Dr. Alexander D. Wissner-Gross

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Overview

Dr. Alexander D. Wissner-Gross is an award-winning scientist, engineer, entrepreneur, investor, and author. He serves as President and Chief Scientist of Gemedy and holds academic appointments at Harvard and MIT. He has received 125 major distinctions, authored 18 publications, been granted 24 issued, pending, and provisional patents, and founded, managed, and advised 4 technology companies that were acquired for a combined value of over $600 million. In 1998 and 1999, respectively, he won the USA Computer Olympiad and the Intel Science Talent Search. In 2003, he became the last person in MIT history to receive a triple major, with bachelors in Physics, Electrical Science and Engineering, and Mathematics, while graduating first in his class from the MIT School of Engineering. In 2007, he completed his Ph.D. in Physics at Harvard, where his research on neuromorphic computing, machine learning, and programmable matter was awarded the Hertz Doctoral Thesis Prize. A thought leader in intelligent systems, he is a contributing author of the New York Times Science Bestseller, *This Idea Must Die*, and the Amazon #1 New Release, *What to Think About Machines That Think*. A popular TED speaker, his talks have been viewed more than 2 million times and translated into 27 languages. His work has been featured in more than 200 press outlets worldwide including The Wall Street Journal, BusinessWeek, CNN, USA Today, and Wired.

Industrial Experience

2011-Present	Founder, President, and Chief Scientist, Gemedy, Inc. (intelligent systems)
2011-2012	Founding Advisory Board Member, Hibernia Networks / Hibernia Atlantic U.S. LLC (low-latency networking; acquired by GTT Communications Inc. [NYSE: GTT] for $607M in 2017)
2009-2011	Founding Advisory Board Member, Global Green Consulting Group, Inc. (data center management; acquired by Cloud Technology Partners, Inc., in 2011, now Hewlett Packard Enterprise [NYSE: HPE] as of 2017)
2007-2016	Founder and Board Member, Enernetics, Inc. (web analytics; acquired by Sustainable Travel International in 2016)
2006-2011	Founder and Partner, Maxtile Holdings GP (software incubator; acquired by Surf My Ads, Inc., in 2007 and ISC / Mindhive Inc. in 2011)

Investment Experience

2016-Present	Organizing Committee Member, MIT Alumni Angels of Boston

Academic Experience

2017-Present	Alumni Expert in Residence, Massachusetts Institute of Technology
2012-Present	Institute Fellow and Associate, Institute for Applied Computational Science, Harvard University
2012-Present	SEAS Expert in Residence, Harvard Innovation Lab, Harvard University
2010-Present	Research Affiliate, Media Laboratory, Massachusetts Institute of Technology
2008-2010	Ziff Fellow, Computer Science, Harvard University

Government Experience

2016-2017	Task Force Observer (Design and Acquisition of Software for Defense Systems), Defense Science Board
2016-Present	Subject Matter Expert, Homeland Defense and Security Information Analysis Center (HDIAC)
2009-2016	Member, International Telecommunication Union (ITU) Dynamic Coalition on Internet and Climate Change

Philanthropic Experience

2017-Present	Executive Board Member, Sustainable Travel International
2016-Present	Advisory Board Member, Organ Preservation Alliance
2015-Present	Scientific Advisory Board Member, The Lifeboat Foundation
2013-Present	Founding Member, W3C Sustainable Web Design Community Group
2010-Present	Fellowship Interviewer, The Fannie and John Hertz Foundation

Editorial Experience

2015-Present	Ad Hoc Editorial Board Member, Physical Review X
2007-Present	Editorial Board Member, Recent Patents on Nanotechnology

Education

2003-2007	Ph.D., Physics, Harvard University (Hertz Doctoral Thesis Prize Winner)
	A.M., Physics, Harvard University
1999-2003	S.B., Physics, Massachusetts Institute of Technology
	S.B., Electrical Science and Engineering, Massachusetts Institute of Technology
	S.B., Mathematics, Massachusetts Institute of Technology
	(1st out of ~550 in MIT School of Engineering class as Henry Ford II Scholar)
1995-1999	Great Neck South High School, Great Neck, NY (1st out of 225)

