

Joshua Charles Harrison

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EDUCATION: **JD**, May 2002, Stanford University, School of Law.
 Ph.D., Mechanical Engineering, Dec. 1992, Univ. of California, San Diego.
 MS, Mechanical Engineering, June 1989, Univ. of California, San Diego.
 BS (cum laude), Mechanical Engineering, May 1987, Univ. of Southern California.

PROFESSIONAL EXPERIENCE

Patent Attorney & Co-Founding Partner, **Barcelo & Harrison LLP**, Newport Beach, CA 01/07 – present.
Practicing patent attorney: Patent preparation, prosecution, and litigation; opinions regarding infringement and validity; post-grant review and inter-partes review proceedings; advise clients re: patent licensing & negotiations, trademarks, contracts, trade secrets, evaluation of patent essentiality to standards, etc.

Patent Attorney, **Western Digital Corp.**, Lake Forest, CA 4/04 – 1/07.
Patent preparation and prosecution, patent portfolio development strategy and quality & enforceability improvements, right to use investigations, infringement analysis, licensing & litigation support and strategy, manage outside counsel.

Patent Attorney, **Irell & Manella LLP**, Newport Beach, CA 9/02 – 4/04.
Member of a renowned patent litigation team.

Manager, Adv. Mechanical Integration Dept., **Seagate Technology**, Longmont, Colorado. 10/96 – 08/99.
Planned and directed the efforts of the department's scientists, engineers, and technicians. The department's mission: Technical screening of new technologies related to the magnetic head-media interface, and introduction of the most beneficial of such technologies into Seagate products, early in the design cycle.

Lecturer of Mechanical Engineering (Tenureable), **Univ. of Queensland**, Brisbane, Australia 03/94 – 09/96
Academic staff rank in Australia equivalent to Assistant Professor in the USA. Lectured mechanical engineering subjects, including Engineering Dynamics, Applied Dynamics and Elements of Machines, Data Acquisition and Instrumentation, Power Transfer Systems, and Acoustics. Supervised postgraduate students & research. Upgraded existing laboratory facilities.

Senior Member of the Technical Staff, **Applied Magnetics Corporation**, Goleta, California 01/93 – 02/94
Conducted research and advanced development of magnetic recording head suspension springs. Acted as the industrial liaison for a collaborative effort partially funded by AMC and undertaken at Cal Tech University.

Research Engineer **IBM Corp.**, **Almaden Research Center**, San Jose, CA 07/91-09/91, and 06/90 – 09/90
Performed numerical study of constrained layer damping of a magneto-optical disk drive objective lens support structure. Designed, fabricated, and tested a novel angular position transducer used as part of a control system for objective lens actuation in a magneto-optical disk drive (*see* IBM Technical Disclosure # AM8-91-0176).

Development Engineer **IBM Corp.**, **Storage Products Div.**, San Jose, CA 06/89 – 09/89
Experimental studies of disk drive components. Computer automation of test equipment.

Engineering teaching assistant & research assistant, **UCSD** (part time as graduate student), 09/87 – 12/92

MILITARY TRAINING/EDUCATION/SCHOOLS

- 1) Combined Arms Staff Services School, 11/1998 -07/1999 (weekends), US Army Garrison Fitzsimons, Colorado
- 2) Military Intelligence Officer Advanced Course, July 1997, Fort Huachuca, Arizona
- 3) Military Intelligence Officer Transition Course, July 1993, Fort Huachuca, Arizona
- 4) Field Artillery Officer Basic Course, May 1987 - Sept. 1987, Fort Sill, Oklahoma
- 5) ROTC Advanced Camp, May 1983 - July 1983, Fort Lewis, Washington
- 6) Airborne (paratrooper) Course, January 1983, US Army Infantry School, Fort Benning, GA
- 7) US Marine Corps Boot Camp, May 1981 - August 1981, MCRD, San Diego, California

MILITARY EXPERIENCE (*Honorable Discharge April 18, 2003*)

Strategic Military Intelligence Officer, Major, US Army Reserve, May 2001 – April 2003.

2nd DET, Joint Intelligence Center, Pacific, Bldg. #610, Camp Parks, Dublin CA 94568 USA. Strategic intel all-source analysts supporting PACOM area of interest.

