

**Jonathan D. Putnam**  
*Principal*

PhD Economics  
Yale University

MA Economics  
Yale University

BA Economics  
Yale University

Jonathan Putnam is an expert in intellectual property, antitrust, technological change, industrial organization and applied microeconomics.

Dr. Putnam has testified before juries, the bench, arbitrators, and regulators:

- in patent, antitrust, copyright, trade secret, contract and tax actions
- in federal, state, and bankruptcy courts
- in US and international arbitrations
- before the US Federal Trade Commission, International Trade Commission and Tax Court
- in judicial and regulatory proceedings in Canada, Germany, the UK and India

Dr. Putnam regularly testifies in large-scale intellectual property litigation. Cases with more than \$500 million in controversy include: *Medtronic v. IRS*; *Apple v. Qualcomm*; *Idenix v. Gilead Sciences*; *Ericsson v. Huawei*; *Ericsson v. Samsung*; *InterDigital v. Samsung et al.*; *Skyhook v. Google*; *Tessera v. ASE et al.*; *MedioStream v. Microsoft et al.*; *TSMC v. SMIC*; *LG Display v. AU Optronics*; *SCO v. IBM*; *Nokia v. InterDigital*; *Eastman Kodak v. Sun Microsystems*; *In Re Paragon Trade Brands*; and *TM Patents v. IBM*.

Dr. Putnam has also provided econometric analyses in differentiated products mergers approved by the FTC and by the Antitrust Division of the U.S. Department of Justice, and economic testimony to the Patented Medicine Prices Review Board and the Federal and Supreme Courts of Canada.

Until 2005, Dr. Putnam served as the Ontario Research and Development Challenge Fund professor of the law and economics of intellectual property at the Centre for Innovation Law and Policy, at the University of Toronto.

Previously, Dr. Putnam held academic appointments at Vassar College, the Columbia University Schools of Law and Business, Yale University, and the Boston University Graduate School of Management. His dissertation, cited more than 400 times in Google Scholar, was the first to measure the global value of patent rights. Based on that research, Dr. Putnam received an NSF Small Business Innovation Research grant for measuring the value of corporate patent portfolios.

Dr. Putnam has authored numerous publications on the economics of intellectual property, notably:

- “Economic Determinations in ‘FRAND Rate’-Setting: A Guide for the Perplexed.” *Fordham International Law Journal* 41(4) (May 2018): 953-1015
- “Patent Valuation,” in S. N. Durlauf and L. E. Blume (eds.), *The New Palgrave Dictionary of Economics*, 2nd ed. (London: Palgrave Macmillan), 2008. Reprinted in *The New Palgrave Dictionary of Economics Online*. Palgrave Macmillan. 07 September 2009
- “The Law and Economics of International Intellectual Property: A Primer,” in K. Maskus (ed.), *Frontiers of Economics and Globalization, vol. 2: Intellectual Property, Growth and Trade* (Amsterdam: Elsevier), 2008
- *Intellectual Property Rights and Innovation in the Knowledge-Based Economy* (editor), (Ottawa: Industry Canada), 2006

Expert testimony (client)

Case	Type	Market	Venue	Docket
<u>Rasmussen Instruments v. DePuy Synthes Products</u> *	Patent / commercial success	Knee arthroplasty instruments / implants	D. Massachusetts	1:20-CV-11807-WGY
<u>Spectrum Dynamics v. GE Healthcare</u> *	Trade secret / patent / preliminary injunction	Single-photon emission CT devices	S.D. New York	18-cv-11386 (VSB)
<u>InterDigital v. Lenovo and Motorola Mobility</u> *	FRAND	3G/4G/4G devices	High Court of Justice for England & Wales	HP-2019-000032
Certain Digital Video-Capable Devices ( <u>Philips</u> ) <sup>‡</sup>	Patent / DI / unenforceability	HDCP-compliant devices	International Trade Commission	337-TA-1224
Showa Denko Materials v. <u>Soulbrain</u> <sup>‡</sup>	Patent license dispute	Chemical metal polishing slurry	Int. Cham. Comm. arbitration	24757/PTA
Skywell v. <u>Hon Hai (Foxconn)</u> <sup>‡</sup>	Breach of contract	Atmospheric water generators	JAMS arbitration	1210037103
<u>InterDigital v. Xiaomi</u> *	Patent / security payment / FRAND	3G/LTE handsets	High Court of New Delhi	C.S. (COMM) No. 295 / 2020
<u>Neural Magic v. Facebook et al.</u> *	Trade secret	Sparse matrix multiplication	D. Massachusetts	20-10444
Biedermann v. <u>K2M</u> <sup>†</sup>	Patent	Spinal repair screws and implants	E. D. Virginia, Norfolk Div.	2:18-CV-00585
KFx Medical v. <u>Stryker</u> <sup>†</sup>	Patent	Shoulder repair anchors	S. D. California	3:18-cv-01799
Amgen v. <u>Pfizer and Hospira</u> <sup>†</sup>	Patent	Biologic neutropenia treatments	D. Delaware	18-1064-CFC
<u>Medtronic v. Commissioner of Internal Revenue</u> <sup>‡</sup>	Transfer pricing	Cardiac rhythm management devices and leads	Tax Court, Washington D.C.	6944-11
Unwired Planet v. Huawei* ( <u>Ericsson</u> )	FRAND	3G/LTE handsets	Federal Ct. Justice, Germany	X ZR 33/19
Certain Luxury Vinyl Tiles* ( <u>Innovations4Flooring</u> )	Patent misuse	Luxury vinyl tiles	International Trade Commission	337-TA-1155
On Semiconductor <i>et al.</i> v. <u>Power Integrations</u> <sup>†</sup>	Patent	High efficiency power supplies	D. Delaware	17-cv-00247-LPS
<u>Ericsson v. Intex</u> *	Patent / FRAND	2G/3G handsets	High Court of New Delhi	CS(OS) 769 / 2016
<u>TQ Delta v. Adtran</u> *	Patent / FRAND	DSL-compliant devices	D. Delaware	14-cv-954-RGA
<u>TQ Delta v. ZyXEL Communications</u> *	Patent / FRAND	DSL-compliant devices	D. Delaware	13-cv-02013-RGA
<u>TQ Delta v. 2Wire</u> <sup>†</sup>	Patent / FRAND	DSL-compliant devices	D. Delaware	13-cv-1835-RGA

