## Bibliography

- 23andMe (n.d.). "Choosing Which Reports to View" (). Last accessed March 26, 2021. customercare.23andme.com/hc/en-us/articles/212195308-Choosing-Which-Reports-to-View.
- 4iQ (May 2020). "2020 4iQ Identity Breach Report."
- Aaronson, Scott (March 2005). "Guest Column: NP-Complete Problems and Physical Reality." SIGACT News 36.1, pp. 30– 52. doi.org/10.1145/1052796.1052804.
- (March 2008). "The Limits of Quantum." Scientific American 298.3, pp. 62–69.
- (2013). *Quantum Computing since Democritus*. Cambridge: Cambridge University Press.
- Abbott, B. P. et al. (February 2016). "Observation of Gravitational Waves From a Binary Black Hole Merger." *Physical Re*view Letters 116.061102. link.aps.org/doi/10.1103/PhysRevLett.1 16.061102.
- Acin, A. and L. Masanes (2016). "Certified Randomness in Quantum Physics." *Nature* 540.7632, pp. 213–219.
- Adleman, Leonard (1994). "Molecular Computation of Solutions to Combinatorial Problems." *Science* 266.5187, pp. 1021–1024. science.sciencemag.org/content/266/5187/1021.
- (2011). "Pre-RSA Days: History and Lessons." In: ACM Turing Award Lectures. New York: Association for Computing Machinery, pp. 2002. doi.org/10.1145/1283920.1961904.
- Adleman, L. M., R. L. Rivest, and A. Shamir (September 1983). Cryptographic Communications System and Method. US Patent No. 4,405,829. Patent filed September 14, 1977. www.google.co m/patents/US4405829.
- Aggarwal, Vinod K. and Andrew W. Reddie (2018). "Comparative Industrial Policy and Cybersecurity: a Framework for Analysis." *Journal of Cyber Policy* 3.3, pp. 291–305.

- Agrawal, Manindra, Neeraj Kayal, and Nitin Saxena (June 2004). "Primes Is in P." *Annals of Mathematics* 160. Godel Prize, Fulkerson Prize, pp. 781–793. www.microsoft.com/en-us/research/pu blication/primes-is-in-p/.
- Aliberti, Keith and Thomas Bruen (2006). "Quantum Computation and Communication." *Army Logistician* 38.5, pp. 42–48.
- Alper, Alexandra (December 2019). "US Finalizing Rules to Limit Sensitive Tech Exports to China, Others." *Reuters*. www.reuters .com/article/us-usa-tech-china-exclusive-idUSKBN1YL1B8.
- Alpert, Carol Lynn, Emily Edwards, and James Freericks (May 13, 2020). Key Concepts for Future QIS Learners. Workshop Output. qis-learners.research.illinois.edu/.
- Altman, Ehud et al. (December 14, 2019). "Quantum Simulators: Architectures and Opportunities." arxiv.org/abs/1912.06938.
- Alzar, Carlos L. Garrido (December 13, 2019). "Compact Chip-Scale Guided Cold Atom Gyrometers for Inertial Navigation: Enabling Technologies and Design Study." AVS Quantum Science. avs.scitation.org/doi/10.1116/1.5120348.
- American Physical Society (n.d.). "Robert A. Millikan" (). Last accessed December 25, 2019. www.aps.org/programs/outreach/hi story/historicsites/millikan.cfm.
- Ananthaswamy, A. (2018). Through Two Doors at Once: The Elegant Experiment That Captures The Enigma of Our Quantum Reality. New York: Penguin Publishing Group. books.google.co m/books?id=bGNKDwAAQBAJ.
- Anqi, Huang et al. (2018). "Implementation Vulnerabilities in General Quantum Cryptography." New Journal of Physics 20.10.
- Apple Computer (November 10, 2020). "Apple Unleashes M1." www.apple.com/newsroom/2020/11/apple-unleashes-m1/.
- Applegate, David L., Robert E. Bixby, Vašek Chvátal, William Cook, et al. (2009). "Certification of an Optimal TSP Tour through 85,900 Cities." *Operations Research Letters* 37.1, pp. 11– 15. www.sciencedirect.com/science/article/pii/S016763770800113 2.
- Applegate, David L., Robert E. Bixby, Vašek Chvátal, and William J. Cook (2006). The Traveling Salesman Problem. Princeton, NJ: Princeton University Press.
- Aramon, Maliheh et al. (April 2019). "Physics-Inspired Optimization for Quadratic Unconstrained Problems Using a Digital Annealer." Frontiers in Physics 7, pp. 48.

- Arias, Elisa Felicitas and Gérard Petit (2019). "The Hyperfine Transition for The Definition of The Second." Annalen Der Physik 531.5, pp. 1900068. onlinelibrary.wiley.com/doi/abs/1 0.1002/andp.201900068.
- Arkell, Harriet (September 10, 2014). "Death From above without Warning: 70 Years after The First One Fell, Interactive Map Reveals Just Where Hitler's V2 Rockets Killed Thousands of British Civilians in Final Months of WW2." Daily Mail. www.d ailymail.co.uk/news/article-2750353/Interactive-map-reveals-hund reds-sites-Hitler-s-V2-rockets-killed-thousands-British-civilians-fina I-months-WW2.html.
- Arnbak, A. M. and N. A. N. M. van Eijk (2012). Certificate Authority Collapse: Regulating Systemic Vulnerabilities in The HTTPS Value Chain. Arlington, VA: Telecommunications Policy Research Conference.
- Arute, Frank et al. (2019). "Quantum Supremacy Using a Programmable Superconducting Processor." Nature 574.7779, pp. 505– 510. doi.org/10.1038/s41586-019-1666-5.
- Ashida, Yuya et al. (2019). "Molybdenum-Catalysed Ammonia Production with Samarium Diiodide and Alcohols or Water." *Nature* 568.7753, pp. 536–540. doi.org/10.1038/s41586-019-1134-2.
- Bailey, Dennis (2004). The Open Society Paradox: Why The 21st Century Calls for More Openness – Not Less. Washington, D.C.: Brassey's.
- Baloo, Jaya (June 30, 2019). "KPN's Quantum Journey, Cyberweek 2019, Tel Aviv, Israel." YouTube video. www.youtube.com /watch?v=ePZFBxX3DnY.
- Barker, Elaine and John Kelsey (March 2007). Recommendation for Random Number Generation Using Deterministic Random Bit Generators (Revised). Last accessed May 30, 2020. National Institute of Standards and Technology. csrc.nist.gov/publications /detail/sp/800-90/revised/archive/2007-03-14.
- Barlow, John Perry (1996). "A Declaration of The Independence of Cyberspace." *Journal*. homes.eff.org/~barlow/Declaration-Final.h tml.
- Barzanjeh, Shabir et al. (February 2015). "Microwave Quantum Illumination." *Physical Review Letters* 114 (8). pp. 080503. link .aps.org/doi/10.1103/PhysRevLett.114.080503.

- Batten, Alan H. (September 26, 2005). "Subtle Are Einstein's Thoughts." *Physics World* 18.9, pp. 16. physicsworld.com/a/s ubtle-are-einsteins-thoughts/.
- Bayer, Ronald and Sandro Galea (2015). "Public Health in The Precision-Medicine Era." New England Journal of Medicine 373.6, pp. 499–501.
- Bell, John Stewart (1964). "On The Einstein Podolsky Rosen Paradox." *Physics* 1.3, pp. 195–290. cds.cern.ch/record/111654/files /vol1p195-200\_001.pdf.
- Bellovin, Steven M. (June 1, 2000). "Wiretapping The Net." www.n ae.edu/7430/WiretappingtheNet.
- ben-Aaron, Diana (April 1985). "Weizenbaum Examines Computers and Society." *The Tech* 105 (16).
- Ben-Atar, Doron S. (2004). Trade Secrets: Intellectual Piracy and The Origins of American Industrial Power. New Haven, CT: Yale University Press. books.google.com/books?id=dHD1m AEACAAJ.
- Benioff, Paul (1980). "The Computer As a Physical System: A Microscopic Quantum Mechanical Hamiltonian Model of Computers As Represented by Turing Machines." *Journal of Statistical Physics* 22.5, pp. 563–591.
- (1982a). "Quantum Mechanical Hamiltonian Models of Discrete Processes That Erase Their Own Histories: Application to Turing Machines." *International Journal of Theoretical Physics* 21.3, pp. 177–201.
- (1982b). "Quantum Mechanical Models of Turing Machines That Dissipate No Energy." *Physical Review Letters* 48.1581.
- Bennett, C. H. (November 1973). "Logical Reversibility of Computation." *IBM Journal of Research and Development* 17.6, pp. 525–532. doi.org/10.1147/rd.176.0525.
- Bennett, C. H. and G. Brassard (1984). "Quantum Cryptography: Public Key Distribution and Coin Tossing," pp. 175–179. resear cher.watson.ibm.com/researcher/files/us-bennetc/BB84highest.pdf
- Bennett, Charles H. et al. (1993). "Teleporting an Unknown Quantum State via Dual Classical and Einstein-Podolsky-Rosen Channels." *Physical Review Letters* 70.13, pp. 1895–1899.
- Beranek, Leo (2011). "Founding a Culture of Engineering Creativity." In: A Culture of Innovation: Insider Accounts of Computing and Life at BBN: A Sixty Year Report, 18 October 1948 to

1 July 2010. East Sandwich, Massachusetts: Waterside Publishing. www.cbi.umn.edu/hostedpublications/pdf/CultureInnovation \_bbn.pdf.

- Berger, Abi (2002). "Magnetic Resonance Imaging." *BMJ Clinical Research Ed.* 324.7328, pp. 35.
- Bernstein, Daniel J. (2009). "Introduction to Post-Quantum Cryptography." In: Post-Quantum Cryptography. Berlin, Heidelberg: Springer, pp. 1–14.
- Bernstein, Daniel J. and T. Lange (2017). "Post-Quantum Cryptography." *Nature* 549.7671, pp. 188–194.
- Berry, Michael W. et al. (2008). Survey of Text Mining II: Clustering, Classification, and Retrieval. Springer.
- Berthiaume, André and Gilles Brassard (1994). "Oracle Quantum Computing." *Journal of Modern Optics* 41.12, pp. 2521–2535. doi.org/10.1080/09500349414552351.
- Bierhorst, Peter et al. (2018). "Experimentally Generated Randomness Certified by The Impossibility of Superluminal Signals." *Nature* 556.7700, pp. 223–226.
- Biological Nitrogen Fixation: Research Challenges A Review of Research Grants Funded by the US Agency for International Development (1994). Washington, DC: The National Academies Press. www.nap.edu/catalog/9288/biological-nitrogen-fixation-res earch-challenges-a-review-of-research-grants.
- Black, John, Martin Cochran, and Trevor Highland (2006). "A Study of The MD5 Attacks: Insights and Improvements." Fast Software Encryption, 13th International Workshop, FSE 2006.
  Vol. 4047. Lecture Notes in Computer Science. Berlin, Heidelberg: Springer, pp. 262–277. iacr.org/archive/fse2006/40470265 /40470265.pdf.
- Blakeslee, Sandra (June 1, 1984). "Nuclear Spill at Juarez Looms As One of The Worst." *New York Times.* www.nytimes.com/198 4/05/01/science/nuclear-spill-at-juarez-looms-as-one-of-worst.ht ml.
- Blakley, George Robert (1979). "Safeguarding Cryptographic Keys." International Workshop on Managing Requirements Knowledge. IEEE Computer Society. Los Alamitos, CA: IEEE Computer Society, pp. 313–318.
- Blanchette, Jean-François (2012). Burdens of Proof: Cryptographic Culture and Evidence Law in The Age of Electronic Documents.

Cambridge, MA: The MIT Press. www.jstor.org/stable/j.ctt5vjp dh.

