

## Ivan Paak-Liang Png

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**Research interests** Economics of intellectual property, information security, and pricing

### Employment

1996- National University of Singapore  
Lim Kim San Professor, 2008- , Professor, 2001- , Department of Business Policy. Kwan Im Thong Hood Cho Temple Professor, 2001-2008, Professor, 1996- , Visiting Professor, 1996, Department of Information Systems. Professor, 2006- , Department of Economics.  
Vice Provost (Graduate and Undergraduate Education), 2001-03; Dean, 2000-01, Vice Dean, School of Computing, 1998-2000.

2005-2006 Nominated Member of Parliament (10<sup>th</sup> Parliament of Singapore, 2<sup>nd</sup> session).

1984-96 University of California, Los Angeles  
Professor, 1995-96, Associate Professor (with tenure), 1990-95, Assistant Professor, 1984-90, John E. Anderson Graduate School of Management

1993-96 Hong Kong University of Science & Technology  
Visiting Professor, 1995-96, Visiting Reader, 1993-95, Department of Economics.

1987-88 National University of Singapore  
Lecturer, School of Management

Summer 1982 Government of Singapore Investment Corporation  
Special Assistant to the Managing Director

1978-80 Singapore Armed Forces  
Brigade Deputy Intelligence Officer (1980), Battalion Deputy General Staff Officer (1978)

### Education

1980-85 Stanford University  
PhD in Business

1975-78 University of Cambridge  
BA (Honours Class 1) in Economics

### Journal Publications

1. "Strategic Behavior in Suit, Settlement and Trial", *Bell Journal of Economics*, Vol. 14 No. 2 (Autumn 1983), 539-550.  
Reprinted in David K. Levine and Steven A. Lippman, Eds., *The Economics of*

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*Information*, Aldershot, England: Edward Elgar, 1995; Eric B. Rasmusen, Ed., *Game Theory and the Law*, Cheltenham, England: Edward Elgar, 2007.

2. "Optimal Subsidies and Damages in the Presence of Judicial Error", *International Review of Law and Economics*, Vol. 6 No. 1 (June 1986), 101-105.
3. "Price Discrimination Through Offers to Match Price", *Journal of Business*, Vol. 60 No. 3 (July 1987), 365-384 [with D. Hirshleifer].
4. "Litigation, Liability, and Incentives for Care", *Journal of Public Economics*, Vol. 34 No. 1 (October 1987), 61-85.
5. "Optimal Auditing, Insurance and Redistribution", *Quarterly Journal of Economics*, Vol. 104 No. 2 (May 1989), 399-415 [with D. Mookherjee].
6. "Reservations: Customer Insurance in the Marketing of Capacity", *Marketing Science*, Vol. 8 No. 3 (Summer 1989), 248-264.
7. "Efficient Deterrence and the Tax Treatment of Monetary Sanctions", *International Review of Law and Economics*, Vol. 9 No. 2 (December 1989), 209-217 [with E. Zolt].
8. "Facilitation of Competing Bids and the Price of a Takeover Target", *Review of Financial Studies*, Vol. 2 No. 4 (1989), 587-606 [with D. Hirshleifer].
9. "The Role of Instalment Payments in Contracts for Services", *RAND Journal of Economics*, Vol. 21 No. 1 (Spring 1990), 83-99 [with T.K. Lee].
10. "Enforcement Costs and the Optimal Progressivity of Income Taxes", *Journal of Law, Economics, and Organization*, Vol. 6 No. 2 (Fall 1990), 411-431 [with D. Mookherjee].
11. "Most-Favoured Customer Protection versus Price Discrimination Over Time", *Journal of Political Economy*, Vol. 99 No. 5 (October 1991), 1010-1028.
12. "Market Segmentation, Cannibalization, and the Timing of Product Introductions", *Management Science*, Vol. 38 No. 3 (March 1992), 345-359 [with S. Moorthy].
13. "Monitoring vis-a-vis Investigation in Enforcement of Law", *American Economic Review*, Vol. 82 No. 3 (June 1992), 556-565 [with D. Mookherjee].
14. "Private Security: Deterrent or Diversion?" *International Review of Law and Economics*, Vol. 14 (March 1994), 87-101 [with H.W. Koo].
15. "Marginal Deterrence in Enforcement of Law", *Journal of Political Economy*, Vol. 102 No. 5 (October 1994), 1039-1066 [with D. Mookherjee].
16. "Service Time Competition", *RAND Journal of Economics*, Vol. 25 No. 4 (Winter 1994), 619-634 [with D. Reitman].
17. "Corruptible Law Enforcers: How Should They Be Compensated?" *Economic Journal*, Vol. 105 No. 428 (January 1995), 145-159 [with D. Mookherjee].  
Reprinted in Gianluca Fiorentini and Stefano Zamagni, Eds., *The Economics of Corruption and Illegal Markets*, Vol. II, Cheltenham, UK; Northampton, MA: Edward Elgar, 1999, and Ajit Mishra, Ed., *The Economics of Corruption*, New Delhi, India: Oxford University Press, 2005.
18. "Why Are Some Products Branded And Others Not?" *Journal of Law and Economics*, Vol. 38 No. 1 (April 1995), 207-224 [with D. Reitman].  
Reprinted in Ruth Towse and Rudi W. Holzhauser, Eds., *The Economics of*