\*Expert report

†Report and deposition

‡Report, deposition, and trial testimony

Expert testimony (client)

Case	Type	Market	Venue	Docket
In re. Qualcomm Litigation <sup>†</sup> (Qualcomm)	FRAND	2G/3G/LTE handsets	S. D. California	3:17-cv-00108-GPC-MDD
Certain Digital Video Receivers <sup>‡</sup> (Rovi)	Domestic industry / commercial success	Interactive program guides	International Trade Commission	337-TA-1103
ASUS v. <u>InterDigital</u> <sup>†</sup>	FRAND / antitrust	2G/3G/LTE handsets	N. D. California, San Jose Div.	15-CV-1716 (BLF)
<u>Metabolic Technologies</u> v. Abbott Laboratories <sup>‡</sup>	Patent / trade secret	Adult nutritional supplements	Arbitration	-
Certain Digital Cameras <sup>‡</sup> (Carl Zeiss)	Patent / domestic industry	Digital camera sensors and software	International Trade Commission	337-TA-1059
Certain Dental Ceramics <sup>‡</sup> (Ivoclar)	Public interest / commercial success	High-strength ceramic dental implants	International Trade Commission	337-TA-1050
<u>Evolved Wireless</u> v. Microsoft and Nokia <sup>†</sup>	Patent / FRAND	4G handsets and infrastructure	D. Delaware	15-547-SLR-SRF
<u>Evolved Wireless</u> v. ZTE <sup>†</sup>	Patent / FRAND	4G handsets and infrastructure	D. Delaware	15-546-SLR-SRF
<u>Evolved Wireless</u> v. Samsung <sup>†</sup>	Patent / FRAND	4G handsets and infrastructure	D. Delaware	15-545-SLR-SRF
<u>Evolved Wireless</u> v. Lenovo and Motorola <sup>†</sup>	Patent / FRAND	4G handsets and infrastructure	D. Delaware	15-544-SLR-SRF
<u>Evolved Wireless</u> v. HTC <sup>†</sup>	Patent / FRAND	4G handsets and infrastructure	D. Delaware	15-543-SLR-SRF
<u>Evolved Wireless</u> v. Apple <sup>‡</sup>	Patent / FRAND	4G handsets and infrastructure	D. Delaware	15-542-SLR-SRF
Certain Integrated Circuits with Voltage Regulators <sup>†</sup> (R2 Semiconductor)	Patent / domestic industry	Semiconductor voltage regulators	International Trade Commission	337-TA-1024
Intellectual Ventures v. AT&T <sup>†</sup>	Patent infringement	4G/LTE infrastructure	D. Delaware	13-cv-01668-LPS, 13-cv-1669-LPS
Confidential arbitration <sup>‡</sup> (InterDigital)	Patent portfolio license	2G/3G handsets	--	--
SS&C v. Clearwater and Rossa <sup>‡</sup>	Trade secret	Financial management software	Circuit Ct., Cook County Ill.	2015-CH-15891
<u>W. L. Gore</u> v. Bard <sup>†</sup>	30(b)(6)	Peripheral stent grafts	D. Delaware	1:11-cv-00515
Certain Digital Video Receivers <sup>‡</sup> (Rovi)	Domestic industry / commercial success	Interactive program guides	International Trade Commission	337-TA-1001
Ericsson v. Mercury Electronics and Micromax <sup>*</sup>	Patent / FRAND	2G/3G handsets	High Court of New Delhi	CS(OS) 442 / 2013
Neura Therapeutix v. <u>Zogenix</u> <sup>*</sup> et al.	Breach of alleged license	Abuse-deterrent opioids	New Jersey Superior Court	6944-11

\*Expert report

†Report and deposition

‡Report, deposition, and trial testimony

Expert testimony (client)