Teaching Experience

Fall 2016	Guest Lecturer, Harvard APCOMP 298R Interdisciplinary Seminar in Computational Science & Engineering
Jan 2012-2015	Creator and Instructor, Harvard IACS Computational Science Ventures
Spring 2007	Guest Lecturer, Harvard Freshman Seminar 22e Molecular Motors: Wizards of the Nanoworld
Spring 2006	Teaching Fellow, Harvard Physics 15a Introductory Mechanics and Relativity
Jan 2001	Creator and Instructor, MIT 6.370 IEEE/ACM (Battlecode) Programming Competition

Distinctions

2016 Contributing Author, Amazon #1 New Release in Science Essays & Commentary ("Know This")
2016 Hive Global Leader
2016 SBA Emerging Business Leader (E200)
2015 Contributing Author, Amazon #1 New Release in Artificial Intelligence ("What to Think About Machines That Think")
2015 American Men & Women of Science
2015 Secretary of Defense Challenge Coin Recipient
2015 Renaissance Weekend Participant
2015 Contributing Author, #19 on New York Times Science Best Sellers List ("This Idea Must Die")
2015 Contributing Author, #5 on Northern California Indie Bestseller List ("This Idea Must Die")
2015 MIT Gathering of Titans Collaborator
2015 Google Solve for X Moonshot Pioneer
2014 Northrop Grumman Information Systems' Supplier Excellence Award
2014 TED Talk of the Week (ranked among top 20% of all TED Talks by views)
2013 Gifted Citizen Entrepreneurship Award Finalist
2013 Biggest Brain Award, Frog Design Inc.
2012 Elected to Young Engineers Organization (YEO)
2012 Featured Intel ISEF Alumnus, Society for Science & the Public
2012 Brain Sciences Foundation Fellowship
2012 Certificate of Recognition, Harvard Institute for Applied Computational Science
2011 Elected to Philosophical Society of Washington (PSW)
2011 Forbes 30 Under 30 Rising Stars of Science Nominee
2010 Science News of the Year (Technology), Society for Science & the Public
2009 Featured Young Innovator, NSF National Science Board
2009 Certificate of Appreciation, IEEE Computer Society of Connecticut
2008 Crunchies Startup Award Finalist ("Most Likely to Make the World a Better Place")
2008 Hertz Doctoral Thesis Prize Winner, Fannie and John Hertz Foundation
2008 Featured Entrepreneur, MIT Chairman's Salon
2008 Y Combinator Founder
2008 Winner, Summer@Highland Entrepreneurship Program (declined)
2008 Ziff Environmental Fellowship, Harvard University Center for the Environment
2007 Harold T. White Prize for Excellence in Teaching, Harvard Physics Department
2007 Nominee, Derek C. Bok Award for Excellence in Graduate Student Teaching of Undergraduates
2007 Dan David Prize Scholarship for Future Energy applications, Tel Aviv University
2007 Graduate Student Silver Award, Materials Research Society
2006 Finalist, named one of top 6 directors in amateur category, Materials Research Film Festival
2006 Nanotechnology paper selected for Institute of Physics Journal Highlights
2006 Book Prize, Harvard's Derek Bok Center for Teaching and Learning
2006 Harvard University Certificate of Distinction in Teaching
2006 Nominee, Harvard's Joseph R. Levenson Memorial Teaching Prize (only Physics nominee)