- Boaron, Alberto et al. (2018). "Secure Quantum Key Distribution Over 421 Km of Optical Fiber." *Physical Review Letters* 121.19, pp. 190502.
- Boneh, Dan and Matthew K. Franklin (2001). "Identity-Based Encryption From The Weil Pairing." Advances in Cryptology Proceedings of CRYPTO 2001, pp. 213–229.
- Bongs, Kai et al. (2019). "Taking Atom Interferometric Quantum Sensors From The Laboratory to Real-World Applications." *Nature Reviews Physics* 1.12, pp. 731–739. doi.org/10.1038/s42254-019-0117-4.
- Bonneau, J., C. Herley, et al. (2012). "The Quest to Replace Passwords: A Framework for Comparative Evaluation of Web Authentication Schemes." 2012 IEEE Symposium on Security and Privacy. San Francisco, CA, pp. 553–567.
- Bonneau, J., Cormac Herley, et al. (June 2015). "Passwords and The Evolution of Imperfect Authentication." Communications of The Association for Computing Machinery 58.7, pp. 78–87. doi.org/10.1145/2699390.
- Boothby, Bill (2017). "Space Weapons and The Law." International Law Studies 93, pp. 179–214.
- Boudot, Fabrice et al. (February 28, 2020). "Factorization of RSA-250." *Cado-Nfs-Discussion*. lists.gforge.inria.fr/pipermail/cado-nfs-discuss/2020-February/001166.html.
- Braithwaite, Matt (July 7, 2016). "Experimenting with Post-Quantum Cryptography." *Google Security Blog.* security.googleblog.com/2 016/07/experimenting-with-post-quantum.html.
- Brassard, G. (2005). "Brief History of Quantum Cryptography: a Personal Perspective." *IEEE Information Theory Workshop on Theory and Practice in Information-Theoretic Security, 2005.* Updated version located at arxiv.org/abs/quant-ph/0604072v1, pp. 19–23.
- Bratley, Paul and Jean Millo (1972). "Computer Recreations: Self-Reproducing Programs." *Software Practice and Experience* 2, pp. 397–400. onlinelibrary.wiley.com/doi/abs/10.1002/spe.438002 0411.
- Briegel, H. J. et al. (1998). "Quantum Repeaters: The Role of Imperfect Local Operations in Quantum Communication." *Physi*cal Review Letters 81.26, pp. 5932–5935.

- Brown, I. David (2016). The Chemical Bond in Inorganic Chemistry: The Bond Valence Model, 2nd ed. Oxford University Press.
- Brumfiel, Geoff (February 2016). "US Navy Brings Back Navigation by The Stars for Officers." *National Public Radio*.
- (2019). "India Claims Successful Test Of Anti-Satellite Weapon." National Public Radio: All Things Considered.
- Buchanan, Ben (2020). The Hacker and The State: Cyber Attacks and The New Normal of Geopolitics. Cambridge, MA: Harvard University Press.
- Buchner, M. et al. (2018). "Tutorial: Basic Principles, Limits of Detection, and Pitfalls of Highly Sensitive SQUID Magnetometry for Nanomagnetism and Spintronics." *Journal of Applied Physics* 124.16.
- Budker, Dmitry and Michael Romalis (April 1, 2007). "Optical Magnetometry." *Journal*. escholarship.org/uc/item/1c79s7vb.
- Bunch, Bryan H. (2004). The History of Science and Technology: A Browser's Guide to The Great Discoveries, Inventions, and The People Who Made Them, From The Dawn of Time to Today. Boston, MA: Houghton Mifflin.
- Bundesministerium für Bildung und Forschung (January 2020). "Die Zweite Quantenrevolution Maßgeblich Mitgestalten."
- Bureau International des Poids et Mesures (July 2017). "50th Anniversary of The Adoption of The Atomic Definition of The Second." Last accessed October 9, 2020. www.bipm.org/en/news /full-stories/2017-07-definition-second.html.
- (n.d.). *The International System of Units*. www.bipm.org/en/pu blications/si-brochure/.
- Bush, V. (1931). "The Differential Analyzer. A New Machine for Solving Differential Equations." *Journal of The Franklin Institute* 212.4, pp. 447–488. www.sciencedirect.com/science/article/p ii/S0016003231906169.
- Bush, V., F. D. Gage, and H. R. Stewart (1927). "A Continuous Integraph." *Journal of The Franklin Institute* 203.1, pp. 63–84. www.sciencedirect.com/science/article/pii/S0016003227900970.
- C4ADS (April 16, 2019). "Above Us Only Stars: Exposing GPS Spoofing in Russia and Syria." www.c4reports.org/aboveusonlyst ars.

- Calo, Ryan (2018). "Artificial Intelligence Policy: A Primer and Roadmap." *Bologna Law Review*. bolognalawreview.unibo.it/articl e/view/8670.
- Capra, Fritjof (1975). Tao of Physics: an Exploration of The Parallels between Modern Physics and Eastern Mysticism. 2nd ed. New Science Library. Boston, MA: Shambhala.
- Caro, Jose et al. (2011). "GPS Space Segment." *Navipedia*. Last edited June 19, 2018; last accessed October 18, 2020. gssc.esa.in t/navipedia/index.php/GPS\_Space\_Segment.
- Carreyrou, John (2018). Bad Blood: Secrets and Lies in a Silicon Valley Startup. New York: Alfred A. Knopf.
- Catalog Technologies, Inc. (n.d.). "Catalog" (). Last accessed January 12, 2021. www.catalogdna.com.
- Center for Long Term Cybersecurity (2019). "Cybersecurity Scenarios 2025."
- Chang, C. W. et al. (2019). "Quantum-Enhanced Noise Radar." Applied Physics Letters 114.11, pp. 112601.
- Chang, Weng-Long, Minyi Guo, and M. S. Ho (2005). "Fast Parallel Molecular Algorithms for DNA-Based Computation: Factoring Integers." *IEEE Transactions on NanoBioscience* 4.2, pp. 149–163.
- Chen, Yu-Ao et al. (2021). "An Integrated Space-To-Ground Quantum Communication Network Over 4,600 Kilometres." *Nature* 589.7841, pp. 214–219.
- Cheng, Kai-Wen and Chien-Cheng Tseng (June 5, 2002). "Quantum Plain and Carry Look-Ahead Adders." *ArXiv.org Quantum Physics.* arxiv.org/abs/quant-ph/0206028.
- Chiang, Ted (2019). Exhalation. New York: Alfred A. Knopf.
- Cho, A. (2020). "The Short, Strange Life of Quantum Radar." *Science* 369.6511, pp. 1556–1557.
- Chou, C. W. et al. (2010). "Optical Clocks and Relativity." Science 329.5999, pp. 1630–1633. science.sciencemag.org/content/329/59 99/1630.
- Church, Alonzo (1936). "An Unsolvable Problem of Elementary Number Theory." American Journal of Mathematics 58.2, pp. 345– 363. www.jstor.org/stable/2371045.
- Chwala, A. et al. (2012). "Full Tensor SQUID Gradiometer for Airborne Exploration." ASEG Extended Abstracts 2012.1, pp. 1–4.

- Clarivate (2021). "What Is Web of Science Core Collection?" clariv ate.libguides.com/woscc/basics.
- Clark, David D. (2019). *Designing an Internet*. Cambridge, MA: MIT Press.
- Clymer, A. Ben (1993). "The Mechanical Analog Computers of Hannibal Ford and William Newell." *IEEE Annals of The His*tory of Computing 15.2, pp. 19–34.
- Cocks, Clifford (2001). "An Identity Based Encryption Scheme Based on Quadratic Residues." *Proceedings of The 8th IMA International Conference on Cryptography and Coding.* Berlin, Heidelberg: Springer.
- Congressional Research Service (2020). "US Research and Development Funding and Performance: Fact Sheet."
- Cook, William J. (2012). In Pursuit of The Traveling Salesman. Princeton, NJ: Princeton University Press.
- Copeland, B. Jack, ed. (2005). Alan Turing's Automatic Computing Engine. Oxford University Press.
- Copeland, René (October 17, 2017). "The International Quantum Race." *The Coming Quantum Revolution: Security and Policy Implications*, Video Conference proceedings.
- Coppersmith, D. (May 1994). "The Data Encryption Standard (DES) and Its Strength against Attacks." *IBM Journal of Research and Development* 38.3, pp. 243–250.
- Cory, David G., Amr F. Fahmy, and Timothy F. Havel (1997).
  "Ensemble Quantum Computing by NMR Spectroscopy." *Proceedings of The National Academy of Sciences* 94.5, pp. 1634–1639. www.pnas.org/content/94/5/1634.
- Cox, K. C. et al. (2018). "Quantum-Limited Atomic Receiver in The Electrically Small Regime." *Physical Review Letters* 121.11, pp. 110502.
- Crane, Leah (June 24, 2020). "Honeywell Claims It Has Built The Most Powerful Quantum Computer Ever." *New Scientist.* www .newscientist.com/article/2246940-honeywell-claims-it-has-built-th e-most-powerful-quantum-computer-ever/.
- Creery, Madison (June 26, 2019). "The Russian Edge in Electronic Warfare." *Georgetown Security Studies Review*. georgetownsecuri tystudiesreview.org/2019/06/26/the-russian-edge-in-electronic-wa rfare/.
- Cross, A. W. et al. (2019). "Validating Quantum Computers Using Randomized Model Circuits." *Physical Review A* 100.3.

- Curtis E. LeMay Center for Doctrine Development and Education (March 13, 2019). "Introduction to Targeting." www.doctrine.af .mil/Portals/61/documents/Annex\_3-60/3-60-D01-Target-Intro.p df.
- Cybersecurity and Infrastructure Security Agency (January 5, 2021). "Joint Statement by The Federal Bureau of Investigation (FBI), The Cybersecurity and Infrastructure Security Agency (CISA), The Office of The Director of National Intelligence (ODNI), and The National Security Agency (NSA)." www.cis a.gov/news/2021/01/05/joint-statement-federal-bureau-investigat ion-fbi-cybersecurity-and-infrastructure.
- D-Wave Systems Inc. (May 29, 2019). "Quantum Experiences: Applications and User Projects on D-Wave." www.youtube.com/watch?v=NTnu1UiFXVo.
- (September 29, 2020). "D-Wave Announces General Availability of First Quantum Computer Built for Business." www.dwavesys .com/press-releases/d-wave-announces-general-availability-first-qu antum-computer-built-business.
- Dam, Kleese K. van (February 5, 2020). From Long-Distance Entanglement to Building a Nationwide Quantum Internet: Report of The DOE Quantum Internet Blueprint Workshop. Tech. rep. BNL-216179-2020-FORE. United States.
- Danzig, Richard (May 2018). "Technology Roulette: Managing Loss of Control As Many Militaries Pursue Technological Superiority." CNAS. www.cnas.org/publications/reports/technologyroulette.
- Dasgupta, Subrata (2014). It Began with Babbage: The Genesis of Computer Science. Oxford University Press.
- Dattani, Nikesh S. and Nathaniel Bryans (2014). "Quantum Factorization of 56153 with Only 4 Qubits." arxiv.org/abs/1411.675 8.
- Davies, William (2020). *This Is Not Normal: The Collapse of Liberal Britain*. Verso. www.versobooks.com/books/3628-this-is-not-normal.
- Davisson, Clinton J. and Lester H. Germer (1928). "Reflection of Electrons by a Crystal of Nickel." Proceedings of The National Academy of Sciences of The United States of America 14 (4), pp. 317–322.

- Dean, Jeffrey (November 10, 2010). "Building Software Systems At Google and Lessons Learned." Talk at Stanford University. www.youtube.com/watch?v=modXC5IWTJI.
- Defense Advanced Research Projects Agency (2020). "Quantum Sensing and Computing." www.darpa.mil/attachments/Quantum SensingLayout2.pdf.
- Degen, C. L., F. Reinhard, and P. Cappellaro (July 25, 2017). "Quantum Sensing." *Reviews of Modern Physics* 89.3, pp. 035002.
- Department of Commerce, Bureau of Industry and Security (November 19, 2018). "Review of Controls for Certain Emerging Technologies." *Federal Register* 83.
- Department of Homeland Security, US Coast Guard (2018). "GPS Problem Reporting." navcen.uscg.gov/?pageName=gpsUserInput.
- Deutsch, David (1985). "Quantum Theory, The Church-Turing Principle and The Universal Quantum Computer." Proceedings of The Royal Society of London. A. Mathematical and Physical Sciences 400.1818, pp. 97–117.
- Didion, Joan (2003). Where I Was From. New York: Knopf.
- Diffie, Whitfield and Martin E Hellman (1976). "New Directions in Cryptography." *IEEE Transactions on Information Theory* 22.6, pp. 644–654.
- (1977). "Special Feature Exhaustive Cryptanalysis of The NBS Data Encryption Standard." Computer 10.6, pp. 74–84.
- Dinolt, George et al. (September 2010). Parallelizing SHA-256, SHA-1 MD5 and AES on The CellBroadbandEngine. Tech. rep. NPS-CS-10-11. Monterey, CA: Naval Postgraduate School. calh oun.nps.edu/handle/10945/551.
- Director of National Intelligence (2019). "What Is Intelligence?" www.dni.gov/index.php/what-we-do/what-is-intelligence.
- DiVincenzo, David P. (1997). "Topics in Quantum Computers." In: Mesoscopic Electron Transport, ed. Lydia L. Sohn, Leo P. Kouwenhoven, and Gerd Schön. Dordrecht: Springer Netherlands, pp. 657–677. doi.org/10.1007/978-94-015-8839-3\_18.
- (September 2000). "The Physical Implementation of Quantum Computation." *Fortschritte Der Physik* 48.9–11, pp. 771–783. dx.doi.org/10.1002/1521-3978(200009)48:9/11%3C771::AID-PROP771%3E3.0.CO;2-E.
- Doudna, Jennifer A. and Emmanuelle Charpentier (2014). "The New Frontier of Genome Engineering with CRISPR-Cas9." Science 346.6213, pp. 1258096.