Case	Type	Market	Venue	Docket
<u>Idenix et al. v. Gilead Sciences</u> <sup>‡</sup>	Patent	HCV oral therapies	D. Delaware	13-01987-LPS, 14-00846-LPS
<u>Ericsson v. Lava</u> <sup>‡</sup>	Patent portfolio license	2G/3G handsets	High Court of New Delhi	CS(OS) 764 / 2015
Confidential FRAND arbitration* ( <u>Ericsson</u> )	Patent portfolio license	2G/3G/4G handsets	Int. Ct. Arb.	20853/CYK
<u>Microwave Vision v. ETS-Lindgren, Inc.</u> <sup>*</sup>	Patent	Multi-probe measurement systems	N. D. Georgia, Atlanta Div.	1:14-cv-01153-SCJ
<u>Samsung v. Nvidia</u> <sup>‡</sup>	Patent	Graphics processing units	E.D. Virginia, Richmond Div.	3:14-cv-757-REP
<u>Ericsson v. Apple</u> <sup>‡</sup>	Patent / FRAND	4G handsets	International Trade Commission	337-TA-953
<u>Alexion v. Patented Medicine Prices Review Board and Attorney General, Canada</u> <sup>‡</sup>	Price regulation / constitutionality	Paroxysmal nocturnal hemoglobinuria	Federal Court, Ontario	T-1537-15
<u>Ericsson v. Huawei</u> <sup>‡</sup>	Patent portfolio license	3G/4G handsets and infrastructure	Int. Ct. Arb.	01-14-0002-2610
<u>Power Integrations v. Fairchild Semiconductor et al.</u> (remand) <sup>‡</sup>	Patent	High efficiency power supplies	N. D. California, San Francisco Div.	09-CV-05235-MMC
<u>Sprint v. Time Warner Cable</u> <sup>‡</sup>	Patent	Voice-over-Internet-Protocol equipment	D. Kansas	2:11-cv-2686
<u>Univ. of Utah v. Alnylam, Max Planck and MIT et al.</u> <sup>†</sup>	Inventorship	RNA interference	D. Massachusetts	1:11-cv-10484
Certain 3G Mobile Handsets <sup>‡</sup> (remand) ( <u>InterDigital</u> )	Patent / FRAND	3G cellular handsets	International Trade Commission	337-TA-613
<u>Verionix v. Inficon</u> <sup>‡</sup>	Breach of contract	Semiconductor manufacturing sensors	Am. Arb. Assoc.	50 117 T 00920 13
Confidential arbitration ( <u>InterDigital</u> ) <sup>‡</sup>	Patent portfolio license	3G/4G handsets and infrastructure	--	--
<u>Skyhook Wireless v. Google</u> <sup>†</sup>	Patent	Location-based mobile operating systems	D. Massachusetts	1:10-cv-11571-RWZ, 1:13-cv-10153-RWZ
<u>Uniloc v. Activision Blizzard</u> <sup>†</sup> ( <u>Electronic Arts</u> )	Patent	DRM software	E. D. Texas, Tyler Div.	6:13-cv.259
Certain Lithium Silicate Materials* ( <u>Ivoclar</u> )	Domestic industry / commercial success	High-strength ceramic dental implants	International Trade Commission	337-TA-911
<u>Adaptix v. Apple and AT&amp;T Mobility</u> <sup>†</sup>	Patent	Cellular networks	N. D. California	5:13-cv-01777, -02023
<u>St. Jude Medical v. Volcano</u> <sup>*</sup>	Patent	Cardiac catheter monitors	D. Delaware	12-441-RGA

\*Expert report

†Report and deposition

‡Report, deposition, and trial testimony

Expert testimony (client)

Case	Type	Market	Venue	Docket
<u>Optical Devices v. Lenovo et al.</u> <sup>†</sup>	Patent / domestic industry / EPROMs factors	Optical disc drives	International Trade Commission	337-TA-897
<u>Dow Chemical v. Organic Kimya et al.</u> <sup>†</sup>	Trade secret / injury	Opaque polymers	International Trade Commission	337-TA-883
Cot'n Wash and Big 3 Packaging v. <u>Sun Products Corp.</u> <sup>†</sup>	Patent / commercial success	Unit-dose laundry detergents	D. Delaware	12-651 (SLR)
Medtronic v. <u>Edwards v. Medtronic</u> <sup>†</sup>	Patent	Cardiac devices	D. Minnesota	11:1650 JNE/JSM
Certain Wireless Devices With 3G and/or 4G Capabilities <sup>‡</sup> ( <u>InterDigital</u> )	Patent / FRAND / domestic industry	3G/4G handsets and infrastructure	International Trade Commission	337-TA-868
Certain Paper Shredders* ( <u>Fellowes</u> )	Design patent / trade secret / DI / injury	Office shredders	International Trade Commission	337-TA-863
<u>Power Integrations v. Fairchild Semiconductor et al.</u> <sup>‡</sup>	Patent	High efficiency power supplies	N. D. California, San Francisco Div.	09-CV-05235-MMC
Certain Wireless Communications Equipment <sup>‡</sup> ( <u>Ericsson</u> )	Patent / FRAND	3G/4G handsets and infrastructure	International Trade Commission	337-TA-866
Certain 3G Devices <sup>‡</sup> ( <u>Ericsson</u> )	Patent / FRAND	3G/4G handsets and infrastructure	International Trade Commission	337-TA-862
St. Jude Medical v. <u>Volcano</u> <sup>†</sup>	Patent	Cardiac catheter wires	D. Delaware	10-631-RGA
<u>ProconGPS v. Star Sensor et al.</u> <sup>‡</sup>	Patent	GPS-based vehicle repossession	N. D. California, San Francisco Div.	3:11-CV-03975-SI
e-LYNXX Corp. v. Innerworkings <i>et al.</i> * ( <u>RR Donnelley</u> )	Patent	Print procurement software	M. D. Pennsylvania	1:10-CV-2535
Certain Rubber Resins <sup>‡</sup> ( <u>SI Group</u> )	Trade secret / domestic industry / injury	Rubber resin tackifiers	International Trade Commission	337-TA-849
Sears Brands v. <u>Bed Bath &amp; Beyond</u> <sup>†</sup>	Patent	Gift registry management systems	D. New Jersey	08 CV 5839-SDW-MCA
James Taylor v. <u>IBM</u> <sup>†</sup>	Patent	Post-compiler optimizers	E. D. Texas, Tyler Div.	6:10-CV-615-LED
<u>Nuance Communications v. ABBYY USA and Lexmark</u> <sup>‡</sup>	Patent	Optical character recognition software	N. D. California, San Francisco Div.	08-CV-2912-JSW
Summit 6 v. <u>Facebook et al.</u> * <sup>‡</sup>	Patent	Photo uploaders	N. D. Texas, Dallas Div.	3:11-cv-367-O

\*Expert report

†Report and deposition

‡Report, deposition, and trial testimony

Expert testimony (client)