2004 First place (5km race) and Second place (500m race) team in division, Jichuan Cup International Dragon Boat Invitational Tournament for University Students in Tianjin, China
2003 Harvard Purcell Fellowship
2003 Malcolm Cotton Brown Award as top ranked MIT senior pursuing experimental physics
2003 Elected to Sigma Xi (scientific research) honor society
2003 Elected to Sigma Pi Sigma (physics) honor society
2003 Elected to Phi Beta Kappa (arts and sciences) honor society
2003 Runner-Up, Stanford Entrepreneur's Challenge
2003 Finalist, Carrot Capital Business Plan Challenge
2003 Finalist, MIT $50K Entrepreneurship Competition
2003 Henry Ford II Scholar Award, MIT School of Engineering
2003 Fannie and John Hertz Foundation Fellowship
2003 One of 20 named to USA Today All-USA 1st Academic College Team
2003 National Defense Science and Engineering Graduate Fellowship (declined)
2003 DOE Computational Science Graduate Fellowship (declined)
2003 NSF Graduate Research Fellowship (declined)
2003 Stanford Graduate Fellowship (declined)
2003 Caltech Richard P. Feynman Fellowship (declined)
2003 Yale Leigh Page Prize (declined)
2002 British Marshall Scholarship (declined)
2002 Winner in Tiny Technologies Category, MIT $1K Entrepreneurship Competition
2002 Elected to Tau Beta Pi (engineering) honor society
2002 Elected to Eta Kappa Nu (electrical & computer engineering) honor society
2002 First place nationally, Inaugural Intel Undergraduate Research Award
2001 Barry M. Goldwater Scholar
2001 Letters of commendation (top 2%) in 3 of the 4 core MIT EECS courses
2000 Director's Award, MITRE Corporation
2000 National Dean's List
1999 First Place, Ray L. Summa 34th Bomb Group Scholarship Award
1999 National Winner, New Technology, NITA Young Inventors & Creators Competition
1999 American Academy of Achievement's Salute to Excellence (personally sponsored by Lemelson Foundation)
1999 First place nationally, American Scholastic Mathematics Association (ASMA)
1999 Honorable Mention, First Step to Nobel Prize in Physics
1999 Valedictorian, Great Neck South High School
1999 National Winner, 10th Place, Intel Science Talent Search
1999 Inducted into National Young Inventors' Hall of Fame, National Gallery for America's Young Inventors
1999 One of 20 named to USA Today All-USA 1st Academic High School Team
1999 Lucent Global Science Scholar
1999 United States Navy Science Achievement Award
1999 Tandy Technology Scholar
1999 Grand Prize Winner, USA Math Talent Search (USAMTS)
1999 First Place, Army Physics Award, International Science and Engineering Fair (ISEF)
1999 Intel Best Use of PC Award, International Science and Engineering Fair
1999 Second Place, Physics Grand Award, International Science and Engineering Fair
1999 Second Place, Air Force Physics Award, International Science and Engineering Fair
1999 American Association of Physics Teachers Award, International Science and Engineering Fair
1999 Citation for Excellence, Nassau County Legislature
1999 International Honor Winner, Canadian Open Mathematics Challenge
1999 Honored Scholar, National Alliance for Excellence
1999 National AP Scholar
1999 National Merit Finalist
1998-1999 Who's Who Among American High School Students
1998-1999 First place in Senior Division with perfect score, American Computer Science League (ACSL)
1998 Member of U.S. team at International Olympiad in Informatics (IOI)
1998 Second place nationally, USA Computer Olympiad Finals
1998 First place individual, Fall Open Competition of USA Computer Olympiad
1998 First place nationally with perfect score, USA Math Talent Search (USAMTS)
1998 Winner and top-scoring American, Email Informatics Competition (EIC)
1998 Winner, Long Island Software Award