- Dowling, J. P. and G. J. Milburn (2003). "Quantum Technology: The Second Quantum Revolution." *Philosophical Transactions* of The Royal Society of London A: Mathematical, Physical and Engineering Sciences 361.1809, pp. 1655–1674.
- Doyle, Leonard (April 28, 1993). "Business Spy War Erupts between US and France: Paris Forced to Come Clean on Hi-Tech Dirty Tricks." *The Independent*. tinyurl.com/4jxv6fzr.
- Duke, J., J. Friedlin, and P. Ryan (2011). "A Quantitative Analysis of Adverse Events and 'Overwarning' in Drug Labeling." *Archives of Internal Medicine* 171.10, pp. 944–946.
- Dworkin, Morris J. et al. (November 26, 2001). Advanced Encryption Standard (AES). Tech. rep. FIPS-197. Gaithersburg, MD: National Institute of Standards and Technology. www.nist.gov /publications/advanced-encryption-standard-aes.
- Dyakonov, Mikhail (2019). "When Will Useful Quantum Computers Be Constructed? Not in The Foreseeable Future, This Physicist Argues. Here's Why: The Case against: Quantum Computing." *IEEE Spectrum* 56.3.
- (2020). Will We Ever Have a Quantum Computer? Berlin: Springer.
- Einstein, Albert (1905). "Über Einen Die Erzeugung Und Verwandlung Des Lichtes Betreffenden Heuristischen Gesichtspunkt (On The Production and Transformation of Light From a Heuristic Viewpoint)." Annalen Der Physik (1900) (Series 4) 322.6, pp. 132–148. www.gsjournal.net/Science-Journals/Essays/View/2 490;%20www.gsjournal.net/Science-Journals/Essays/View/2491;%20www.zbp.univie.ac.at/einstein/einstein1.pdf.
- Einstein, Albert and Max Born (1971). The Born-Einstein Letters: Correspondence between Albert Einstein and Max and Hedwig Born From 1916–1955, with Commentaries by Max Born. London: Macmillan.
- (2005). The Born-Einstein Letters 1916–1955: Friendship, Politics and Physics in Uncertain Times. London: Macmillan.
- Einstein, Albert, Max Born, and Werner Heisenberg (2005). Albert Einstein Max Born, Briefwechsel 1916–1955: Mit Einem Geleitwort von Bertrand Russell (Deutsch). Munich: Langen Müller, pp. 52.
- Einstein, Albert and Leopold Infeld (1938). The Evolution of Physics: The Growth of Ideas From Early Concepts to Relativity and Quanta. Cambridge: Cambridge University Press.

- Einstein, Albert, Boris Podolsky, and Nathan Rosen (May 15, 1935). "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?" *Physical Review* 47, pp. 777– 780.
- Ekerå, Martin and Johan Håstad (2017). "Quantum Algorithms for Computing Short Discrete Logarithms and Factoring RSA Integers." *International Workshop on Post-Quantum Cryptography*. Berlin: Springer, pp. 347–363.
- Ekert, Artur K. (August 1991). "Quantum Cryptography Based on Bell's Theorem." *Physical Review Letters* 67 (6), pp. 661–663. link.aps.org/doi/10.1103/PhysRevLett.67.661.
- Electronic Frontier Foundation, ed. (1998). Cracking DES: Secrets of Encryption Research, Wiretap Politics and Chip Design. en. San Francisco, CA: Electronic Frontier Foundation.
- Elfving, V. E. et al. (2020). "How Will Quantum Computers Provide an Industrially Relevant Computational Advantage in Quantum Chemistry?" arxiv.org/abs/2009.12472.
- Elliott, Chip and Henry Yeh (July 2007). DARPA Quantum Network Testbed. AFRL-IF-RS-TR-2007-180. Cambridge, MA: BBN Technologies. www.dtic.mil/docs/citations/ADA471450.
- Ellis, James, Clifford Cocks, and Malcolm Williamson (1975). Public-Key Cryptography. Classified reports (titles uncertain) at Government Communications Headquarters (GCHQ), Cheltenham, UK. Work declassified in 1997. Awarded the 100th IEEE Milestone Award for the first discovery (albeit long secret) of publickey cryptography. www.gchq.gov.uk/Press/Pages/100th-IEEE-mi lestone-award.aspx.
- European Commission (March 11, 2020). "A New Circular Economy Action Plan." ec.europa.eu/environment/circular-economy/.
- European Commission, High Level Steering Committee, DG Connect (June 28, 2017a). "Quantum Technologies Flagship Final Report." digital-strategy.ec.europa.eu/en/library/quantum-flagshi p-high-level-expert-group-publishes-final-report.
- (2017b). "Quantum Technologies Flagship Intermediate Report."
- Fagaly, Robert (2014). "SQUID Magnetometers." In: Measurement, Instrumentation, and Sensors Handbook, Second Edition: Electromagnetic, Optical, Radiation, Chemical, and Biomedical Measurement. Boca Raton, FL: CRC Press, pp. 1–14.

- Faley, M. I. et al. (December 6, 2017). "Superconducting Quantum Interferometers for Nondestructive Evaluation." Sensors 17.12, pp. 2798.
- Farrell, Henry and Abraham L Newman (2019). "Weaponized Interdependence: How Global Economic Networks Shape State Coercion." *International Security* 44.1, pp. 42–79.
- Feynman, Richard P. (December 29, 1959). "There's Plenty of Room at The Bottom: An Invitation to Enter a New Field of Physics." Lecture given at the American Physical Society. Published in *Engineering and Science*, February 1960, pp. 22–36.
- (1982). "Simulating Physics with Computers." International Journal of Theoretical Physics 21.6, pp. 467–488. doi.org/10.100 7/BF02650179.
- (February 1985a). "Quantum Mechanical Computers." Optics News 11.2, pp. 11–20.
- (1985b). "Tiny Computers Obeying Quantum Mechanical Laws." In: New Directions in Physics: The Los Alamos 40th Anniversary Volume. Boston, MA: Academic Press.
- (1986). Foundations of Physics 16.6, pp. 507–531.
- Finke, Doug (2021). "Qubit Count." *Quantum Computing Report*. quantumcomputingreport.com/scorecards/qubit-count/.
- Flamini, Fulvio, Nicolo Spagnolo, and Fabio Sciarrino (2018). "Photonic Quantum Information Processing: a Review." *Reports on Progress in Physics* 82.1, pp. 016001.
- Fortt, Jon (March 11, 2010). "Top 5 Moments From Eric Schmidt's Talk in Abu Dhabi." *Fortune*.
- Fowler, Austin G. et al. (September 2012). "Surface Codes: Towards Practical Large-Scale Quantum Computation." *Physical Review A* 86.3. dx.doi.org/10.1103/PhysRevA.86.032324.
- Frank, M. P. (2002). "The Physical Limits of Computing." Computing in Science Engineering 4.3, pp. 16–26.
- Fredkin, Ed, Rolf Landauer, and Tom Toffoli (1982). "Physics of Computation." International Journal of Theoretical Physics 21 (12), pp. 903–903. doi.org/10.1007/BF02084157.
- Fredkin, Edward F. (July 5, 2006). "Oral History of Ed Fredkin." Interviewed by Gardner Hendrie. archive.computerhistory.org/res ources/access/text/2013/05/102630504-05-01-acc.pdf.
- Fredkin, Edward F. and Tommaso Toffoli (April 1982). "Conservative Logic." International Journal of Theoretical Physics 21.3–4, pp. 219–253.

- (2001). "Design Principles for Achieving High-Performance Submicron Digital Technologies." In: *Collision-Based Computing*. Berlin, Heidelberg: Springer-Verlag, pp. 27–46.
- Fujiwara, Masazumi et al. (2020). "Real-Time Nanodiamond Thermometry Probing in Vivo Thermogenic Responses." Science Advances 6.37.
- Gaithersburg, MD: National Institute of Standards and Technology (2018). "NIST Jump-Starts Quantum Information." www.nist.go v/topics/physics/introduction-new-quantum-revolution/nist-jumpstarts-quantum-information.
- (June 5, 2019). "Second: The Future." www.nist.gov/si-redefiniti on/second/second-future.
- Gamberini, Sarah Jacobs and Lawrence Rubin (2021). "Quantum Sensing's Potential Impacts on Strategic Deterrence and Modern Warfare." *Orbis.* www.sciencedirect.com/science/article/pii /S0030438721000120.
- Gardner, Martin (October 1970). "The Fantastic Combinations of John Conway's New Solitaire Game 'Life'." Scientific American 223, pp. 120–123.
- (August 1977). "Mathematical Games: A New Kind of Cipher That Would Take Millions of Years to Break." *Scientific American* 237.2, pp. 120–124. www.nature.com/scientificamerican/jour nal/v237/n2/pdf/scientificamerican0877-120.pdf.
- Garfinkel, Simson L. (1994). *PGP: Pretty Good Privacy*. Sebastapol, CA: O'Reilly & Associates.
- (October 11, 1995). "1985–1995: Digital Decade. MIT's Computing Think Tank Chronicles The Electronic Age." San Jose Mercury News. simson.net/clips/1995/95.SJMN.MediaLab.pdf.
- (2000). Database Nation: The Death of Privacy in The 21st Century. Seabastopol, CA: O'Reilly.
- (May 2005). "Quantum Physics to The Rescue: Cryptographic Systems Can Be Cracked. And People Make Mistakes. Take Those Two Factors out of The Equation, and You Have Quantum Cryptography and a New Way to Protect Your Data." CSO Magazine.
- Garfinkel (aut.), Simson L. and Hal Abelson (ed.) (1999). Architects of The Information Society. Cambridge, MA: MIT Press.
- Garfinkel, Simson L. and Rachel H. Grunspan (2018). *The Computer Book.* New York, NY: Sterling Milestones.

- Garfinkel, Simson L. and Philip Leclerc (2020). "Randomness Concerns When Deploying Differential Privacy." Proceedings of The 19th Workshop on Privacy in The Electronic Society. WPES'20. New York: Association for Computing Machinery, pp. 73–86. doi.org/10.1145/3411497.3420211.
- Garroway, A. N. et al. (2001). "Remote Sensing by Nuclear Quadrupole Resonance." *IEEE Transactions on Geoscience and Remote Sensing* 39.6, pp. 1108–1118.
- Gellman, Barton (2020). Dark Mirror: Edward Snowden and The American Surveillance State. London: The Bodley Head.
- Gely, Mario F. et al. (2019). "Observation and Stabilization of Photonic Fock States in a Hot Radio-Frequency Resonator." Science 363.6431, pp. 1072–1075. science.sciencemag.org/content/3 63/6431/1072.
- Gerlich, Stefan et al. (2011). "Quantum Interference of Large Organic Molecules." *Nature Communications* 2.1, pp. 1–5.
- Gershenfeld, Neil A. and Isaac L. Chuang (1997). "Bulk Spin-Resonance Quantum Computation." *Science* 275.5298, pp. 350–356. science .sciencemag.org/content/275/5298/350.
- Gibney, Elizabeth (2017). "New Definitions of Scientific Units Are on The Horizon." *Nature* 550.7676, pp. 312–313.
- (2019). "The Quantum Gold Rush." Nature 574.7776, pp. 22– 24.
- Gidney, Craig and Martin Ekerå (2019). "How to Factor 2048 Bit RSA Integers in 8 Hours Using 20 Million Noisy Qubits." arxiv .org/abs/1905.09749.
- Giurgica-Tiron, Tudor et al. (2020). "Low Depth Algorithms for Quantum Amplitude Estimation." arxiv.org/abs/2012.03348.
- Goldberg, Ian, David Wagner, and Eric Brewer (1997). "Privacy-Enhancing Technologies for The Internet." *Proceedings IEEE COMPCON 97. Digest of Papers.* IEEE. San Jose, CA, pp. 103– 109.
- Goodin, Dan (December 3, 2019). "New Crypto-Cracking Record Reached, with Less Help Than Usual From Moore's Law." Ars *Technica.* arstechnica.com/information-technology/2019/12/newcrypto-cracking-record-reached-with-less-help-than-usual-from-mo ores-law/.
- Google (n.d.). "Quantum Google AI" (). ai.google/research/teams /applied-science/quantum-ai/.