Case	Type	Market	Venue	Docket
In the Matter of Certain 3G Capable Wireless Devices <sup>‡</sup> ( <u>InterDigital</u> )	Patent / FRAND / domestic industry	3G handsets	International Trade Commission	337-TA-800
<u>Mobileye Inc. v. Picitup Corp. and iOnRoad Ltd.</u> <sup>†</sup>	Patent / unfair competition	Collision avoidance systems	S. D. New York	12-CV-1994 (JSR)
ePlus, Inc. v. <u>Lawson Software</u> <sup>‡</sup>	Patent / contempt	B2B procurement software	E. D. Virginia, Richmond Div.	3:09-CV-620 (REP)
<u>TriQuint Semiconductor v. Avago Technologies</u> <sup>†</sup>	Antitrust	Bulk acoustic wave filters	D. Arizona	09-01531-PHX-JAT
BIAX v. NVIDIA and <u>Sony</u> <sup>†</sup>	Patent	Graphics processors	D. Colorado	1:09-cv-01257-PAB-MEH
Allflex v. <u>AVID Identification Systems</u> <sup>*</sup>	Antitrust	Companion animal RFIDs	C. D. California, Eastern Div.	06-01109 SGL (OPx)
Acqis v. Dell <i>et al.</i> <sup>†</sup> ( <u>Oracle</u> )	Patent	Blade servers	E. D. Texas, Tyler Div.	6:09-00148-LED
<u>Faiveley Transport et al. v. Wabtec Corp.</u> <sup>‡</sup>	Trade secret	Rail car brake systems	S.D. New York	10-CV-04062 (JSR)
MedioStream v. <u>Acer et al.</u> ; <u>Nero v. MedioStream</u> <sup>*</sup> ( <u>Acer</u> , <u>Apple</u> , <u>ASUS</u> , <u>Dell</u> , <u>Microsoft</u> , <u>Nero</u> , <u>Sonic Innovations</u> )	Patent / copyright / trade secret	Optical disc burning software	E. D. Texas, Marshall Div.	2:08-CV-369, 2:07-CV-376
Illumina v. <u>Affymetrix</u> <sup>*</sup>	Patent / obviousness	High-throughput genotyping arrays	W. D. Wisconsin	09-cv-277-bbc 09-cv-665-bbc
In the Matter of the <u>Patent Act and Sandoz Canada</u> <sup>†</sup>	Price regulation / jurisdiction	Unpatented medicines	Patented Medicine Prices Review Board, Canada	10-07-05
<u>Nikon Metrology v. Faro Technologies</u> <sup>‡</sup>	Patent / antitrust	Metrology scanners	D. Massachusetts	08-CV-11187 (PBS)
Konami Digital Entertainment v. <u>Viacom, MTV Networks, Harmonix Music Systems</u> <sup>†</sup>	Patent	Band video games	E. D. Texas, Tyler Div.	6:08-CV-286 JDL
Saxon Innovations v. Nokia <i>et al.</i> <sup>†</sup> ( <u>Palm</u> )	Patent	Smartphones	E. D. Texas, Marshall Div.	6:07-CV-490
IP Innovation <i>et al.</i> v. <u>Red Hat, Inc. and Novell, Inc.</u> <sup>‡</sup>	Patent	Open source desktop/server software	E. D. Texas, Marshall Div.	2:07-CV-447
Taiwan Semiconductor Mfg. Co. v. <u>Semiconductor Mfg. Int'l Corp.</u> <sup>†</sup>	Trade secret	Semiconductor manufacturing	Superior Ct. Calif., Alameda Cty.	RG-286111
In the Matter of Certain Cast Steel Railway Wheels <sup>‡</sup> ( <u>Amsted Rail</u> )	Trade secret / domestic industry	Cast steel railway wheels	International Trade Commission	337-TA-655
SuperSpeed LLC v. <u>IBM</u> <sup>†</sup>	Patent	Memory cache software	E. D. Texas, Marshall Div.	2:07-CV-089

\*Expert report

†Report and deposition

‡Report, deposition, and trial testimony

Expert testimony (client)

Case	Type	Market	Venue	Docket
LG Display Co. v. <u>AU Optronics Corp.</u> v. LG Display Co. <sup>‡</sup>	Patent	Liquid crystal displays	D. Delaware	Nos. 06-726, 07-357 (JJF)
Medtronic Corp. v. <u>W. L. Gore &amp; Assoc.</u> <sup>†</sup>	Patent	Aortic stent grafts	N. D. California, San Francisco Div.	06-04455 JSW (JL)
<u>Digene Corp.</u> v. Hoffman-La Roche and Gen-Probe Inc. <sup>‡</sup>	License dispute	Human papilloma virus diagnostic tests	Am. Arb. Assoc.	50 181 T 00502 06
<u>The MathWorks, Inc.</u> v. COMSOL AB <sup>‡</sup>	Copyright	Technical computing software	E. D. Texas, Tyler Div.	No. 6:06-CV-335-LED
Hilda Semerdjian v. <u>McDougal Littell</u> and R. R. Donnelly & Sons <sup>*</sup>	Copyright	Secondary school textbook photographs	S. D. New York	07 Civ. 7496 (LMM)
Neal Beidleman, <i>et al.</i> v. <u>Houghton Mifflin Harcourt</u> , <i>et al.</i> <sup>*</sup>	Copyright	Secondary school textbook photographs	D. Colorado	07-cv-01220-ZLW-MJW
<u>Bally Gaming</u> v. IGT <sup>†</sup>	Patent	Wheel-based slot machines	D. Nevada	3:06-CV-0483-ECR-RAM
Certain 3G Mobile Handsets <sup>‡</sup> ( <u>InterDigital</u> )	Patent/ FRAND	3G cellular handsets	International Trade Commission	337-TA-613
<u>Analog Devices, Inc.</u> v. Silicon Labs Inc. <sup>†</sup>	Patent/unfair competition	Digital isolators	D. Massachusetts	1:06-CV-12240-WGY
<u>Digene Corp.</u> v. Third Wave Technologies <sup>†</sup>	Antitrust	Human papilloma virus diagnostic tests	W. D. Wisconsin	07-C-0022-C
Energy Transportation Group v. Sonic Innovations <i>et al.</i> <sup>‡</sup> ( <u>Demant</u> and <u>Widex</u> )	Patent	Hearing aids	D. Delaware	05-CV-422-GMS
<u>sit-up Ltd.</u> v. IAC/Interactive and HSN International <sup>†</sup>	Trade secret	Televised auction networks	S. D. New York	05 CIV 9292
MTI v. Boston Scientific and <u>The Regents of Univ. Calif.</u> <sup>†</sup>	Antitrust	Brain aneurysm treatment procedures	N. D. California, San Jose Div.	03-05669 JW (RS)
SCO Group Inc. v. <u>IBM</u> <sup>†</sup>	Copyright	UNIX operating systems	D. Utah	03-CV-0294
Andersen Corp. v. Pella Corp. and <u>W. L. Gore &amp; Assoc.</u> <sup>†</sup>	Patent	Reduced visibility insect screens	D. Minnesota	05-824 JMR/FLN
<u>Shire Biochem Inc.</u> v. Patented Medicine Prices Review Board <sup>†</sup>	Price regulation	Attention deficit hyperactivity disorder therapies	Federal Court, Ontario	T-678-06
Sky Technologies v. <u>IBM</u> <sup>†</sup>	Patent	B2B middleware	E. D. Texas, Marshall Div.	03-CV-454
Fair Isaac v. <u>IBM</u> <sup>*</sup>	Preliminary injunction	Business rules management software	D. Minnesota	05-CV-02081 DWF/SRN