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*Intellectual Property*, Vol. III, Cheltenham, England: Edward Elgar, 2002.

19. "Returns Policies: Make Money by Making Good", *Sloan Management Review*, Vol. 37 No. 1 (Fall 1995), 65-72 [with V. Padmanabhan].
20. "Manufacturers Returns Policies and Retail Price Competition", *Marketing Science*, Vol. 16 No. 1 (1997), 81-94 [with V. Padmanabhan].
21. "Damage Measures for Inadvertant Breach of Contract", *International Review of Law and Economics*, Vol. 19 No. 3 (1999), 319-331 [with L.A. Bebchuk].
22. "National Culture and Corporate Adoption of Information Technology", *IEEE Transactions on Engineering Management*, Vol. 48 No. 1 (February 2001), 36-45 [with Bernard Tan and K.L. Wee].
23. "Information Goods Pricing and Copyright Enforcement: Welfare Analysis", *Information Systems Research*, Vol. 14 No. 1 (March 2003), 107-123 [with Yeh-ning Chen].
24. "Monitoring Costs and the Mode of International Investment", *Journal of Economic Geography*, Vol. 3 No. 3 (July 2003), 261-274 [with Chu-Chia S. Lin].
25. "Piracy and the Legitimate Demand for Recorded Music", *BE Press Contributions to Economic Analysis & Policy*, Vol. 2 No. 1 (2003), Article 11 [with Kai-Lung Hui].
26. "Buyer Shopping Costs and Retail Pricing: An Indirect Empirical Test", *Review of Marketing Science*, Vol. 2 (2004), Article 6 [with Sang-Yong T. Lee].
27. "Reply: Do Returns Policies Intensify Retail Competition?" *Marketing Science*, Vol. 23 No. 4 (Fall 2004), pp. 614–618 [with V. Padmanabhan].
28. "Who Gets Spammed?", *Communications of the ACM*, Vol. 49, No. 10, October 2006, 83-87, [with Il-Horn Hann, Kai-Lung Hui, Yee-Lin Lai, and S.Y.T. Lee].
29. "Overcoming Online Information Privacy Concerns: An Information Processing Theory Approach", *Journal of Management Information Systems*, Vol. 24 No. 2, Fall 2007, 13-42 [with Il-Horn Hann, Kai-Lung Hui, and S.Y.T. Lee].
30. "Consumer Privacy and Marketing Avoidance: A Static Model", *Management Science*, Vol. 54 No. 6, June 2008 [with Il-Horn Hann, Kai-Lung Hui, and S.Y.T. Lee].
31. "The Deterrent and Displacement Effects of Information Security Enforcement: International Evidence", *Journal of Management Information Systems*, Vol. 25 No. 2, Fall 2008, 125-144 [with Chen-yu Wang and Qiu-hong Wang].
32. "Information Security: Facilitating User Precautions vis-à-vis Enforcement Against Attackers", *Journal of Management Information Systems*, Vol. 26 No. 2, Fall 2009, 97-122 [with Qiu-hong Wang].
33. "Buyer Uncertainty and Two-Part Pricing: Theory and Applications", *Management Science*, forthcoming [with Hao Wang].