1998 Highest Scoring Student Award, American Scholastic Mathematics Association (ASMA)
1998 George Washington University School of Engineering & Applied Science Medal
1998 National Winner, Computer Science, NITA Young Inventors & Creators Competition
1998 Third place American and 14th place internationally, Central European Olympiad in Informatics (CEOI)
1998 First place out of 20,000 students with perfect score, Canadian Mathematics Fermat Competition
1998 First Place, C++, Continental Math League Computer Contest
1997 Fourth Place, Intel Grand Award in Computer Science, International Science and Engineering Fair
1997 Fourth place nationally, USA Computer Olympiad Fall Championship
1997 First place, American Computer Science League (ACSL)
1997 Top scoring U.S. sophomore, American Computer Science League (ACSL)
1997 Ross Young Scholar, Ohio State University
1997 AT&T Student Software Award, Long Island Software Awards
1997 Certificate of Achievement, Mathematical Contest in Modeling
1997 Certificate of Merit, The Assembly of the State of New York
1997 Certificate of Distinction, American High School Mathematics Examination
1997 Summa Cum Laude, National Latin Exam
1996-1998 Columbia University Science Honors Program
1996 Brandeis Summer Odyssey Young Scholar
1996 Perfect Score, National Latin Exam
1995-1996 Creative Problem-Solving Institute for Gifted and Talented Students
1995 Summa Cum Laude, National Latin Exam
1995 First Place, Pascal, Continental Math League Computer Contest
1994-1995 John Hopkins Center for Talented Youth (CTY)
1994 State and Regional Award, Mathematics and Verbal Talent Search
1992-1993 Performed with the New York City Opera Children's Chorus

Publications

18. A. D. Wissner-Gross, "Datasets over algorithms," Know This: Today's Most Interesting and Important Scientific Ideas, Discoveries, and Developments, 475-477 (ed., J. Brockman, 2017).
17. A. D. Wissner-Gross, "Engines of freedom," What To Think About Machines That Think: Today's Leading Thinkers On The Age Of Machine Intelligence, 418-420 (ed., J. Brockman, HarperCollins, 2015).
16. A. D. Wissner-Gross, "Intelligence as a property," This Idea Must Die: Scientific Theories That Are Blocking Progress, 277 (ed. J. Brockman, HarperCollins, 2015).
15. A. D. Wissner-Gross, C. E. Freer, "Causal entropic forces," Phys. Rev. Lett. 110, 168702 (2013).
14. A. D. Wissner-Gross, T. M. Sullivan, "Participatory telerobotics," Proc. SPIE 8758, 87580O (2013).
13. A. D. Wissner-Gross, C. E. Freer, "Relativistic statistical arbitrage," Phys. Rev. E 82, 056104 (2010).
12. A. D. Wissner-Gross, "Dielectrophoretic architectures," Bio-Inspired and Nanoscale Integrated Computing, 155-173 (ed. M. Eshaghian-Wilner, Wiley, 2009).
11. A. D. Wissner-Gross, "Intruder dynamics on vibrofluidized granular surfaces," Mater. Res. Soc. Symp. Proc. 1152E, TT03-01 (2009).
10. A. D. Wissner-Gross, "Pattern formation without favored local interactions," J. Cell. Auto. 4, 27-36 (2008).
9. A. D. Wissner-Gross, T. M. Sullivan, "Multicolor symbology for remotely scannable 2D barcodes," Proc. SPIE 6623, 662304 (2008).
8. L. Cong, A. D. Wissner-Gross, "Interrogating single molecules," Rec. Pat. Nanotech. 2, 19-24 (2008).
7. A. D. Wissner-Gross, "Physically programmable surfaces," Ph.D. Thesis, Department of Physics, Harvard University (2007).
6. A. D. Wissner-Gross, E. Kaxiras, "Diamond stabilization of ice multilayers at human body temperature," Phys. Rev. E Rapid Comm. 76, 020501 (2007).
5. A. Hatzor-de Picciotto, A. D. Wissner-Gross, G. Lavallee, P. S. Weiss, "Arrays of Cu(2+)-complexed organic clusters grown on gold nano dots," J. Exp. Nanosci. 2, 3-11 (2007).
4. A. D. Wissner-Gross, T. M. Sullivan, "From codex to poster," Libr. J. 132, S12-S13 (2007).
3. A. D. Wissner-Gross, "Dielectrophoretic reconfiguration of nanowire interconnects," Nanotechnology 17, 4986-4990 (2006).
2. A. D. Wissner-Gross, "Preparation of topical reading lists from the link structure of Wikipedia," Proc. IEEE ICALT 6, 825-829 (2006).
1. E. Wissner-Gross, A. D. Wissner-Gross, "People with disabilities," Journalism Across Cultures, 203-220 (ed. F. Cropp, Iowa State Press, 2003).