\*Expert report

†Report and deposition

‡Report, deposition, and trial testimony

Expert testimony (client)

Case	Type	Market	Venue	Docket
Charles E. Hill & Associates v. Amazon.com <i>et al.</i> <sup>†</sup> (IBM)	Patent	Web site caching software	E. D. Texas, Marshall Div.	02-CV-186 TJW
Samsung Electronics Co. v. InterDigital Communications <sup>‡</sup>	Patent portfolio license	2G cellular handsets and infrastructure	Intl. Ct. Arb.	13 033/JNK
Datalogic Scanning v. Metrologic Instruments*	Preliminary injunction	Bioptic scanners	D. Oregon	06-CV-6102-TC
Confidential arbitration <sup>†</sup> (InterDigital)	Patent portfolio license	2G cellular handsets and infrastructure	--	--
AMO v. Alcon Labs. <sup>‡</sup>	Patent	Cataract surgery apparatus	D. Delaware	No. 03-1095 KAJ
Resonate, Inc. v. Alteon Websystems <sup>†</sup>	Patent	Load balancing software & hardware	N. D. California, Oakland Div.	No. C00-3307 CW
Eastman Kodak v. Sun Microsystems*	Patent	Java software platform	W. D. New York	02-6074T(F)
Asian Communications and Tegic v. Zi Corp. <i>et al.</i> <sup>‡</sup>	Patent	Text-entry software	N. D. California	00-0989 PJH
Particle Measuring Systems v. Rion Co. <i>et al.</i> <sup>†</sup>	Patent	Liquid particle counters	D. Colorado	99-WM-1433
VISX, Inc. v. LaserSight, Inc. <sup>†</sup>	Patent	Refractive laser surgery apparatus / methods	D. Delaware	99-789-JJF
Akamai Technologies and MIT v. Digital Island, Inc. <sup>†</sup>	Patent	Content delivery networks	D. Massachusetts	00-cv-11851-RWZ
Plasma Physics v. IBM*	Patent	Semiconductor manufacturing methods	E. D. New York	CV-02-3463
Pfizer Canada <i>et al.</i> v. Eli Lilly <i>et al.</i> <sup>†</sup>	Preliminary injunction	Erectile dysfunction	Federal Court, Ontario	T-1721-03
In Re Cardizem CD Antitrust Litigation <sup>†</sup> (Andrx)	Antitrust	Once-a-day diltiazem	E. D. Michigan	99-MD-1278
BIAX v. Apple Computer, Motorola and IBM*	Patent	Microprocessors	D. Delaware	01-601-KAJ
In re Nidek Excimer Laser Surgery Systems <sup>†</sup> (VISX)	Patent	Refractive laser surgery apparatus / methods	N. D. California	MDL No. 1319
Ciena Corp. v. Corvis Corp. <sup>†</sup>	Patent	Fiber optic switching	D. Delaware	00-662-JJF
Children's Broadcasting v. ABC Radio and Walt Disney <sup>‡</sup>	Trade secret	Children's radio networks	D. Minnesota	3-96 CIV 907
Apotex v. Wellcome <i>et al.</i> *	Patent	HIV medication	Sup. Ct. Canada	-

\*Expert report

†Report and deposition

‡Report, deposition, and trial testimony



Expert testimony (client)