- Google LLC (2021). "Encryption at Rest." Last accessed January 1, 2021. cloud.google.com/security/encryption-at-rest.
- Goucher, Adam P. (2012). "Antikythera Mechanism." demonstratio ns.wolfram.com/AntikytheraMechanism/.
- "GPS Navigation: From the Gulf War to Civvy Street" (November 2, 2018). www.sciencemuseum.org.uk/objects-and-stories/gps-navigation-gulf-war-civvy-street.
- Grant, Edward (2008). Much Ado About Nothing: Theories of Space and Vacuum From The Middle Ages to The Scientific Revolution. Cambridge: Cambridge University Press.
- Greenspan, Donald (1982). "Deterministic Computer Physics." International Journal of Theoretical Physics 21.6, pp. 505–523.
- Greve, Frank (April 18, 1993). "Boeing Called A Target Of French Spy Effort." *The Seattle Times.* archive.seattletimes.com/archive /?date=19930418&slug=1696416.
- Grier, David Alan (2007). When Computers Were Human. Princeton, NJ: Princeton University Press.
- Grumbling, Emily and Mark Horowitz (2019). *Quantum Computing: Progress and Prospects.* Washington, DC: National Academies Press. doi.org/10.17226/25196.
- Guha, S. and B. Erkmen (2009). "Gaussian-State Quantum-Illumination Receivers for Target Detection." *Physical Review A* 80, pp. 052310.
- Gunning, D. and D. W. Aha (2019). "DARPA's Explainable Artificial Intelligence Program." *AI Magazine* 40.2, pp. 44–58.
- Gurobi Optimization, LLC (2019). "Air France Tail Assignment Optimization." www.gurobi.com/wp-content/uploads/2019/09/Ai r-France-Case-Study.pdf.
- Gwinner, Jan et al. (2020). "Benchmarking 16-Element Quantum Search Algorithms on IBM Quantum Processors." arxiv.org/abs /2007.06539.
- Hagestad, William T. (2012). "Chinese IW Capabilities." In: 21st Century Chinese Cyberwarfare. Cambridgeshire, UK: IT Governance Publishing, pp. 137–146. www.jstor.org/stable/j.ctt5hh5nz .16.
- Halder, Matthäus et al. (2007). "Entangling Independent Photons by Time Measurement." *Nature Physics* 3.10, pp. 692–695. doi.o rg/10.1038/nphys700.
- Hambling, David (2017). "China's Quantum Submarine Detector Could Seal South China Sea." New Scientist 22.

- Harari, Y. N. (2017). *Homo Deus: A Brief History of Tomorrow*. New York: Harper Collins.
- Hardesty, Jasper (2014). "Safety, Security and Dual-Use Chemicals." Journal of Chemical Health and Safety 22.5, pp. 3–16.
- Harris, Mark (October 4, 2018). "D-Wave Launches Free Quantum Cloud Service." *IEEE Spectrum.* spectrum.ieee.org/dwave-launch es-free-quantum-cloud-service.
- Harris, Robert G. and James M. Carman (1984). "Public Regulation of Marketing Activity: Part II: Regulatory Responses to Market Failures." *Journal of Macromarketing* 4.1, pp. 41–52. doi.org/10.1177/027614678400400105.

al-Haytham, Ibn (1011). Book of Optics.

- Heidari, Hadi and Vahid Nabaei (2019). "SQUID Sensors." In: Magnetic Sensors for Biomedical Applications. New York: John Wiley and Sons, pp. 163–212.
- Heisenberg, Werner (March 1927). "Über Den Anschaulichen Inhalt Der Quantentheoretischen Kinematik Und Mechanik." Zeitschrift Für Physik 43.3, pp. 172–198. doi.org/10.1007/BF01 397280.
- (1983). *Encounters with Einstein*. Princeton, NJ: Princeton University Press.
- Heller, Nathan (December 18, 2017). "The Digital Republic: Is Estonia The Answer to The Crisis of Nation-States?" New Yorker, pp. 84–93.
- Heuer Jr., Richards J. and Randolph H. Pherson (2015). *Structured Analytic Techniques for Intelligence Analysis.* 2nd ed. Thousand Oaks, California: CQ Press.
- Hill, Kashmir (July 24, 2013). "Blueprints of NSA's Ridiculously Expensive Data Center in Utah Suggest It Holds Less Info Than Thought." Forbes. www.forbes.com/sites/kashmirhill/2 013/07/24/blueprints-of-nsa-data-center-in-utah-suggest-its-stora ge-capacity-is-less-impressive-than-thought.
- (2021). "Your Face Is Not Your Own." New York Times Magazine. www.nytimes.com/interactive/2021/03/18/magazine/facial-r ecognition-clearview-ai.html.
- Hillis, W. Daniel (1982). "New Computer Architectures and Their Relationship to Physics or Why Computer Science Is No Good." *International Journal of Theoretical Physics* 21.3, pp. 255–262.
- (1989). "Richard Feynman and The Connection Machine." *Physics Today* 42.2. physicstoday.scitation.org/doi/10.1063/1.881196.

- Hillis, Daniel and Brian Silverman (1978). "Original Tinkertoy Computer." *Computer History Museum*. www.computerhistor y.org/collections/catalog/X39.81.
- Hlembotskyi, Vladyslav et al. (2020). "Efficient Unstructured Search Implementation on Current Ion-Trap Quantum Processors." arx iv.org/abs/2010.03841.
- Ho, Chi-Tang, Xin Zheng, and Shiming Lib (March 2015). "Tea Aroma Formation." *Food Science and Human Wellness*, pp. 9– 27. www.sciencedirect.com/science/article/pii/S221345301500018 X.
- Hoffman, David (2009). The Dead Hand: The Untold Story of The Cold War Arms Race and Its Dangerous Legacy. New York: Anchor.
- Holland, J., J. M. Smith, and M. Schuchard (2019). "Measuring Irregular Geographic Exposure on The Internet." ArXiv.
- Hollingham, Richard (September 7, 2014). "V2: The Nazi Rocket That Launched The Space Age." *BBC*. www.bbc.com/future/arti cle/20140905-the-nazis-space-age-rocket.
- Holtmaat, Anthony et al. (2009). "Long-Term, High-Resolution Imaging in The Mouse Neocortex through a Chronic Cranial Window." Nature Protocols 4.8, pp. 1128–1144.
- Homer (2018). *The Odyssey*, ed. Emily R. Wilson. New York: W.W. Norton and Company.
- Honeywell (June 2020). "The World's Highest Performing Quantum Computer Is Here." www.honeywell.com/us/en/news/2020 /06/the-worlds-highest-performing-quantum-computer-is-here.
- Hoofnagle, Chris Jay (2016). *Federal Trade Commission Privacy Law and Policy*. New York: Cambridge University Press. assets .cambridge.org/97811071/26787/cover/9781107126787.jpg.
- Hoogstraaten, Hans et al. (August 2012). Black Tulip Report of The Investigation into The DigiNotar Certificate Authority Breach. Tech. rep. PR-110202, pp. 101. www.researchgate.net /publication/269333601\_Black\_Tulip\_Report\_of\_the\_investigati on\_into\_the\_DigiNotar\_Certificate\_Authority\_breach.
- Horváth, Gábor (September 7, 2003). "Polarization Patterns in Nature: Imaging Polarimetry with Atmospheric Optical and Biological Applications." DSc. Thesis. Budapest: Loránd Eötvös University.
- House, Don Robert (2001). "A Synopsis of Teletype Corporation History." simson.net/ref/2001/house-teletype-corp-synopsis.pdf.

- House, Tamzy J. et al. (1996). Weather As a Force Multiplier: Owning The Weather in 2025. Tech. rep. Montgomery, AL: Air War College, Maxwell Air Force Base.
- Housley, R. (July 2003). Use of The RSAES-OAEP Key Transport Algorithm in Cryptographic Message Syntax (CMS). RFC 3560 (Proposed Standard). Internet Engineering Task Force. www.iet f.org/rfc/rfc3560.txt.
- Hughes, Richard J. et al. (2013). "Network-Centric Quantum Communications with Application to Critical Infrastructure Protection." arxiv.org/abs/1305.0305.
- Hull, Isaiah et al. (December 2020). "Quantum Technology for Economists." Sveriges Riksbank Working Paper Series.
- Huygen, Christiaan (1690). Traité de la Lumière. (Treatise on Light). The Hague, Netherlands: chez Pierre Vander Aa marchand libraire. archive.org/details/bub\_gb\_kVxsaYdZaaoC/page /n4.
- Hwang, J. Y., J. B. Chang, and W. P. Chang (2001). "Spread of 60Co Contaminated Steel and Its Legal Consequences in Taiwan." *Health Phys* 81.6, pp. 655–60.
- Independent Working Group on Missile Defense (2009). Missile Defense, The Space Relationship, and The Twenty-First Century: 2009 Report. Published for the Independent Working Group by the Institute for Foreign Policy Analysis. www.ifpa.org/pdf /IWG2009.pdf.
- Information Technology Laboratory (September 2013). Supplemental ITL Bulletin for September 2013. csrc.nist.gov/csrc/media/p ublications/shared/documents/itl-bulletin/itlbul2013-09-suppleme ntal.pdf.
- International Trade Administration (2021). "US Export Controls." Last accessed March 6, 2021. www.trade.gov/us-export-controls.
- Jaques, Samuel et al. (2019). "Implementing Grover Oracles for Quantum Key Search on AES and LowMC." Report 2019/1146. eprint.iacr.org/2019/1146.
- Jenks, W. G., S. S. H. Sadeghi, and J. P. Wilkswo Jr. (1997). "Review Article: SQUIDs for Nondestructive Evaluation." *Journal* of Physics D: Applied Physics 30, pp. 293–323. citeseerx.ist.psu .edu/viewdoc/summary?doi=10.1.1.145.5200.
- Jernigan, Carter and Behram F. T. Mistree (September 22, 2009). "Gaydar: Facebook Friendships Expose Sexual Orientation." *First Monday*. firstmonday.org/article/view/2611/2302.

- Joint Chiefs of Staff (2020). DOD Dictionary of Military and Associated Terms. fas.org/irp/doddir/dod/jp1\_02.pdf.
- Jones, Sam (May 2014). "MoD's 'quantum Compass' Offers Potential to Replace GPS." *Financial Times*.
- Jordan, Stephen P. (May 2008). "Quantum Computation beyond The Circuit Model." PhD thesis. Massachusetts Institute of Technology, Cambridge, MA. arxiv.org/pdf/0809.2307.pdf.
- (February 1, 2021). "Quantum Algorithm Zoo." Last accessed February 15, 2021. quantum algorithm zoo.org.
- Joy, Bill (April 2000). "Why The Future Doesn't Need Us." *Wired*. www.wired.com/2000/04/joy-2/.
- Juma, Calestous (2016). Innovation and Its Enemies: Why People Resist New Technologies. New York: Oxford University Press.
- Jun Han et al. (2012). "ACComplice: Location Inference Using Accelerometers on Smartphones." 2012 Fourth International Conference on Communication Systems and Networks (COM-SNETS 2012), pp. 1–9.
- Jurcevic, Petar et al. (2020). "Demonstration of Quantum Volume 64 on a Superconducting Quantum Computing System." arxiv.o rg/abs/2008.08571.
- Juzeliunas, E., Y. P. Ma, and J. P. Wikswo (2004). "Remote Sensing of Aluminum Alloy Corrosion by SQUID Magnetometry." *Journal of Solid State Electrochemistry* 8, pp. 435–441.
- Kadrich, Mark (2007). *Endpoint Security*. Boston, MA: Addison-Wesley Professional.
- Kahn, David (1996). The Codebreakers: The Comprehensive History of Secret Communication From Ancient Times to The Internet. New York: Scribner.
- Kan, Shirley (April 2007). *China's Anti-Satellite Weapon Test.* New York: Congressional Research Service. fas.org/sgp/crs /row/RS22652.pdf.
- Kania, Elsa B. and John Costello (2018). Quantum Hegemony? China's Ambitions and The Challenge to US Innovation Leadership. Washington, DC: Center for a New American Security.
- Katyal, Sonia (September 14, 2017). "Why You Should Be Suspicious of That Study Claiming A.I. Can Detect a Person's Sexual Orientation." *Slate*.
- Keats, Jonathon (September 27, 2011). "The Search for a More Perfect Kilogram." *Wired*. www.wired.com/2011/09/ff-kilogram/.