Strategic Military Intelligence Officer, Captain, US Army Reserve, August 1997 – August 1999.

4th DET, Joint Intelligence Center, Pacific, Naval Reserve Center, Buckley Air National Guard Facility, Aurora CO 80011 USA. Lead joint team of strategic intel all-source analysts supporting PACOM area of interest. Received Joint Service Achievement Medal during this period (on 06APR99).

Liaison/Instructor at Australian Defence Force School of Military Intelligence, Mar. 1995 – Oct. 1996,

Special project officer, US Army Research Development and Standardization Group - Australia, Duty Organization: School of Military Intelligence, Kokoda Barracks, Australian Defence Force (ADF) Land Warfare Centre, Canungra, Queensland, 4275 Australia.

Platoon Leader in US Army Intel Linguistics Unit, Captain, US Army Nat. Guard, Dec. 1992 – Feb. 1994

2nd Plt Leader, C. Co., 223rd Military Intelligence Battalion, Glendale, California ARNG.

Field Artillery Battalion Fire Support Officer, 1st Lieutenant, US Army Reserve, Sept. 1987 - May 1992.

Represented 3rd BN, 144th Field Artillery (3-144 FA), with the leadership of the 2nd BN, 185th Armor (2-185 AR), in providing tactical fire support for mechanized training operations. Led the fire support teams (“FIST”s) attached from 3-144 FA to 2-185 AR, which consisted of 5 armored personnel carriers, 15 men, and communication equip., in training operations.

60mm mortar team leader, Lance Corporal, DET. CO. F, 2d BN, 23d MAR, 4th MARDIV, FMF, USMCR, April 1982 - Oct. 1982.

60mm mortar crewman, Private First Class, DET. CO. F, 2d BN, 23d MAR, 4th MARDIV, FMF, USMCR, August 1981 - March 1982.

Basic Marine infantryman, Private in weapons platoon, detachment of Company F, 2nd Battalion, 23rd Marine Regiment, 4th Marine Division, Fleet Marine Force, USMCR 1980 - July 1981.

ACTIVITIES & ADDITIONAL QUALIFICATIONS:

Professional

Active attorney member of the California State Bar (Bar Number 223422).

Licensed to practice before the US Patent & Trademark Office (Reg. # 45686).

Author of many peer-reviewed engineering publications and US Patents (see publication list).

Member #837927, Institution of Engineers, Australia. (Chartered Prof. Engineer in Australia)

Member #2374171, American Society of Mechanical Engineers.

Former US Government Top Secret security clearance.

DLPT qualified Spanish linguist.

Personal

Married parent of three children.

Certified pistol and firearms safety instructor (certified by Cal. DOJ and NRA).

Former marksmanship and USPSA practical shooting competitor.

Licensed private pilot since 1997.

Airborne qualified, US Army; licensed skydiver, US Parachuting Association.

Spelunking; novice climbing arborist.

Licensed and experienced motorcyclist.

Personally constructed my office; supervised construction of my home.

PADI Advanced Open Water SCUBA diving certification.

Aquatic sports enthusiast: competition swimming, surfing, water polo, windsurfing, standup paddle.

PUBLICATION LIST:

U.S. PATENTS AS INVENTOR

- 1) **US Patent # 5,452,158**, J.C. Harrison and K.P. Hanrahan, "Magnetic Head Gimbal Having Two Degrees of Freedom with Localized Torsion and Bending for Respective Degrees of Freedom," 19 September 1995.
- 2) **US Patent #5,652,684**, J.C. Harrison and K.P. Hanrahan, "Magnetic Head Gimbal Suspension with Double Dimple," 29 July 1997.
- 3) **US Patent # 5,668,690**, J.C. Harrison, "Method and Apparatus for Lifetime Prediction of Gas Lubricated Interfaces in Data Storage Devices," 16 September 1995.
- 4) **US Patent #5,682,669**, J.C. Harrison and K.P. Hanrahan, "Method of Making a Magnetic Head Gimbal Suspension Assembly with Double Dimple," 04 November 1997.
- 5) **US Patent #6,304,420**, J.M. Murphy, J.C. Harrison, T. Prentice, "Preloaded Gimbal in a Head Suspension for Limiting Head/Disc Separation," 16 October 2001.
- 6) **US Patent #6,459,547**, J.W. Riddering, Z-E. Boutaghou, J. Gui, H. Tang, M.C. Rao, J.E. Angelo, J.C. Harrison, J.M. Murphy, "Slider with Pads and Textured Landing Zone For Disc Storage System," 01 October 2002.
- 7) **US Patent #6,487,043**, J.M. Murphy and J.C. Harrison, "Crossed texture head disc interface," 26 November 2002.
- 8) **US Patent #6,556,383**, J.M. Murphy and J.C. Harrison, "Disc Drive Anti-Shock Suspension Cushions," 29 April 2003.
- 9) **US Patent #6,817,619**, J.C. Harrison, "Safety Device for Snowboards," 16 November 2004.
- 10) **US Patent #6,966,563**, J.C. Harrison, "Safety Device for Snowboards," 22 November 2005.

FOREIGN PATENT PUBLICATIONS (AS INVENTOR)

- 1) **British GB2369484**, J.W. Riddering, Z-E. Boutaghou, J. Gui, H. Tang, M.C. Rao, J.E. Angelo, J.C. Harrison, J.M. Murphy, "Slider For Disc Storage System," Published 10 September 2003.
- 2) **British GB2369484**, J.M. Murphy, J.C. Harrison, "Disc Drive Anti-Shock Suspension Cushions," Published 24 December 2002.
- 3) **German DE19983741**, J.M. Murphy, J.C. Harrison, "Stosssdaempfende Aufhaengungspolster Eines Plattenlaufwerks," Published 13 December 2001.
- 4) **World IP Org. WO0116943**, J.W. Riddering, Z-E. Boutaghou, J. Gui, H. Tang, M.C. Rao, J.E. Angelo, J.C. Harrison, J.M. Murphy, "Bras pour Unite de Disque," Published 07 September 2001.
- 5) **World IP Org. WO0030078**, J.M. Murphy, J.C. Harrison, "Coussinets de Suspension Anti-Choc pour Unite de Disques," Published 25 May 2000.

LAW JOURNAL PUBLICATIONS

- 1) J. C. Harrison, "On the convergence of U.S. and Australian Patent Law," *Melbourne Journal of Int. Law*, Vol. 2, Issue 2, pp. 351-380 (2001).
- 2) J. C. Harrison, "Attracting the World's Policeman to Protocol I Additional to the 1949 Geneva Conventions," *United States Air Force Academy Journal of Legal Studies*, Vol. 12, pp.103-137 (2002/2003).
- 3) J. C. Harrison, "Raising Healthy Patents," *New Matter, State Bar of California*, Vol. 39, No. 3, pages 14-18 (2014).
- 4) J. C. Harrison, "A Recent Patent Class on the Scope of IPR Estoppel at the PTAB," *Journal of Business and Technology Law*, Vol. 14., No. 1, pages 35-48 (2018).
- 5) J. C. Harrison, "Post Civil War Firearm Patent Litigation Against the U.S. Government," *The Journal Jurisprudence*, Vol. 38, pages 9-26 (2019).