Case	Type	Market	Venue	Docket
In Re Paragon Trade Brands <sup>‡</sup> ( <u>Weyerhaeuser</u> )	Breach of IP asset warranty	Diapers	Bankruptcy Ct., N. D. Georgia, Atlanta Div.	98-60390 (Ch. 11)
Caliper Technologies Corp. v. <u>Bertram Rowland, and Aclara</u> . <sup>‡</sup>	Trade secret	Microfluidics	Superior Ct. Calif., Santa Clara Cty.	CV780743
In the Matter of Hoechst Marion Roussel, <i>et al.</i> * ( <u>Andrx</u> )	Antitrust	Once-a-day diltiazem	Federal Trade Commission	9293
Hale Propeller, LLC, et al. v. <u>Ryan Marine Products, et al.</u> *	Patent	Propeller measurement devices	D. Connecticut	398 CV 01248 GLG
Mark Bric Display Corp. v. <u>Joseph Struhl Co., et al.</u> <sup>†</sup>	Patent	Frame and display systems	D. Rhode Island	CA 98-532 ML
<u>Heineken Technical Services, B.V.</u> v. <u>Deco Tec International Ltd., et al.</u> <sup>†</sup>	Trade secret	High-speed container labeling machinery	D. Massachusetts	98 CV 11952 JLT
<u>Unipat, A.G.</u> v. <u>Sauer, Inc., et al.</u> <sup>†</sup>	Patent	Integrated hydrostatic transaxles	D. Delaware	98-495-SLR
John Taboada v. <u>Stephen L. Trokel and VISX</u> <sup>†</sup>	Inventorship	Refractive laser surgery apparatus / methods	W. D. Texas, San Antonio Div.	SA-97-CA-794
Pall Corporation v. <u>Cuno</u> <sup>†</sup>	Patent	Industrial filters	E. D. New York	97 7599 (JS)
In the Matter of Summit Technologies and <u>VISX, Inc.</u> <sup>‡</sup>	Antitrust	Refractive laser surgery apparatus / methods	Federal Trade Commission	9286
TM Patents and TM Creditors v. <u>IBM Corp.</u> <sup>†</sup>	Patent	Supercomputer components	S. D. New York, White Plains Div.	97 CIV 1529
Uraseal, Inc. v. <u>Electric Motion Company</u> *	Patent	Shielded grounding cable assemblies	D. New Hampshire	C-95-517-SD
Vanguard, Inc. v. <u>Parker- Hannifin Corp.</u> <sup>‡</sup>	Patent	Conductive coated gaskets	D. Connecticut	395CV 1716 (AVC)
<u>Inline Plastics Corp.</u> v. <u>Mobil Oil Corp.</u> <sup>†</sup>	Patent	Plastic locking mechanisms	D. Connecticut	3-95-CV200 (AVC)
<u>Virginia Financial Assoc.</u> v. ITT Hartford <sup>†</sup>	Breach of contract	Insurance services	Circuit Ct., Chesterfield Cty., Virginia	982400
<u>Plug-In Storage Systems, Inc.</u> v. <u>Newton Instruments Corp.</u> <sup>†</sup>	Patent	Circuit board cabinets	E. D. North Carolina	92-105-CIV- 5-F
<u>Pave-Tech</u> v. <u>Snap Edge</u> <sup>†</sup>	Patent	PVC edge restraints	N. D. Illinois, Eastern Div.	90-C-1067

\*Expert report

†Report and deposition

‡Report, deposition, and trial testimony



## Other IP / Competition consulting

Court-appointed determination of the share of patent portfolio value accounted for by top-ranked patents (mobile Java); patent portfolio cross-license negotiations (semiconductor manufacturing); copyright tariff-setting (digital music downloads); know-how ownership (HIV drug patent); trade secret misappropriation (steel production process); value of market exclusivity under Orphan Drug Act (human growth hormone); maximum license fee that is not a refusal to deal (transportation software); measurement of patent damages from an unconsummated offer to sell (airframe components); breach of license contract through unauthorized distribution (fashion jeanswear); scope of import exclusion order (hard drive production process); differentiated products mergers (packaged candy, pet food, feminine products, prepared soups, office supply stores).



## Publications

### Books

*Intellectual Property Rights and Innovation in the Knowledge-Based Economy* (editor), (Ottawa: Industry Canada), 2006.

### Journal articles

“Economic Determinations in ‘FRAND Rate’-Setting: A Guide for the Perplexed.” *Fordham International Law* 41(4) (May 2018): 953:1015.

“Reverse Payment Settlements: Structure, Purpose and Reform.” *Antitrust Source*, October 2006: 1–15.

“The Costs and Benefits of Genomics Patents.” *Am. J. Pharmacogenomics* 4(5), July 2004: 277–92.

“How to Count Patents and Value Intellectual Property: Uses of Patent Renewal and Application Data.” With Jean Lanjouw and Ariel Pakes. *Journal of Industrial Economics* 46(4), December 1998: 405–32.

“Assigning Patents to Industries: Tests of the Yale Technology Concordance.” With S. Kortum. *Economic Systems Research* 9(2), 1997: 161–175.

“Measuring Inter-Industry Flows of R&D Expenditures.” With R. Evenson. *Innovazione e Materie Prime*, 1993.

“Forestry Research: A Provisional Global Inventory.” With F. Mergen, R. Evenson, and M. A. Judd. *Economic Development and Cultural Change* 37(1) October 1988: 149–172.

“Institutional Change in Intellectual Property Rights.” With R. Evenson. *American Journal of Agricultural Economics* 69(2), May 1987: 403–409.

### Other articles

“Is the price paid for a patent portfolio a cap on patent damages?” (with S. Chen), *Intellectual Asset Management*, October 2, 2019.

“An approach to measuring patent quality using citation data” (with S. Chen and H. Luu), *Intellectual Asset Management*, September 18, 2019.

“Disagreements among technical experts with regard to patent essentiality” (with Y. Meng), *Intellectual Asset Management*, August 28, 2019.

“The misuse of effective rates in FRAND determinations” (with H. Luu), *Intellectual Asset Management*, August 14, 2019.

“Royalty stacking in FRAND litigation – Part Two” (with Y. Meng), *Intellectual Asset Management*, July 31, 2019.

“Royalty stacking in FRAND litigation – Part One” (with Y. Meng), *Intellectual Asset Management*, July 24, 2019.

“Smallest saleable patent practising unit’ doctrine: developments and challenges,” *Intellectual Asset Management*, October 12, 2017.



“Latest Developments in FRAND and SEP Litigation.” *Intellectual Asset Management Yearbook*, 2016.

Review of *The Decision to Patent*, by Alexandra Zaby *Journal of Economic Literature*, March 2012.

“The 25-Percent Rule ... 2.0.” *IPLaw360*, August 19, 2011.

“Patent Valuation,” in S. N. Durlauf and L. E. Blume (eds.), *The New Palgrave Dictionary of Economics*, 2nd ed. (London: Palgrave Macmillan), 2008. Reprinted in *The New Palgrave Dictionary of Economics Online*. Palgrave Macmillan. 07 September 2009.