### **Conference Proceedings**

1. "Software Pricing and Copyright Enforcement: Private Profit vis-a-vis Social Welfare", *Proceedings of the 20<sup>th</sup> International Conference on Information Systems*, Charlotte, North Carolina, December 13-15, 1999 [with Yeh-ning Chen].

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2. "On the Supply of Creative Work: Evidence from the Movies", *American Economic Review*, Papers and Proceedings of the American Economic Association, Vol. 92 No. 2, May 2002, 217-220 [with Kai Lung Hui].
3. "Online Information Privacy: Measuring the Cost-Benefit Trade-off", *Proceedings of the 23<sup>rd</sup> International Conference on Information Systems*, 2002 [with Il-Horn Hann, Kai Lung Hui, and Tom S. Lee].
4. "Analyzing Online Information Privacy Concerns: An Information Processing Theory Approach", *Proceedings, 40th Hawaii International Conference on System Sciences*, 2007 [with Il-Horn Hann, Kai Lung Hui, and S.Y.T. Lee].
5. "The Deterrent and Displacement Effects of Information Security Enforcement: International Evidence", *Proceedings, 41st Hawaii International Conference on System Sciences*, 2008 [with Chen-yu Wang and Qiu-hong Wang].
6. "Information Security: User Precautions, Attacker Efforts, and Enforcement", *Proceedings, 42<sup>nd</sup> Hawaii International Conference on System Sciences*, 2009 [with Qiu-hong Wang].
7. "On the Reliability of Software Piracy Statistics", *Proceedings, 43<sup>rd</sup> Hawaii International Conference on System Sciences*, 2010.

### **Working Papers**

1. "Consumer Heterogeneity, Privacy, and Personalization: Evidence from the "Do Not Call" Registry", October 2009 [with Khim Yong Goh and Kai-lung Hui].
2. "Presumed Consent and Cadaveric Organ Donation: Cross-Country Evidence", November 2008 [with Kai-lung Hui].
3. "Patent Rights and Economic Growth: Cross-Country Evidence", September 2009 [with Albert G.Z. Hu].

### **Work in Progress**

1. "Do institutions not matter in China? Evidence from manufacturing enterprises", April 2009 [with Yi Lu and Zhigang Tao].
2. "Copyright Levy and Information Goods: Political Economy Analysis", September 2009 [with Ke-Wei Huang].

### **Books**

*Managerial Economics*, Malden, MA: Blackwell, 571 pp., 1998; Second edition, 569 pp., 2002; Third edition, Dale Lehman, co-author, 477 pp., 2007.

Korean edition: Koh Dong Hee, translator, Seoul, Korea: Kyung Mun Sa Publishing, 460 pp., 1999; Third edition, 680 pp., 2008.

Traditional Chinese edition: Lin Chu-Chia, co-author, Taipei, Taiwan: Bestwise Publishing, 699 pp., 1999; Second edition, 739 pp., 2003; Third edition, 594 pp., 2007.

Asia Pacific edition, Singapore: Pearson Education Asia, 589 pp., 2005.

Simplified Chinese edition: Second edition, Zhang Chu-yu, translator, Beijing, China: Renmin University Press, 535 pp., 2005; Third edition, Wu Changqi and Meng Zhaoli, co-authors, Beijing, China: Peking University Press, 477 pp., 2008.

*Financial Crisis 2008*, (editor), Institute of Southeast Asian Studies (hard cover, ISBN 978-

981-08-2096-1) and NUS Business School (paper cover), 83 pp., 2009.

#### **Other scholarly publications – book chapters, invited papers**

1. "Gender, Ethnicity, and Grades: Empirical Evidence of Discrimination in Law-Firm Interviews", *Law and Inequality Journal*, Vol. 7 No. 2 (March 1989), 189-214 [with D. Eaves and J.M. Ramseyer].
2. "Opportunity Cost", Chapter 4.5 in Richard C. Dorf, Ed., *The Technology Management Handbook*, Boca Raton, FL: CRC Press and IEEE Press, 1998, 4/17-4/20.
3. "Economics of Privacy", in Terry Hendershott, Ed., *Handbook of Economics and Information Systems*, Elsevier, 2006.
4. "Copyright: A Plea for Empirical Research", *Review of Economic Research on Copyright Issues*, Vol. 3 No. 2, 2006, 3-13.  
Reprinted in Ruth Towse and Richard Watt, Eds., *Recent Trends in the Economics of Copyright*, Cheltenham, England: Edward Elgar, 2008.
5. "Parallel Imports and Music CD Prices", *Korean Journal of Law and Economics*, Vol. 5 No. 1, June 2008, 197-205 [with Yeh-ning Chen].