ENGINEERING JOURNAL PUBLICATIONS & CONFERENCE PRESENTATIONS

- 1) J.C. Harrison, W. Imano, "Numerical studies of damped suspensions for an optical focusing actuator." *Adv. Info. Storage Syst.*, Vol.1, pp.405-418 (1991).
- 2) J.C. Harrison, F.E. Talke, "Non-repeatable runout of cantilever and doubly supported 5 1/4 inch disk drive spindles." *Precision Engineering*, Vol.13, No.1, pp.33-40 (1991).
- 3) W. Imano, J.C. Harrison, "A comment on constrained layer damping structures with low viscoelastic modulus." *Journal of Sound and Vibration*, Vol.149, No.2, pp.354-359 (1991).
- 4) J.C. Harrison, C.W. Miller, F.E. Talke, "Disk surface acceleration effects due to air flow induced by rotation." *Adv. Info. Storage Syst.*, Vol.1, pp.155-169 (1991).
- 5) J. Harrison, F. Talke, "Combined tuned and constrained layer damping of a Type 13 magnetic recording suspension." *IEEE Trans. on Magnetics*, Vol. 29, No. 6, pp.4098-4100 (1993).
- 6) J.C. Harrison, D.H. Lou, F.E. Talke, "Air flow around the tip of an obstruction between co-rotating disks." *Adv. Info. Storage Syst.*, Vol. 5., pp. 159-174 (1993).
- 7) J.C. Harrison, W. Imano, F.E. Talke, "Tuned constrained layer damping of a cantilevered plate." *Journal of Sound and Vibration*, Vol. 174, No. 3, pp. 413-427 (1994).
- 8) J.C. Harrison, K.P. Hanrahan, "The Double Dimple Magnetic Recording Suspension and its Effect on Fly Height Variability", *Journal of Tribology*, Vol. 117, No. 2, pp. 267-271 (1995).
- 9) J.C. Harrison, K.P. Hanrahan, "Effect of Mandrel Skew Induced Roll Bias on Suspension Structural Resonance", *Adv. Info. Storage Syst.*, Vol. 6., pp. 29-40 (1995).
- 10) J.C. Harrison, F.E. Talke, "Design of Laminar Dampers for Advantageous Compromise Between Tuned and Constrained Layer Damping Behaviour", *Machine Vibration*, Vol. 4., pp. 51-59 (1995).
- 11) J.C. Harrison, F.E. Talke, "Combined tuned and constrained layer damping design," (awarded best presentation) *Proc. Int. Conf. Vibration & Noise*, Venice, Italy, pp. 577-590 (April 1995).
- 12) A.C. Swann, J.C. Harrison, and F.E. Talke, "Non-repeatable runout and starting characteristics of small self-acting air bearing spindles", Paper # BQ-08, *Int. Magnetics Conf. (INTERMAG)*, Stockholm (1993).
- 13) J.C. Harrison, "Capacitive Relative Position Error Transducer for Galvo Mirrors", *IEEE Trans. Instrumentation and Measurement*, Vol. 45, No. 4, pp. 831-835 (1996).
- 14) A.C. Swann, J.C. Harrison, F.E. Talke, "Non-repeatable runout measurement and simulation of fluid lubricated spindles", *IEEE Trans. Mag.*, vol. dedicated to APRMC '95 (1996).
- 15) T.C. McMillan, F.E. Talke, J.C. Harrison, "Identification of slider/disk contacts using the energy of the acoustic emission signal", *Joint MMM-IEEE Intermag Conf.* (1997).
- 16) J.C. Harrison, J.M. Murphy, J.F. Griep, and C.M. Huynh, "Ultrasonic wear acceleration of head-disk interfaces operating in near-contact", *Joint MMM-IEEE Intermag Conf.* (1997).
- 17) J.C. Harrison, "An experimental apparatus for appraisal and comparison of vibration in high rise elevator cars", *Elevator World*, Vol. 46, No. 6, pp. 81-85 (1998).
- 18) K.A. Altshuler, J.C. Harrison, E. Ackerman, "The physical effects of intra-drive particulate contamination on the head-disk interface in magnetic hard disk drives", *Journal of Tribology (ASME)*, Vol. 121, No. 2, pp. 352-358 (1999).
- 19) M.D. Mundt, J.C. Harrison, "Prediction of Drive Level Flying Height Distribution Based on Drive Component Variations", *J. Info. Stor. Proc. Sys.*, vol. dedicated to 10th Symp. on ISPS (1999).
- 20) J.C. Harrison, M.D. Mundt, "Flying height response to mechanical shock during operation of a magnetic hard disk drive", *Journal of Tribology (ASME)*, Vol. 122, No. 1, pp. 260-263 (2000).
- 21) J.C. Harrison, "On scope and assessment in modern engineering education," *International Journal of Engineering Education*, Vol. 18, No. 3, pp. 301-306 (2002).
- 22) J.C. Harrison, "Guns, Dogs, CMRR and Money," 35th Annual Research Review, UCSD Center for Memory and Recording Research (14 March 2018).