“The Future of Intellectual Property.” *Innovate* 3(1), Spring 2006.

“Revisiting the Cost of Bad Patents: For Whom Is ‘Rational Ignorance’ Rational?” (with Andrew Tepperman). *Intellectual Property Today*, October 2004: 37–39.

“Bargaining and the Construction of Economically Consistent Hypothetical Licensing Negotiations” (with Andrew Tepperman). *Licensing Journal* 24(7), August 2004: 8–15.

“Pharmaceutical Pricing in Canada: Are Drugs Too Expensive?” *Innovate* 1(1), Spring 2004.

“On the Incomparability of ‘Comparables’: An Economic Interpretation of ‘Infringer’s Royalties.’” With Stephen Kalos. *The Journal of Proprietary Rights* 9(4), April 1997: 2–5.

### Book chapters

“Intellectual Property Rights and Economic Progress: A Review of the Literature” (with Andrew Tepperman), in R. E. Litan (ed.), *Law, Innovation and Growth* (Northampton: Edward Elgar), 2011.

“The Law and Economics of International Intellectual Property: A Primer,” in K. Maskus (ed.), *Frontiers of Economics and Globalization, vol. 2: Intellectual Property, Growth and Trade* (Amsterdam: Elsevier), 2008.

“The Economics of Digital Copyright in the Knowledge-Based Economy,” in J. Putnam (ed.), *Intellectual Property Rights and Innovation in the Knowledge-Based Economy*, (Ottawa: Industry Canada), 2006.

“Intellectual Property Rights and the Propensity to Patent,” (with N. Gallini and A. Tepperman), in J. Putnam (ed.), *Intellectual Property Rights and Innovation in the Knowledge-Based Economy*, (Ottawa: Industry Canada), 2006.

“Allegations of Harmony Between IP and Competition Policies: In Search of the Lost Chord.” With G. Roberts. In Glenn F. Leslie (ed.), *Annual Fall Conference on Competition Law—1999* (Ottawa: Canadian Bar Association), 2000: 311–323.

“Technological Specialization in International Patenting.” With J. Eaton, R. Evenson, S. Kortum, and P. Martino. In G. Saxonhouse and T. Srinivasan (eds.), *Duality, Development and the International Economic Regime: Essays in Honor of Gustav Ranis* (Ann Arbor: University of Michigan Press), 1998.

“Intellectual Property Management.” With R. Evenson. In G. Persley (ed.), *Agricultural Biotechnology: Opportunities for International Development*. Oxford: CAB International, 1991.

## Unpublished papers

“Innovative Output in China,” 2020. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3760816](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3760816)

“The Smallest Salable Patent-Practicing Unit (SSPPU): Theory and Evidence,” 2016.  
[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2835617](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2835617)

“Value Shares of Technologically Complex Products,” 2014.  
[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2461533](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2461533)

“International Patenting,” 2009

“The Economic Analysis of Patent Donations: The Scope for Efficiency Gains and the Limitation of Tax Abuse,” 2004

“The Value of International Patent Rights,” Ph.D. dissertation, Yale University, 1996

## Selected presentations

“Trade Secret Valuation: Should *Georgia-Pacific* Be On Your Mind?”, AIPLA Trade Secret Summit, Boston, MA, November 2015

“Patent Valuation: The State of the Art (with a little science thrown in),” George Mason University Workshop on Patent Valuation, October 2015

“What Is That Patent Really Worth? Courts Take a Hard Look at the ‘Reasonable Royalty’ Calculation,” Silicon Valley Advanced Patent Law Institute, Palo Alto, December 2012

“What (Exactly) Are Patents Worth at Trial? The ‘Smartphone War’ Example,” Am. Int. Prop. Law Assoc., Austin, May 2012

“Apportionment and the EMVR post-*Uniloc*,” Practicing Law Institute, New York, November 2011.

“Contemporary Issues in Patent Royalty Damages,” Practicing Law Institute, New York, November 2010.

“The Objective Valuation of ‘Non-Traded’ IP,” Intellectual Property Owners Annual Meeting, Atlanta, September 2010.

“Assigning Value to Individual Patents in a Patent Portfolio,” Intellectual Property Owners Annual Meeting, Chicago, September 2009.

“Economic Observations on the Renaissance of Compulsory Licensing,” Is Your Intellectual Property At Risk From The Government?, American Bar Association, International Law Section, April 2009.

“Permanent Injunctions After *eBay*: Economic Factors in the ‘Four Factor Test,’” New Developments in IP: Strategies for Big and Small Business, Fordham University, New York, November 2008.

“What is FRAND? A Law and Economics Approach,” Competition Issues in International Licensing and Litigation, AIPPI 41st World Congress, Boston, September 2008.



“Promoting Innovation and Competition”: Next Steps in Antitrust Analysis of IP,” CRA International Spring Antitrust Conference, June 2007

“Patent Portfolio Valuation: New Directions, New Issues,” New York Intellectual Property Law Association, November 2006.

“International Patent Micro Data: An Introduction and Synthesis,” National Bureau of Economic Research, March 2006.

“Economics Effects of Compulsory Licensing,” Killing Innovation or Saving Lives: Competing Visions of Compulsory Licensing in Canada, Centre for Innovation Law and Policy, University of Toronto, March 2006.

“In Search of Better Patent Protection: When Is ‘Rational Ignorance’ Rational?” University of Michigan Intellectual Property Workshop, December 2004.

“Intellectual Property Donation: Options, ‘Lemons,’ and Complementary Assets.” Invitation-only “Roundtable on Intellectual Property Donations: Tax and Innovation Policy,” International Intellectual Property Institute, April 2004.

“Market Power and the Competitive Level: Proving Antitrust Injury in Intellectual Property Markets.” Invited lecture given at “Intellectual Property, Sustainable Development, and Endangered Species: Understanding the Dynamics of the Information Ecosystem,” Michigan State University, March 2004.