- Kerr, Orin S. (2001). "The Fourth Amendment in Cyberspace: Can Encryption Create a Reasonable Expectation of Privacy?" Connecticut Law Review 33.2, pp. 503–534.
- (2015). "The Fourth Amendment and The Global Internet." Stan. L. Rev. 67, pp. 285.
- Khan, I. et al. (2018). "Satellite-Based QKD." Optics and Photonics News 29.2, pp. 26–33.
- Kim, Donggyu et al. (2019). "A CMOS-Integrated Quantum Sensor Based on Nitrogen–vacancy Centres." Nature Electronics 2.7, pp. 284–289. doi.org/10.1038/s41928-019-0275-5.
- King, Gilbert (June 6, 2012). "Fritz Haber's Experiments in Life and Death." *Smithsonian Magazine*. www.smithsonianmag.com /history/fritz-habers-experiments-in-life-and-death-114161301/.
- Knuth, Donald E. (December 1970). "Von Neumann's First Computer Program." ACM Computing Survey 2.4, pp. 247–260. dl.a cm.org/doi/10.1145/356580.356581.
- Koblitz, Neal (January 1987). "Elliptic Curve Cryptosystems." Mathematics of Computation 48.177, pp. 203–209.
- Koblitz, N. and A. Menezes (2016). "A Riddle Wrapped in an Enigma." *IEEE Security Privacy* 14.6, pp. 34–42.
- Koh, John S., Steven M. Bellovin, and Jason Nieh (2019). "Why Joanie Can Encrypt: Easy Email Encryption with Easy Key Management." *Proceedings of The Fourteenth EuroSys Conference 2019.* Dresden: Association for Computing Machinery. doi .org/10.1145/3302424.3303980.
- Kohnfelder, Loren M. (1978). "Towards a Practical Public-Key Cryptosystem." Undergraduate thesis, Massachusetts Institute of Technology, Cambridge, MA. dspace.mit.edu/handle/1721.1 /15993.
- Koller, Josef S. (2019). The Future of Ubiquitous, Realtime Intelligence: A GEOINT Singularity. Arlington, Virginia: Center for Space Policy and Strategy.
- Koops, E. J. et al. (2006). "Should ICT Regulation Be Technology-Neutral?" In: Starting Points for ICT Regulation. The Hague, Netherlands: TMC Asser Press, pp. 77–108.
- Korzeczek, Martin C. and Daniel Braun (2020). "Quantum-Router: Storing and Redirecting Light at The Photon Level." arxiv.org /abs/2003.03363.

- Kuo, Lucas and Jason Arterburn (2009). *Lux and Loaded: Exposing North Korea's Strategic Procurement Networks*. Washington, DC. www.c4reports.org/lux-and-loaded.
- Kwak, Sean (October 7, 2017). "The Coming Quantum Revolution: Security and Policy Implications, Hudson Institute." www.hudso n.org/events/1465-the-coming-quantum-revolution-security-and-p olicy-implications102017.
- Kwiatkowski, Kris (June 20, 2019). "Towards Post-Quantum Cryptography in TLS." *The Cloudflare Blog.* blog.cloudflare.com/tow ards-post-quantum-cryptography-in-tls/.
- Landauer, R. (1961). "Irreversibility and Heat Generation in The Computing Process." *IBM Journal of Research and Development* 5.3, pp. 183–191.
- Landauer, Rolf (1982). "Physics and Computation." International Journal of Theoretical Physics 21.3, pp. 283–297.
- Langenberg, Brandon, Hai Pham, and Rainer Steinwandt (2019). "Reducing The Cost of Implementing AES As a Quantum Circuit." Report 2019/854. eprint.iacr.org/2019/854.
- Langley, Adam (November 22, 2011). "Protecting Data for The Long Term with Forward Secrecy." *Google Security Blog.* securit y.googleblog.com/2011/11/protecting-data-for-long-term-with.ht ml.
- Lanzagorta, Marco (2011). *Quantum Radar*. Synthesis Lectures on Quantum Computing. Morgan & Claypool.
- (2013). Underwater Communications. Williston, VT: Morgan & Claypool.
- (August 2018). "Envisioning The Future of Quantum Sensing and Communications." Remarks of Marco Lanzagorta at the Conference on Quantum Sensing and Communications held by the National Academies of Sciences, Engineering and Medicine.
- Lanzagorta, Marco and Jeffrey Uhlmann (2015). "Space-Based Quantum Sensing for Low-Power Detection of Small Targets." 9461, pp. 946115.
- (2020). "Opportunities and Challenges of Quantum Radar." IEEE Aerospace and Electronic Systems Magazine 35.11, pp. 38– 56.
- Lanzagorta, Marco, Jeffrey Uhlmann, and Salvador E. Venegas-Andraca (2015). "Quantum Sensing in The Maritime Environment." OCEANS 2015 – MTS/IEEE Washington, pp. 1–9.

- Lerman, Amy E. (June 2019). Good Enough for Government Work: The Public Reputation Crisis in America (And What We Can Do to Fix It). University of Chicago Press.
- Levy, Steven (April 1, 1999). "The Open Secret." *Wired.* www.wired .com/1999/04/crypto/.
- Lewis, Gilbert N (1926). "The Conservation of Photons." Nature 118.2981, pp. 874–875.
- Li, Meixiu et al. (2019). "Review of Carbon and Graphene Quantum Dots for Sensing." ACS Sensors 4.7, pp. 1732–1748.
- Li, T. et al. (2016). "Security Attack Analysis Using Attack Patterns." 2016 IEEE Tenth International Conference on Research Challenges in Information Science (RCIS). Grenoble, France, pp. 1–13.
- Liao, Sheng-Kai et al. (2018). "Satellite-Relayed Intercontinental Quantum Network." *Physical Review Letters* 120.3, pp. 030501.
- Lloyd, Seth (2014). "The Computational Universe." In: Information and The Nature of Reality: From Physics to Metaphysics. Cambridge University Press, pp. 118–133.
- Loriani, S. et al. (June 2019). "Atomic Source Selection in Space-Borne Gravitational Wave Detection." New Journal of Physics 21.6, pp. 063030. iopscience.iop.org/article/10.1088/1367-2630/a b22d0.
- Loss, Daniel and David P. DiVincenzo (1998). "Quantum Computation with Quantum Dots." *Physical Review A* 57.1, pp. 120– 126.
- Ma, Lijun et al. (September 1, 2015). "EIT Quantum Memory with Cs Atomic Vapor for Quantum Communication." *Proceedings of SPIE Optics and Photonics 2015.* www.nist.gov/publicati ons/eit-quantum-memory-cs-atomic-vapor-quantum-communicati on.
- Ma, Xiongfeng et al. (2016). "Quantum Random Number Generation." Npj Quantum Information 2.1.
- Majorana, Ettore and Luciano Maiani (2006). "A Symmetric Theory of Electrons and Positrons." In: *Ettore Majorana Scientific Papers*. Berlin: Springer, pp. 201–233.
- Mallapaty, Smriti (2020). "China Bans Cash Rewards for Publishing Papers." *Nature* 579.7798, pp. 18–19.
- Manglaviti, Ariana (June 5, 2018). "Exploring Greener Approaches to Nitrogen Fixation." www.bnl.gov/newsroom/news.php?a=212 919.

- Manin, Yuri I. (May 1999). "Classical Computing, Quantum Computing, and Shor's Factoring Algorithm." Talk at the Bourbaki Seminar, June 1999, later published in Astréisque 266 (2000), exp. no. 862, p. 375–404. arxiv.org/pdf/quant-ph/9903008.pdf.
- (2007). Mathematics As Metaphor: Selected Essays of Yuri I. Manin. Providence, RI: American Mathematical Society.
- Marcus, Amy Dockser (May 8, 2020). "Covid-19 Raises Questions About The Value of Personalized Medicine." Wall Street Journal – Online Edition.
- Marks, Paul (October 15, 2007). "Quantum Cryptography to Protect Swiss Election." *New Scientist.* www.newscientist.com/articl e/dn12786-quantum-cryptography-to-protect-swiss-election/.
- Matzke, Doug (1993). "Message From The Chairman." In: *Workshop on Physics and Computation PhysComp '92.* Dallas, TX: IEEE Computer Society Press.
- Mazzucato, Mariana (2015). The Entrepreneurial State: Debunking Public Vs. Private Sector Myths. New York: PublicAffairs.
- McCarthy, J. et al. (1955). "A Proposal for The Dartmouth Summer Research Project on Artificial Intelligence." Last accessed August 23, 2020. www-formal.stanford.edu/jmc/history/dartmout h/dartmouth.html.
- McDermott, Roger N. (September 2017). *Russia's Electronic Warfare Capabilities to 2025.* International Centre for Defence. eua genda.eu/upload/publications/untitled-135826-ea.pdf.
- McGrew, W. F. et al. (2018). "Atomic Clock Performance Enabling Geodesy Below The Centimetre Level." *Nature* 564.7734, pp. 87–90. doi.org/10.1038/s41586-018-0738-2.
- Merkle, Ralph Charles (June 1979). Secrecy, Authentication and Public Key Systems. Tech. rep. 1979-1. Information Systems Laboratory, Stanford University. www.merkle.com/papers/Thesis 1979.pdf.
- Merriam-Webster Incorporated (2020). ""Machine."" www.merriam-webster.com/dictionary/machine.
- Metropolis, N. (1987). "The Beginning of The Monte Carlo Method." Los Alamos Science 15.
- Meyer, David H. et al. (2020). "Assessment of Rydberg Atoms for Wideband Electric Field Sensing." Journal of Physics B: Atomic, Molecular and Optical Physics 53.3, pp. 034001.
- Meyers, Ronald E. and Keith S. Deacon (2015). "Space-Time Quantum Imaging." *Entropy* 17.3, pp. 1508–1534.

- Meyers, Ronald E., Keith S. Deacon, and Yanhua Shih (April 2008). "Ghost-Imaging Experiment by Measuring Reflected Photons." *Physical Review A* 77.4, pp. 041801. link.aps.org/doi/10.1103 /PhysRevA.77.041801.
- Microsoft Corp. (2013). "Microsoft Security Advisory 2862973: Update for Deprecation of MD5 Hashing Algorithm for Microsoft Root Certificate Program." docs.microsoft.com/en-us/security-up dates/SecurityAdvisories/2014/2862973.
- (2018). "Developing a Topological Qubit." cloudblogs.microsoft.c om/quantum/2018/09/06/developing-a-topological-qubit/.
- Miller, Victor S. (1986). "Use of Elliptic Curves in Cryptography." Advances in Cryptology – CRYPTO '85 Proceedings, ed. Hugh C. Williams. Berlin, Heidelberg: Springer, pp. 417–426.
- Minsky, Marvin (1982). "Cellular Vacuum." International Journal of Theoretical Physics 21.6, pp. 537–551.
- Mirhosseini, M. et al. (2015). "High-Dimensional Quantum Cryptography with Twisted Light." *New Journal of Physics* 17, pp. 1– 12.
- MIT (May 29, 2018). "Outside Professional Activities." In: *MIT Policies*. Last accessed March 6, 2021. Chap. 4.5. policies.mit.ed u/policies-procedures/40-faculty-rights-and-responsibilities/45-out side-professional-activities.
- MIT Endicott House (2020). "Our History." Last accessed September 28, 2020. mitendicotthouse.org/our-history/.
- MIT Institute Archives (2011). "Laboratory for Computer Science (LCS)." Last accessed August 2, 2020. libraries.mit.edu/mithistor y/research/labs/lcs.
- Mohseni, M. et al. (2017). "Commercialize Quantum Technologies in Five Years." *Nature* 543.7644, pp. 171–174.
- Moller, Violet (May 10, 2019). "How Anti-Immigrant Policies Thwart Scientific Discovery." *Washington Post.*
- Möller, Matthias and Cornelis Vuik (2017). "On The Impact of Quantum Computing Technology on Future Developments in High-Performance Scientific Computing." *Ethics and Informa*tion Technology 19.4, pp. 253–269.
- Molteni, Megan (September 14, 2017). "With Designer Bacteria, Crops Could One Day Fertilize Themselves." *Wired*. www.wired .com/story/with-designer-bacteria-crops-could-one-day-fertilize-th emselves/.