Patents

24. A. D. Wissner-Gross, T. M. Sullivan, "Surveillance using low-dimensional sensors," U.S. Provisional Patent Application 62/617,772 (2018).
23. A. D. Wissner-Gross, T. M. Sullivan, "System and method for extracting and exploiting causal networks," U.S. Provisional Patent Application 62/243,193 (2015).
22. A. D. Wissner-Gross, T. M. Sullivan, "Environmental footprint monitor for computer networks," U.S. Patent 8,862,721 B2 (2014).
21. A. D. Wissner-Gross, et al., "Identifying where to buy ingredients of a recipe," U.S. Patent Application 14/289,412 (2014).
20. A. D. Wissner-Gross, et al., "Providing an altered shopping experience in retail environments," U.S. Patent Application 14/289,382 (2014).
19. A. D. Wissner-Gross, "Process for electromagnetic vitrification," U.S. Provisional Patent Application 62/003,241 (2014).
18. C. E. Freer, A. D. Wissner-Gross, "System and method for relativistic statistical securities trading," U.S. Patent 8,635,133 (2014).
17. A. D. Wissner-Gross, et al., "Providing recreation and social activities in retail environments," U.S. Patent Application 13/710,227 (2014).
16. A. D. Wissner-Gross, et al., "Providing a proximity triggered response in a video display," U.S. Patent Application 13/710,053 (2014).
15. A. D. Wissner-Gross, et al., "In-store guidance systems and methods," U.S. Patent Application 13/710,204 (2013).
14. A. D. Wissner-Gross, et al., "Back-to-back video displays," U.S. Patent Application 13/875,890 (2013).
13. A. D. Wissner-Gross, T. M. Sullivan, "Data exfiltration attack detection," U.S. Provisional Patent Application 61/775,822 (2013).
12. A. D. Wissner-Gross, et al., "In-room hospitality devices and systems," U.S. Patent Application 13/770,841 (2013).
11. A. D. Wissner-Gross, "Causal entropy engine," U.S. Provisional Patent Application 61/738,573 (2012).
10. A. D. Wissner-Gross, et al., "User interface for accessing information about a retail store," U.S. Patent Application 13/710,163 (2012).
9. A. D. Wissner-Gross, et al., "Smart device location in retail environments," U.S. Patent Application 13/710,126 (2012).
8. A. D. Wissner-Gross, T. M. Sullivan, "Human-based telerobotic and telepresence method," U.S. Provisional Patent Application 61/705,657 (2012).
7. A. D. Wissner-Gross, T. M. Sullivan, "Method and apparatus for human-powered mobile visual search and feedback," U.S. Patent 8,073,864 (2011).
6. A. D. Wissner-Gross, T. M. Sullivan, "System and method for electronically certifying relationships," U.S. Provisional Patent Application 61/361,144 (2010).
5. A. D. Wissner-Gross, "Method for creating a topical reading list," U.S. Patent 7,739,294 (2010).
4. A. D. Wissner-Gross, E. Kaxiras, "Diamond stabilization of ice multilayers at human body temperature," U.S. Provisional Patent Application 61/053,737 (2008).
3. A. D. Wissner-Gross, T. M. Sullivan, "Multicolor symbology for remotely scannable codes," U.S. Provisional Patent Application 60/918,736 (2007).
2. A. D. Wissner-Gross, "Method of robotic manipulation utilizing patterned granular motion, " U.S. Patent 6,335,059 (2002).
1. A. D. Wissner-Gross, "Robotic manipulation system utilizing patterned granular motion," U.S. Patent 6,216,631 (2001).