“Taking Stock of Developments at the Competition/IP Nexus.” Invited lecture delivered at “The State of Canadian Competition Policy: A Stock-Taking on a Change of Command,” University of Toronto, February 2004.

“The Law and Economics of Intellectual Property in Commercial Transactions.” Invited lecture delivered at Osgoode Hall Law School, January 2004.

“Dynamic Effects of Mandatory Pharmaceutical Supply.” Invited presentation delivered at “Fighting AIDS in Africa: Canada’s Proposal for Improving Access to Generic Medicines,” University of Toronto, October 2003.

“Copyright, Price Discrimination and Productivity.” Presented at annual meetings of the Society for Economic Research on Copyright Issues (SERCI), Northampton, June 2003.

“The Economics of Digital Copyright.” Selected as one of two best intellectual property papers by North American young scholars, presented at the Stanford-Yale Faculty Forum, June 2003.

“Telecommunications in Turmoil: New Legal Regulatory and Policy Challenges,” invited comments delivered at “Competition, Pricing and Natural Monopoly: Taking Stock of Network Industries,” University of Toronto, May 2003.

“Stimulating Local Research and International Technology Transfer,” Duke Law School conference on International Public Goods and Transfer of Technology Under a Globalized Intellectual Property Regime, April 2003.



“ccTLD and Transnational Policymaking,” Cardozo Law School conference on ICANN, ccTLD, and the Legacy Root: Domain Name Lawmaking and Governance in the New Millennium, March 2003.

“Intellectual Property Policy Reform for Canada,” Industry Canada, March 2003.

“The Politics of Price Discrimination,” University of Toronto Law & Economics, January 2003.

“Harmonization of the International Patent System,” Cardozo Law School conference on Global Harmonization of the Patent System, November 2002.

“The Regulation of Patent Pools,” Federal Trade Commission hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy: Cross-Licensing and Patent Pools, April 2002.

### **Selected research experience**

“The Smallest-Salable Patent Practicing Unit,” George Mason University School of Law, 2015-16

“Valuing International Patent Rights at the Firm Level.” National Science Foundation SBIR Program (Principal Investigator), 1996.

“How to Count Patents and Value Intellectual Property: Uses of Patent Renewal and Application Data.” OECD Program on New Indicators for the Knowledge-Based Economy, 1996.

“Patent Citation Measures of Technological Input-Output Flows,” 1996.

“Development of a Patent Citation Database for Analysis of Corporate Strategy.” National Science Foundation SBIR Program, 1994–1996.

“Measuring Inter-Industry Technology Flows Using the Yale-Canada Patent Concordance.” Yale University, 1992.

“Information Transfer between Private- and Public-Sector Researchers.” School of International and Public Affairs, Columbia University, 1991.

“The Source and Scope of Environment-Related Technology Transfer to Developing Countries.” World Bank, 1991.

“Intellectual Property Rights, R&D, Inventions, Technology Purchase, and Piracy in Economic Development: An International Comparative Study.” Yale University, 1990.

“Patent Citations and Technical Learning: The Case of Magnetic Resonance Imaging.” Yale University, 1990.

“Estimating Patent Counts by Industry.” National Science Foundation, 1987–1990.



## Grants, fellowships, honors, and awards

Scholar in Intellectual Property, George Mason University School of Law, 2015-2016

Yale-Stanford Faculty Forum, "The Economics of Digital Copyright," selected as one of top two papers by junior faculty members in North America, 2003

Centre for Innovation Law and Policy, University of Toronto, Using Patent Data to Measure Canada's Research Output, 2001–2004

Centre for Innovation Law and Policy, University of Toronto, Curriculum Development Related to the Law of High-Technology Regulation, 2001

National Science Foundation, Small Business Innovation Research, Using Patent Data to Estimate the Value of Firm-Level Patent Portfolios, 1996

Julius Silver Fellowship in Law, Science, and Technology, Columbia University Schools of Law and International and Public Affairs, 1990–1991

Yale International and Area Studies Dissertation Fellowship, 1988–1989

Mellon Foundation Fellowship at Yale Law School, 1986–1987

University Fellowship, 1983–1986





## Past positions

*Charles River Associates, Boston, Massachusetts. 1996 – 2012*

*Vice President. 2000 – 2012*

*Principal. 1998 – 2000*

*Senior Associate. 1996 – 1998*

*University of Toronto, Faculty of Law, Centre for Innovation Law and Policy. 2001 – 2005*

*Ontario Research and Development Challenge Fund Professor, Law and Economics of Intellectual Property. Intellectual Property, Property, Regulation of High Technology Industries*

*Boston University, Graduate School of Management. 2000*

*Adjunct Assistant Professor. Intellectual Property and Business Strategy*

*Vassar College. 1992 – 1994*

*Adjunct Assistant Professor. Introductory Microeconomics, Industrial Organization, Finance*

*Columbia University, Schools of Law and Business. 1992, 1993*

*Lecturer. Advanced Topics in Technological Properties*

*Yale University. 1985 – 1990*

*Yale College, Lecturer. Economics of Technology. 1987, 1989*

*Yale College, Instructor/Teaching Asst. Elementary Microeconomics. 1985 – 1986, 1989 – 1990*

*School of Epidemiology and Public Health, Teaching Asst. Economics of Health Care, 1984 – 1985*

*School of Organization and Management, Teaching Asst. Financial Management II, 1985*

## Other professional activities

*Board of Directors, University of Toronto Innovations Foundation, 2001–2002*

*Reviewer: American Economic Review, Journal of International Economics, European Economic Review, RAND Journal of Economics, Review of Industrial Organization, University of British Columbia Law Review, Berkeley Journals in Economic Analysis and Policy, University of Toronto Law Review, World Patent Information, Journal of Industrial Economics, Scottish Journal of Political Economy, International Journal of Industrial Organization, Southern Economic Journal, Journal of Economic Literature*