- Monroe, C. et al. (December 1995). "Demonstration of a Fundamental Quantum Logic Gate." *Physical Review Letters* 75.25, pp. 4714–4717. link.aps.org/doi/10.1103/PhysRevLett.75.4714.
- Monroe, Christopher, Michael G. Raymer, and Jacob Taylor (2019). "The US National Quantum Initiative: From Act to Action." *Science* 364.6439, pp. 440–442. science.sciencemag.org/content/3 64/6439/440.
- Montanaro, Ashley (January 2016). "Quantum Algorithms: an Overview." *Npj Quantum Information* 2.1. dx.doi.org/10.103 8/npjqi.2015.23.
- Moore, Gordon E. (1965). "Cramming More Components Onto Integrated Circuits." *Electronics Magazine* 38 (8), pp. 82–85. www.computerhistory.org/collections/catalog/102770822.
- (September 2006). "Progress in Digital Integrated Electronics [Technical Literature, Copyright 1975 IEEE. Reprinted, with Permission. Technical Digest. International Electron Devices Meeting, IEEE, 1975, pp. 11–13.]" *IEEE Solid-State Circuits Society Newsletter* 11.3, pp. 36–37. ieeexplore.ieee.org/document /4804410/.
- Morozov, Evgeny (October 13, 2014). "The Planning Machine: Project Cybersyn and The Origins of The Big Data Nation." New Yorker 90.31.
- Morser, Bruce (2020). "Inertial Navigation." Last accessed October 24, 2020. www.panam.org/the-jet-age/517-inertial-navigation-2.
- Mourik, Vincent et al. (May 25, 2012). "Signatures of Majorana Fermions in Hybrid Superconductor-Semiconductor Nanowire Devices." *Science* 336.6084, pp. 1003–1007.
- Murph, Paul (December 11, 2019). "Wirecard Critics Targeted in London Spy Operation." *Financial Times*. www.ft.com/content /d94c938e-1a84-11ea-97df-cc63de1d73f4.
- Musiani, Francesca et al. (2016). The Turn to Infrastructure in Internet Governance. Berlin: Springer.
- Nash, Gerald D. (1999). The Federal Landscape: an Economic History of The Twentieth-Century West. Tucson: University of Arizona Press. www.h-net.org/review/hrev-a0b4n6-aa.
- National Center for Science and Engineering Statistics (December 2019). Doctorate Recipients From US Universities. Tech. rep. NSF 21-308. Washington, DC: Directorate for Social, Behavioral and Economic Sciences, National Science Foundation. ncse s.nsf.gov/pubs/nsf21308.

- National Coordination Office for Space-Based Positioning, Navigation, and Timing (October 2001). "Frequently Asked Questions About Selective Availability." *GPS.gov.* www.gps.gov/systems/g ps/modernization/sa/faq/.
- National Institute of Standards and Technology (January 3, 2017). "Post-Quantum Cryptography." Last accessed February 9, 2021. csrc.nist.gov/Projects/post-quantum-cryptography/post-quantumcryptography-standardization/Call-for-Proposals.
- National Security Agency (January 6, 2001). "Groundbreaking Ceremony Held for 1.2 Billion Utah Data Center." *Press Release Pa-118-18.* www.nsa.gov/news-features/press-room/Article/16305 52/groundbreaking-ceremony-held-for-12-billion-utah-data-center /.
- (2020). "Quantum Key Distribution (QKD) and Quantum Cryptography (QC)." Last accessed July 25, 2021. www.nsa .gov/what-we-do/cybersecurity/quantum-key-distribution-qkd-and -quantum-cryptography-qc/.
- National Security Agency and Central Security Service (2016). "Commercial National Security Algorithm Suite and Quantum Computing FAQ." apps.nsa.gov/iaarchive/library/ia-guidance/ia-s olutions-for-classified/algorithm-guidance/cnsa-suite-and-quantum -computing-faq.cfm.
- (2021). "VENONA." Last accessed March 13, 2021. www.nsa.go v/News-Features/Declassified-Documents/Venona/.
- Nicholson, T. L. et al. (2015). "Systematic Evaluation of an Atomic Clock at  $2 \times 10^{-18}$  Total Uncertainty." *Nature Communications* 6.1, pp. 6896. doi.org/10.1038/ncomms7896.
- NobelPrize.org (October 2019). "The Nobel Prize in Physics 1965." www.nobelprize.org/prizes/physics/1965/summary/.
- Nuttall, William J., Richard H. Clarke, and Bartek A. Glowacki (2012). "Stop Squandering Helium." *Nature* 485.7400, pp. 573–575.
- O'Mara, Margaret Pugh (2015). Cities of Knowledge: Cold War Science and The Search for The Next Silicon Valley. Princeton, NJ: Princeton University Press.
- (2019). The Code: Silicon Valley and The Remaking of America. New York: Penguin Press.
- Obama, Barack (December 29, 2009). "Executive Order 13526: Classified National Security Information." www.archives.gov /isoo/policy-documents/cnsi-eo.html.

- Office of the Secretary of Defense (2020). "Department of Defense Fiscal Year (FY) 2021 Budget Estimates." In: *Defense-Wide Justification Book*. Last accessed February 20, 2021. US Department of Defense. Chap. 3, pp. 1094. comptroller.defense.gov/Por tals/45/Documents/defbudget/fy2021/budget\_justification/pdfs /03\_RDT\_and\_E/RDTE\_Vol3\_OSD\_RDTE\_PB21\_Justification \_Book.pdf.
- Ohm, Paul (2009a). "Broken Promises of Privacy: Responding to The Surprising Failure of Anonymization." UCLA L. Rev. 57, pp. 1701–1777.
- (2009b). "The Rise and Fall of Invasive ISP Surveillance." University of Illinois Law Review. ssrn.com/abstract\_id=1261344.
- Olson, Parmy (April 10, 2020). "My Girlfriend Is a Chatbot." Wall Street Journal.
- Omar, Yasser (May 6, 2015). "Workshop on Quantum Technologies and Industry." *DG Connect.* digital-strategy.ec.europa.eu/en/libr ary/report-workshop-quantum-technologies-and-industry.
- Oqubay, Arkebe (2015). "Climbing without Ladders: Industrial Policy and Development." In: *Made in Africa*. Oxford University Press.
- Organized Crime and Corruption Reporting Project (March 20, 2017). "The Russian Laundromat Exposed." www.occrp.org/en/l aundromat/the-russian-laundromat-exposed/.
- Ortega, Almudena Azcárate (January 28, 2021). "Placement of Weapons in Outer Space: The Dichotomy between Word and Deed." *Lawfare*. www.lawfareblog.com/placement-weapons-outerspace-dichotomy-between-word-and-deed.
- Padma, T. V. (2020). "India Bets Big on Quantum Technology." *Nature*. www.nature.com/articles/d41586-020-00288-x/.
- Palmer, J. (2017). "Technology Quarterly: Here, There and Everywhere." *The Economist* 413.9027.
- Pan, Feng and Pan Zhang (2021). "Simulating The Sycamore Quantum Supremacy Circuits." arxiv.org/abs/2103.03074.
- Pant, Mihir et al. (March 2019). "Routing Entanglement in The Quantum Internet." *Npj Quantum Information* 5.1, pp. 25. doi .org/10.1038/s41534-019-0139-x.
- Patinformatics (2017). "Quantum Information Technology Patent Landscape Reports."
- Pawlyk, Oriana (June 10, 2020). "Air Force Will Pit a Drone Against a Fighter Jet in Aerial Combat Test." www.military.com/daily-n

ews/2020/06/10/air-force-will-pit-drone-against-fighter-jet-aerial-combat-test.html.

- Pednault, Edwin et al. (October 12, 2019). "On 'Quantum Supremacy'." IBM Research Blog. www.ibm.com/blogs/research/2019/10/on-q uantum-supremacy/.
- Peng, Wang Chun et al. (2019). "Factoring Larger Integers with Fewer Qubits via Quantum Annealing with Optimized Parameters." Science China Physics, Mechanics and Astronomy 62.6, pp. 60311. doi.org/10.1007/s11433-018-9307-1.
- Peres, Asher (December 1985). "Reversible Logic and Quantum Computers." *Physical Review A* 32 (6), pp. 3266–3276. link.aps .org/doi/10.1103/PhysRevA.32.3266.
- Perlroth, Nicole (September 10, 2013). "Government Announces Steps to Restore Confidence on Encryption Standards." The New York Times. bits.blogs.nytimes.com/2013/09/10/governmen t-announces-steps-to-restore-confidence-on-encryption-standards/.
- (2021). This Is How They Tell Me The World Ends: The Cyberweapons Arms Race. New York: Bloomsbury Publishing.
- Perrin, Léo (2019). "Partitions in The S-Box of Streebog and Kuznyechik." Report 2019/092. eprint.iacr.org/2019/092.
- Peterson, Scott and Payam Faramarzi (December 15, 2011). "Exclusive: Iran Hijacked US Drone, Says Iranian Engineer." *Christian Science Monitor*. www.csmonitor.com/World/Middle-East/2 011/1215/Exclusive-Iran-hijacked-US-drone-says-Iranian-engineer.
- Pfaff, W. et al. (2014). "Unconditional Quantum Teleportation between Distant Solid-State Quantum Bits." Science 345.6196, pp. 532–535.
- Physics Today (February 4, 2019). "Rolf Landauer." *Physics Today*. physicstoday.scitation.org/do/10.1063/PT.6.6.20190204a/full/.
- Pirandola, S. et al. (2018). "Advances in Photonic Quantum Sensing." Nature Photonics 12.12, pp. 724–733.
- Pisana, Simone et al. (March 2007). "Breakdown of The Adiabatic Born – Oppenheimer Approximation in Graphene." Nature Materials 6.3, pp. 198–201. doi.org/10.1038/nmat1846.
- Plutarch (1921). Lives. Vol. 10, Agis and Cleomenes, Tiberius and Caius Gracchus, Philopoemen and Flamninius. Loeb Classical Library. Cambridge, MA: Heinemann.
- Popkin, Gabriel (June 16, 2017). "Spooky Action Achieved at Record Distance." *Science* 356.6343, pp. 1110–1111.

- Poplavskii, R. P. (1975). "Thermodynamical Models of Information Processing." Uspekhi Fizicheskikh Nauk, Advances in Physical Sciences 115.3, pp. 465–501.
- Posen, Barry R. (2003). "Command of The Commons: The Military Foundation of US Hegemony." *International Security* 28.1, pp. 5–46.
- Prabhakar, Shashi et al. (2020). "Two-Photon Quantum Interference and Entanglement at 2.1 Mm." *Science Advances* 6.13. adv ances.sciencemag.org/content/6/13/eaay5195.
- Preskill, John (2012). "Quantum Computing and The Entanglement Frontier." WSPC Proceedings. Rapporteur talk at the 25th Solvay Conference on Physics "The Theory of the Quantum World". Brussels.
- (October 6, 2019). "Why I Called It 'Quantum Supremacy'."
   Wired. wired.com/story/why-i-coined-the-term-quantum-supremacy.
- "ProQuest Dissertations and Theses Global" (n.d.) (). Last accessed February 20, 2021. www.proquest.com/products-servic es/pqdtglobal.html.
- PYMNTS (2018). "The Meal Kits Crowding Problem." PYMNTS Subscriptions. www.pymnts.com/subscriptions/2018/meal-kits-cr owding/.
- Qiu, Longqing et al. (2016). "Development of a Squid-Based Airborne Full Tensor Gradiometer for Geophysical Exploration." Seg Technical Program Expanded Abstracts. Society of Exploration Geophysicists.
- Quan, Wei, Bikun Chen, and Fei Shu (2017). "Publish or Impoverish: an Investigation of The Monetary Reward System of Science in China (1999–2016)." Aslib Journal of Information Management 69 (5), pp. 486–502.
- Quantique, ID (2020). "Quantis QRNG Chip." www.idquantique.co m/random-number-generation/products/quantis-qrng-chip/.
- Rabin, M. O. and D. Scott (April 1959). "Finite Automata and Their Decision Problems." *IBM Journal*, pp. 114–125.
- Rabkin, Jeremy A. and John Yoo (2017). Striking Power: How Cyber, Robots, and Space Weapons Change The Rules for War. New York: Encounter Books.
- RAND (2002). Space Weapons: Earth Wars. Santa Monica, CA: RAND.
- Reardon, Joel (2016). Secure Data Deletion. New York: Springer.

