientific American* in September 1991, entitled "The Computer for the 21st Century."

Xiangkun (Elvis) Cao

- https://hilightreactor.wordpress.com Learn more about Cao's HI-Light reactor.
- https://www.technologyreview.com/s/612924/bill-gates-explains-why-we-should-all-be-optimists MIT
 Technology Review video, first published February 27, 2019, in which Bill Gates explains why we should
 all be optimists, entitled "The ten breakthrough technologies of 2019, curated by Bill Gates."
- https://public.wmo.int/en/media/press-release/greenhouse-gas-concentrations-surge-new-record Report first published by the World Meteorological Organization on October 30, 2017, entitled "Greenhouse gas concentrations surge to new record."
- http://www.climeworks.com/co2-removal Report by Climeworks entitled "What is carbon dioxide removal and why is it important?"
- https://www.cell.com/joule/pdf/S2542-4351(18)30225-3.pdf Full text of Keith, D.W., et al. 2018. A process for capturing CO₂ from the atmosphere. *Joule* **2**:1573–1594.
- https://carbonengineering.com Learn more about Carbon Engineering's direct air capture CO₂ technology.
- https://www.cell.com/joule/pdf/S2542-4351(17)30076-4.pdf Abstract and access options for Bushuyev, O.S., et al. 2018. What should we make with CO₂ and how can we make it? *Joule* 2:825–832
- https://pubs.rsc.org/en/content/articlelanding/2019/ee/c8ee02790k#!divAbstract Abstract and access options for Ghoussoub, M., et al. 2019. Principles of photothermal gas-phase heterogeneous CO₂ catalysis. *Energy Environmental Science*.
- https://www.cell.com/joule/pdf/S2542-4351(18)30401-X.pdf Full text of Shih, C.F., et al. 2018. Powering the future with liquid sunshine. *Joule* **2**:1925–1949.
- https://carbon.xprize.org/prizes/carbon/teams/dimensional_energy Dimensional Energy's Carbon X-Prize page that describes the HI-Light reactor.
- https://www.cell.com/joule/references/S2542-4351(18)30086-2 Full text of Tavasoli, A., and G. Ozin. 2018. Green syngas dry reforming. *Joule* **2**:571–575.
- http://science.sciencemag.org/content/360/6391/eaar6611.editor-summary Abstract and access options for Chen, J.G.., et al. 2018. Beyond fossil fuel-driven nitrogen transformations. Science 360:eaar6611.
- http://www.b-t.energy/ventures Learn more about Breakthrough Energy Ventures and their approach to addressing climate change by investing \$1B in cleantech innovation.

Peter Calthorpe

• https://urbanfootprint.com — Learn more about UrbanFootprint's data- and visualization-driven tools for sustainable urban planning.

George Berghorn

- http://michiganstate.academia.edu/GeorgeBerghorn Partial list of Berghorn's academic publications.
- https://domicology.msu.edu Learn more about Michigan State University's domicology program.
- https://cmec.wsu.edu/documents/2016/04/design-for-deconstruction-and-modularity-in-a-sustainable-built-environment.pdf Full text of Olson, T.P. 2010. Design for deconstruction and modularity in a sustainable built environment. Working paper. Washington State University.
- https://domicology.msu.edu/upload/lifecycleassessment_anuranjita.pdf Full text of Anuranjita, A.
 2017. Life cycle assessment framework for demolition and deconstruction of buildings. Thesis. Michigan State University.

• http://www.randomlengths.com/Woodwire/RL-Lbr-Pnl — Updated weekly, the Random Lengths website lists current prices of a wide variety of wood products.

Jeanette Quinlan

- https://www.researchgate.net/publication/275346107_S2-T1_GaN-on-diamond_A_brief_history Full test of Ejeckam, F., et al. 2014. S2-T1: GaN-on-diamond: A brief history. Proceedings of the Lester Eastman Conference on High Performance Devices.
- https://www.researchgate.net/publication/261460726_Electrical_and_Thermal_Performance_of_AlGaN_GaN_HEMTs_on_Diamond_Substrate_for_RF_Applications Abstract and access options for Dumka, D.C., et al. 2013. Electrical and thermal performance of AlGaN/GaN HEMTs on diamond substrate for RF applications. Proceedings of the Compound Semiconductor Integrated Circuit Symposium.
- https://www.semanticscholar.org/paper/175%2C000-device-hours-operation-of-AlGaN%2FGaN-HEMTs-Babic-Diduck/8484d7c2ae3a9f89a7b7c376ad5a0ec9ea82a69b Abstract and access options for Babic, D.I., et al. 2013. 175,000 device-hours operation of AlGaN/GaN HEMTs at 200°C channel temperature. Proceedings of the 36th International Convention on Information and Communication Technology, Electronics and Microelectronics.
- https://www.researchgate.net/profile/Firooz_Faili/publication/286900755_3000_Hours_continuous_oper ation_of_GaN-onDiamond_HEMTs_at_350c_channel_temperature/links/568c093a08aeb488ea2fa7da/3-000-Hourscontinuous-operation-of-GaN-on-Diamond-HEMTs-at-350c-channel-temperature.pdf Full text of Ejeckam, F., et al. 2014. 3000+ continuous operation of GaN-on-diamond HEMTS at 350°C channel temperature. Proceedings of the 30th Semiconductor Thermal Measurement & Management Symposium.
- https://www.researchgate.net/publication/260307738_Wafer-scale_GaN_HEMT_performance_enhancement_by_diamond_substrate_integration Abstract and access options for Via, G.D., et al. 2014. Wafer-scale GaN HEMT performance enhancement by diamond substrate integration. *Proceedings of the 10th International Conference on Nitride Semiconductors*.
- https://www.microwavejournal.com/articles/30451-ultra-cool-gan-on-diamond-power-amplifiers-for-satcom?v=preview Access options for Ejeckam, F., et al. Ultra-cool GaN on diamond power amplifiers for SATCOM. *Microwave Journal* 61.

Bruno Zamborlin

 https://www.hypersurfaces.com — The HyperSurfaces website features videos of the HyperWall, HyperCar, HyperTable, and HyperHanger.