- Reece, Andrew G. and Christopher M. Danforth (August 2017).
  "Instagram Photos Reveal Predictive Markers of Depression." *EPJ Data Science* 6.1, pp. 15. doi.org/10.1140/epjds/s13688-017 -0110-z.
- Remington Rand (1954). Sorting Methods for UNIVAC Systems. w ww.bitsavers.org/pdf/univac/univac1/UnivacSortingMethods.pdf.
- Ren, J. G. et al. (2017). "Ground-To-Satellite Quantum Teleportation." *Nature* 549.7670, pp. 70–73.
- Rendell, Paul (2011). "A Universal Turing Machine in Conway's Game of Life." 2011 International Conference on High Performance Computing and Simulation. IEEE, pp. 764–772.
- Repantis, Kate (March 19, 2014). "Why Hasn't Commercial Air Travel Gotten Any Faster Since The 1960s?" Slice of MIT. alu m.mit.edu/slice/why-hasnt-commercial-air-travel-gotten-any-faste r-1960s.
- Research, Transparency Market (2017). "Ring Laser Gyroscope Market – Snapshot." www.transparencymarketresearch.com/ring-l aser-gyroscope-market.html.
- Rich, Ben R. and Leo Janos (1994). Skunk Works: a Personal Memoir of My Years at Lockheed. Boston, MA: Little, Brown.
- Rid, Thomas (2020). Active Measures: The Secret History of Disinformation and Political Warfare. New York: Farrar, Straus and Giroux.
- Rideout, Ariel (July 24, 2008). "Making Security Easier." Official Gmail Blog.
- Rivest, Ronald L. (2011). "The Early Days of RSA: History and Lessons." In: ACM Turing Award Lectures. New York: Association for Computing Machinery, pp. 2002. doi.org/10.1145/12839 20.1961920.
- Rivest, Ronald L., Adi Shamir, and Len Adleman (February 1978). "A Method for Obtaining Digital Signatures and Public-Key Cryptosystems." Communications of The Association for Computing Machinery 21.2, pp. 120–126. dl.acm.org/doi/10.1145/35 9340.359342.
- Roberts, Siobhan (April 15, 2020). "John Horton Conway, a 'Magical Genius' in Math, Dies at 82." *New York Times*. www.nytime s.com/2020/04/15/technology/john-horton-conway-dead-coronavi rus.html.
- Robinson, Andrew (2018). "Did Einstein Really Say That?" Nature 557.7703, pp. 30–31.

- Robson, David P. (April 1984). "Profile Edwin H. Land." *Chem-Matters*. www.cs.cornell.edu/~ginsparg/physics/Phys446-546/840 412t.pdf.
- Rose, Scott et al. (February 2019). *Trustworthy Email*. Tech. rep. SP 800-177 Rev. 1. National Institute of Standards and Technology. csrc.nist.gov/publications/detail/sp/800-177/rev-1/final.
- Rowlett, Frank B. (1999). The Story of Magic: Memoirs of an American Cryptologic Pioneer. Laguna Hills, CA: Aegean Park Press.
- Ruf, M. et al. (2019). "Optically Coherent Nitrogen-Vacancy Centers in Micrometer-Thin Etched Diamond Membranes." Nano Lett 19.6, pp. 3987–3992.
- Rule, Nicholas O. (January 2017). "Perceptions of Sexual Orientation From Minimal Cues." Archives of Sexual Behavior 46.1, pp. 129–139. doi.org/10.1007/s10508-016-0779-2.
- Rzetenly, Xaq (September 23, 2017). "Is Beaming Down in Star Trek a Death Sentence?" Ars Technica. arstechnica.com/gaming /2017/09/is-beaming-down-in-star-trek-a-death-sentence/.
- Sadkhan, S. B. and B. S. Yaseen (2019). "DNA-Based Cryptanalysis: Challenges, and Future Trends." 2019 2nd Scientific Conference of Computer Sciences (SCCS), pp. 24–27.
- Samuelson, Arielle (June 19, 2019). "What Is an Atomic Clock?" www.nasa.gov/feature/jpl/what-is-an-atomic-clock.
- Sandia National Laboratories and National Nuclear Security Administration (2015). ASCR Workshop on Quantum Computing for Science. Electronic Book 1194404. www.osti.gov/servlets/pur l/1194404/.
- Saxenian, AnnaLee (1996). Regional Advantage: Culture and Competition in Silicon Valley and Route 128. Cambridge, MA: Harvard University Press.
- Scarani, Valerio, H. Bechmann-Pasquinucci, et al. (2009). "The Security of Practical Quantum Key Distribution." *Reviews of Modern Physics* 81.3, pp. 1301–1350.
- Scarani, Valerio and Christian Kurtsiefer (2014). "The Black Paper of Quantum Cryptography: Real Implementation Problems." *Theoretical Computer Science* 560. Theoretical Aspects of Quantum Cryptography celebrating 30 years of BB84, pp. 27–32. www.sciencedirect.com/science/article/pii/S03043 97514006938.

- Schelling, Thomas C. (1980). The Strategy of Conflict: With a New Preface by The Author. Cambridge, MA: Harvard University Press.
- Schiermeier, Quirin (2019). "Russia Joins Race to Make Quantum Dreams a Reality." *Nature* 577.7788, pp. 14.
- Schneier, Bruce (November 2007). "Did NSA Put a Secret Backdoor in New Encryption Standard?" Wired. Last accessed May 30, 2020. www.wired.com/2007/11/securitymatters-1115/.
- Schofield, Jack (February 11, 2018). "John Perry Barlow Obituary." *The Guardian.* www.theguardian.com/technology/2018/feb/11/jo hn-perry-barlow-obituary.
- Schumacher, Benjamin (April 1995). "Quantum Coding." Physical Review A 51 (4), pp. 2738–2747. link.aps.org/doi/10.1103/Phys RevA.51.2738.
- Sciutto, Jim (May 10, 2019). "A Vulnerable US Really Does Need a Space Force." *Wall Street Journal – Online Edition*.
- Scott, James C. (1998). Seeing Like a State: How Certain Schemes to Improve The Human Condition Have Failed. The Yale ISPS series. New Haven, CT: Yale University Press. www.gbv.de/dms /sub-hamburg/233487662.pdf.
- Shamir, Adi (November 1979). "How to Share a Secret." Communications of The Association for Computing Machinery 22.11, pp. 612–613. doi.org/10.1145/359168.359176.
- (1984). "Identity-Based Cryptosystems and Signature Schemes." Advances in Cryptology: Proceedings of CRYPTO 84. Vol. 7. Santa Barbara, California, pp. 47–53.
- (2011). "Cryptography: State of The Science." In: ACM Turing Award Lectures. New York: Association for Computing Machinery, pp. 2002. doi.org/10.1145/1283920.1961903.
- Shankland, Stephen (June 29, 2019). "Startup Packs All 16GB of Wikipedia Onto DNA Strands to Demonstrate New Storage Tech." www.cnet.com/news/startup-packs-all-16gb-wikipedia-onto -dna-strands-demonstrate-new-storage-tech/.
- Shannon, Claude Elwood (1948). "A Mathematical Theory of Communication." The Bell System Technical Journal 27.3, pp. 379– 423.
- (1949). Communication Theory of Secrecy Systems. New York: ATT.

- Shkel, Andrei M. (2010). "Precision Navigation and Timing Enabled by Microtechnology: Are We There Yet?" SENSORS, 2010 IEEE. IEEE. Waikoloa Village, HI, pp. 5–9.
- Shor, Peter W. (October 1997). "Polynomial-Time Algorithms for Prime Factorization and Discrete Logarithms on a Quantum Computer." SIAM Journal on Computing 26.5, pp. 1484–1509. dx.doi.org/10.1137/S0097539795293172.
- Shostack, Adam (August 27, 2009). "The Threats to Our Products." *Microsoft Security Blog.* www.microsoft.com/security/blog /2009/08/27/the-threats-to-our-products/.
- (2014). Threat Modeling: Designing for Security. New York: Wiley.
- Simonite, Tom (March 23, 2016). "Intel Puts The Brakes on Moore's Law." *MIT Technology Review*.
- Singer, P. W. and August Cole (2015). *Ghost Fleet: a Novel of The Next World War.* Boston, MA: Houghton Mifflin Harcourt.
- Singh, Simon (August 29, 2000). The Code Book: The Science of Secrecy From Ancient Egypt to Quantum Cryptography. London: Anchor.
- Sipser, Michael (2012). Introduction to The Theory of Computatio. 3rd ed. Independence, KY: Cengage Learning.
- Sitz, Greg (February 2005). "Approximate Challenges." Nature 433.7025. doi.org/10.1038/433470a.
- Smith, Brad (October 26, 2018). "Technology and The US Military." *Microsoft On The Issues*. blogs.microsoft.com/on-the-issue s/2018/10/26/technology-and-the-us-military/.
- Sola Pool, Ithiel de (1983). *Technologies of Freedom*. Cambridge, MA: Harvard University Press.
- Solove, Daniel J. (2007). "'I've Got Nothing to Hide' and Other Misunderstandings of Privacy." San Diego Law Review 44.4, pp. 745–772.
- Spiegel, Peter (October 25, 2013). "Angela Merkel Eyes Place for Germany in US Intelligence Club." *Financial Times*.
- Spinellis, D. (May 2008). "The Antikythera Mechanism: A Computer Science Perspective." Computer 41.5, pp. 22–27.
- Springer, Paul J. (2020). Cyber Warfare: A Documentary and Reference Guide. Santa Barbara, CA: ABC-CLIO. products.abc-clio.com/abc-cliocorporate/product.aspx?pc=A6167C.

- Starr, Michelle (January 19, 2014). "Fridge Caught Sending Spam Emails in Botnet Attack." *CNet.* www.cnet.com/news/fridge-cau ght-sending-spam-emails-in-botnet-attack/.
- Steele, Beth Anne (November 26, 2019). "Oregon FBI Tech Tuesday: Securing Smart TVs." FBI Portland. www.fbi.gov/contactus/field-offices/portland/news/press-releases/tech-tuesdaysmart-t vs.
- Stern, Jessica (1999). *The Ultimate Terrorist*. Cambridge, MA: Harvard University Press.
- Stevens, Hallam (January 30, 2018). "Hans Peter Luhn and The Birth of The Hashing Algorithm." *IEEE Spectrum*. spectrum.iee e.org/tech-history/silicon-revolution/hans-peter-luhn-and-the-birt h-of-the-hashing-algorithm.
- Storbeck, Olaf and Guy Chazan (June 28, 2020). "Germany to Overhaul Accounting Regulation after Wirecard Collapse." *Financial Times*.
- Strunsky, Steve (August 8, 2013). "N.J. Man Fined \$32K for Illegal GPS Device That Disrupted Newark Airport System." *NJ Ad-vance Media.* www.nj.com/news/2013/08/man\_fined\_32000\_for \_\_blocking\_newark\_airport\_tracking\_system.html.
- Susskind, Leonard (2008). The Black Hole War: My Battle with Stephen Hawking to Make The World Safe for Quantum Mechanics. Boston, MA: Little, Brown and Company.
- Svoboda, Karel and Ryohei Yasuda (2006). "Principles of Two-Photon Excitation Microscopy and Its Applications to Neuroscience." Neuron 50.6, pp. 823–839.
- Swire, Peter (July 15, 2015). "The Golden Age of Surveillance." Slate. slate.com/technology/2015/07/encryption-back-doors-arent -necessary-were-already-in-a-golden-age-of-surveillance.html.
- Symul, T., S. M. Assad, and P. K. Lam (2011). "Real Time Demonstration of High Bitrate Quantum Random Number Generation with Coherent Laser Light." *Applied Physics Letters* 98.23, pp. 231103.
- Takemoto, Kazuya et al. (September 2015). "Quantum Key Distribution Over 120 km Using Ultrahigh Purity Single-Photon Source and Superconducting Single-Photon Detectors." Scientific Reports 5.1, pp. 14383. doi.org/10.1038/srep14383.
- Tambe, Milind (2012). Security and Game Theory: Algorithms, Deployed Systems, Lessons Learned. Cambridge: Cambridge University Press.

- Tapley, B. D. et al. (2004). "The Gravity Recovery and Climate Experiment: Mission Overview and Early Results." *Geophysical Research Letters* 31.9.
- Taylor, Michael A. and Warwick P. Bowen (2016). "Quantum Metrology and Its Application in Biology." *Physics Reports* 615, pp. 1–59.
- Temperton, James (January 26, 2017). "Got a Spare \$15 Million? Why Not Buy Your Very Own D-Wave Quantum Computer." Wired UK.
- Thorton, Will (October 16, 2018). "Selective Availability: A Bad Memory for GPS Developers and Users." *Spirent Blog.* www.spir ent.com/blogs/selective-availability-a-bad-memory-for-gps-develop ers-and-users.
- Tierney, Tim M. et al. (2019). "Optically Pumped Magnetometers: From Quantum Origins to Multi-Channel Magnetoencephalography." *NeuroImage* 199, pp. 598–608. www.sciencedirect.com/sc ience/article/pii/S1053811919304550.
- Tirosh, Ofer (January 8, 2020). "Top Translation Industry Trends for 2020." *Tomedes Translator's Blog.* www.tomedes.com/transla tor-hub/translation-industry-trends-2020.
- Toffoli, Tommaso (1977). Journal of Computer and System Sciences 15, pp. 213–231.
- (1982). "Physics and Computation." International Journal of Theoretical Physics 21.3, pp. 165–175.
- Tretkoff, Ernie (December 2007). "This Month in Physics History: December 1938: Discovery of Nuclear Fission." *APS News* 16.11. www.aps.org/publications/apsnews/200712/physicshistory.cfm.
- Tsividis, Yannis (December 1, 2017). "Not Your Father's Analog Computer." *IEEE Spectrum.* spectrum.ieee.org/computing/hardw are/not-your-fathers-analog-computer.
- Turing, Alan M. (1936). "On Computable Numbers, with an Application to The Entscheidungsproblem." Proceedings of The London Mathematical Society 2.42, pp. 230–265. www.cs.helsinki .fi/u/gionis/cc05/OnComputableNumbers.pdf.
- Uhlmann, Jeffrey, Marco Lanzagorta, and Salvador E. Venegas-Andraca (2015). "Quantum Communications in The Maritime Environment." OCEANS 2015 – MTS/IEEE Washington, pp. 1– 10.

- Union of Concerned Scientists (May 1, 2021). "UCS Satellite Database." Last accessed July 25, 2021. www.ucsusa.org/resources/satellitedatabase.
- United Nations (1986). Principles Relating to Remote Sensing of The Earth From Outer Space. Resolution adopted by the General Assembly / United Nations, 41/65. New York: United Nations.
- US Agency for International Development, Bureau for Africa (July 2019). "Government Complicity in Organized Crime." pdf.usaid .gov/pdf\_docs/PA00TSH2.pdf.
- US Air Force Scientific Advisory Board (2016). Utility of Quantum Systems for The Air Force Study Abstract. Tech. rep. US Air Force Scientific Advisory Board. web.archive.org/web/20170427 005155/www.scientificadvisoryboard.af.mil/Portals/73/documents /AFD-151214-041.pdf?ver=2016-08-19-101445-230.
- US Census Bureau (2021). "US and World Population Clock." Last accessed January 1, 2021. www.census.gov/popclock/.
- US Congress (2018). National Quantum Initiative Act. [US Government Publishing Office]. purl.fdlp.gov/GPO/gpo126751.
- US Congress, House Permanent Select Committee on Intelligence (2016). "Executive Summary of Review of The Unauthorized Disclosures of Former National Security Agency Contractor Edward Snowden." purl.fdlp.gov/GPO/gpo75954.
- US Federal Communications Commission (April 2020). "Jammer Enforcement." www.fcc.gov/general/jammer-enforcement.
- Vandersypen, Lieven M. K. et al. (2001). "Experimental Realization of Shor's Quantum Factoring Algorithm Using Nuclear Magnetic Resonance." *Nature* 414.6866, pp. 883–887.
- Venegas-Andraca, Salvador E., M. Lanzagorta, and J. Uhlmann (2015). "Maritime Applications of Quantum Computation." OCEANS 2015 – MTS/IEEE Washington, pp. 1–8.
- Vidas, Timothy, Daniel Votipka, and Nicolas Christin (2011). "All Your Droid Are Belong to Us: A Survey of Current Android Attacks." Proceedings of The 5th USENIX Conference on Offensive Technologies. WOOT'11. San Francisco, CA: USENIX Association, pp. 10.
- von Neumann, John (1945). First Draft of a Report on The ED-VAC. Tech. rep. United States Army Ordnance Department and the University of Pennsylvania.

- (1951). "Various Techniques Used in Connection with Random Digits." Journal of Research, Applied Math Series 3. Summary written by George E. Forsythe, pp. 36–38. mcnp.lanl.gov/pdf\_fil es/nbs\_vonneumann.pdf.
- von Neumann, John and Arthur W. Burks (1966). Theory of Self-Reproducing Automata. Champaign, IL: University of Illinois Press.
- Wagner, Michelle (2006). "The Inside Scoop on Mathematics at The NSA." *Math Horizons* 13.4, pp. 20–23.
- Walden, David (2011). "Early Years of Basic Computer and Software Engineering." In: A Culture of Innovation: Insider Accounts of Computing and Life at BBN. East Sandwich, MA: Waterside Publishing.
- Wallace, D. and J. Costello (July 2017). "Eye in The Sky: Understanding The Mental Health of Unmanned Aerial Vehicle Operators." Journal of The Military and Veterans' Health 25.3. jmvh.org/article/eye-in-the-sky-understanding-the-mental-healthof-unmanned-aerial-vehicle-operators/.
- Wang, Hai-Tian et al. (August 2019). "Science with The TianQin Observatory: Preliminary Results on Massive Black Hole Binaries." *Physical Review D* 100.4, pp. 043003. link.aps.org/doi/10.1 103/PhysRevD.100.043003.
- Wang, Y. and M. Kosinski (2018). "Deep Neural Networks Are More Accurate Than Humans at Detecting Sexual Orientation From Facial Images." Journal of Personality and Social Psychology 114.2, pp. 246–257.
- Wang, Yunfei et al. (2019). "Efficient Quantum Memory for Single-Photon Polarization Qubits." Nature Photonics 13.5, pp. 346– 351. doi.org/10.1038/s41566-019-0368-8.
- Watson, James D. and Francis H. C. Crick (1953). "Molecular Structure of Nucleic Acids: a Structure for Deoxyribose Nucleic Acid." *Nature* 171.4356, pp. 737–738.
- Wehner, S., D. Elkouss, and R. Hanson (2018). "Quantum Internet: A Vision for The Road Ahead." *Science* 362.6412.
- Weinbaum, Cortney et al. (2017). SIGINT for Anyone: The Growing Availability of Signals Intelligence in The Public Domain. RAND Perspective; 273. Santa Monica, CA: RAND. www.rand .org/pubs/perspectives/PE273.html.
- Weiner, S. et al. (2020). "A Flight Capable Atomic Gravity Gradiometer With a Single Laser." 2020 IEEE International Sym-

posium on Inertial Sensors and Systems (INERTIAL), pp. 1–3.

- Wertheimer, Michael (2015). "Encryption and The NSA Role in International Standards." *Notices of The AMS*. Note: At the time of publication, Michael Wertheimer was the Director of Research at the US National Security Agency. Last accessed May 30, 2020. www.ams.org/notices/201502/rnoti-p165.pdf.
- Weyers, Stefan (2020). "Unit of Time Working Group 4.41." Last accessed October 9, 2020. www.ptb.de/cms/en/ptb/fachabteilung en/abt4/fb-44/ag-441/realisation-of-the-si-second/history-of-theunit-of-time.html.
- Wheeler, John Archibald (1982). "The Computer and The Universe." International Journal of Theoretical Physics 21.6, pp. 557–572.
- (1983). "On Recognizing 'Law Without Law,' Oersted Medal Response at The Joint APS-AAPT Meeting, New York, 25 January 1983." American Journal of Physics 51.5, pp. 398–404.
   aapt.scitation.org/doi/pdf/10.1119/1.13224.
- Whitfield, Stephen E. and Gene Roddenberry (1968). *The Making* of Star Trek. New York: Ballantine Books.
- Whitten, Alma and J. D. Tygar (1999). "Why Johnny Can't Encrypt: A Usability Evaluation of PGP 5.0." *Proceedings of The* 8th USENIX Security Symposium. Washington, DC.
- Wiesner, Stephen (January 1983). "Conjugate Coding." SIGACT News 15.1. Original manuscript written circa 1970, pp. 78–88. doi.org/10.1145/1008908.1008920.
- Winner, Langdon (2018). "Do Artifacts Have Politics?" *Daedalus* 109:1, pp. 121–136.
- Winterbotham, F. W. (1974). *The Ultra Secret*. New York: Harper and Row.
- Wolfram, Stephen (2002). A New Kind of Science. English. Champaign, IL: Wolfram Media. www.wolframscience.com.
- Woo, Jesse, Peter Swire, and Deven R. Desai (2019). "The Important, Justifiable, and Constrained Role of Nationality in Foreign Intelligence Surveillance." *Hoover Institution Aegis Series Paper* 1901.
- Wood, Laura (March 14, 2019). "Global \$15.6Bn Signals Intelligence (SIGINT) Market by Type, Application and Region – Forecast to 2023 – ResearchAndMarkets.com." *BusinessWire*.

- Wright, Robert (April 1988). "Did The Universe Just Happen?" *The Atlantic.* www.theatlantic.com/past/docs/issues/88apr/wrigh t.htm.
- Wu, Jun et al. (2016). "The Study of Several Key Parameters in The Design of Airborne Superconducting Full Tensor Magnetic Gradient Measurement System." 2016 SEG International Exposition and Annual Meeting. Dallas, Texas: Society of Exploration Geophysicists, pp. 1588–1591.
- Xu, Nanyang et al. (March 2012). "Quantum Factorization of 143 on a Dipolar-Coupling Nuclear Magnetic Resonance System." *Physical Review Letters* 108.13, pp. 130501. link.aps.org/doi/10 .1103/PhysRevLett.108.130501.
- Yan, Wei-Bin and Heng Fan (April 2014). "Single-Photon Quantum Router with Multiple Output Ports." Scientific Reports 4.1, pp. 4820. doi.org/10.1038/srep04820.
- Yardley, Herbert O. (1931). *The American Black Chamber*. London: The Bobbs-Merrill Company.
- Yin, Juan et al. (June 16, 2017). "Satellite-Based Entanglement Distribution Over 1200 Kilometers." *Science* 356.6343, pp. 1140– 1144.
- Yoo, J. (2020). "Rules for The Heavens: The Coming Revolution in Space and The Laws of War." University of Illinois Law Review 2020.1, pp. 123–194.
- Yuan, Z. S. et al. (2008). "Experimental Demonstration of a BDCZ Quantum Repeater Node." Nature 454.7208, pp. 1098–101.
- Zach, Dorfman (December 21, 2020). "China Used Stolen Data to Expose CIA Operatives in Africa and Europe." foreignpolicy.co m/2020/12/21/china-stolen-us-data-exposed-cia-operatives-spy-n etworks/.
- Zelnio, Ryan (January 6, 2006). "The Effects of Export Control on The Space Industry." *The Space Review*.
- Zetter, Kim (January 12, 2018). "Google to Stop Censoring Search Results in China After Hack Attack." *Wired.* www.wired.com/20 10/01/google-censorship-china/.
- Zhang, Hao et al. (2018). "Quantized Majorana Conductance." Nature 556.7699, pp. 74–79. doi.org/10.1038/nature26142.
- Zhong, Han-Sen et al. (2020). "Quantum Computational Advantage Using Photons." *Science* 370.6523, pp. 1460–1463. science.s ciencemag.org/content/370/6523/1460.

- Zissis, Carin (February 2007). "China's Anti-Satellite Test." www.cf r.org/backgrounder/chinas-anti-satellite-test.
- Zuboff, Shoshana (2019). The Age of Surveillance Capitalism: The Fight for a Human Future at The New Frontier of Power. New York: PublicAffairs.
- Zuckoff, Mitchell (2005). Ponzi's Scheme: The True Story of a Financial Legend. New York: Random House.
- Zukav, Gary (1979). The Dancing Wu Li Masters. William Morrow.
- Zweben, Stuart and Betsy Bizot (2019). 2019 Taulbee Survey. cra.o rg/resources/taulbee-survey/.
- Zyga, Lisa (November 28, 2014). "New Largest Number Factored on a Quantum Device Is 56,153." phys.org/news/2014-11-largestfactored-quantum-device.html.