#### **Cases**

1. "BHP: Negotiating Iron Ore Prices With China", Asia Case Research Centre, University of Hong Kong, 06/315C, December 2006, 21 pp. [with Zhigang Tao and Carola Ramon-Berjano].
2. "Rio Tinto: Takeover Fears and Price Negotiations with China", Asia Case Research Centre, University of Hong Kong, 09/413C, April 2009, 15 pp. [with Zhigang Tao and Carola Ramon-Berjano].

#### **Research Grants**

1. Center for Economic Policy Research, Stanford (1983)
2. University of California, Pacific Rim Program, "Causes and Consequences of International Economic Integration: the Case of Taiwan and Mainland China", 1993-94, US\$35,000.
3. Hong Kong Research Grants Council, "Manufacturers Returns Policies and Retail Competition", HKUST 549/95H, 1995-97, HK\$150,000.
4. National University of Singapore, "Software Pricing and Enforcement", RP 960624, 1996-98, S\$26,202.
5. Telecommunication Authority of Singapore and National University of Singapore, "Telecommunications Competitiveness Index", RP 970659, 1997-2000, S\$389,450.
6. IP Academy of Singapore, "An Empirical Study on the Extension of Copyright Duration", 2005-06, S\$18,345.
7. U.S. Air Force, Asian Office of Aerospace R&D, "Information Security: Quantitative Modeling and Empirical Studies", FA4869-07-1-4046, 2007-09, US\$40,000.
8. National University of Singapore, "Information Security: Quantitative Modeling and Empirical Studies", 313-000-076-112, 2007-08, S\$29,000.
9. National University of Singapore, "Research Program in Innovation Strategy and Entrepreneurship (RISE)", 313-000-089-112, 2009-12, S\$62,000.

#### **Students and Scholars (Appointment upon completion)**

1. Alyssa Lutz, PhD, UCLA, 1992 (Associate, Analysis Group, Los Angeles).

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2. Dong-hee Koh, PhD, UCLA, 1992 (Research Fellow, Korea Information Society Development Institute, Korea).
3. Yeh-ning Chen, PhD, UCLA, 1994 (Lecturer, Department of Finance, National Taiwan University, Taipei, Taiwan).
4. Zhao-li Meng, PhD, NUS, 2006 (Assistant Professor, School of Information, Renmin University, Beijing, China).
5. Chen-yu Wang, MSc, NUS, 2007 (Forex trader, BNP Paribas).
6. Qiu-hong Wang, Post-doctoral fellow, NUS, 2007-09 (Lecturer, Huazhong University of Science and Technology, Wuhan, China).

### **Honours and Awards**

Faculty Career Development Award, UCLA (1987, 1990).  
 Outstanding Teaching Award, MBA Program for Fully Employed Students, Class of 1991, UCLA.  
 Finalist, 1992 John D.C. Little Best Paper Award, College on Marketing, The Institute of Management Sciences, 1994.  
 Teaching Excellence Award, National University of Singapore, 1998.  
 Runner-Up, Best Research Paper, 23<sup>rd</sup> International Conference on Information Systems 2002.  
 Marshall Visiting Research Scholar, University of Southern California, June 2003.  
 Teaching Excellence Award, School of Computing, 2007/2008.  
 Teaching Excellence Award, NUS-UCLA Executive MBA Program, August 2008.

### **Recent speaking invitations (part/full expenses paid):**

Society for Economic Research into Copyright Issues, Annual Congress, Singapore, July 2006; School of Management, University of Texas, Dallas, November 2006; Asian Law and Economics Association, 2nd Annual Conference, Bangalore, December 2006; 2nd Information and Communications Technology Conference, Telecom-Paris, June 2007; Asian Law and Economics Association, 3rd Annual Conference, Taipei, Taiwan, August 2007; Research Institute of Economy, Trade, and Industry, Ministry of Economy, Trade, and Industry, Japan, March 2008; European School of Management and Technology, Berlin, June 2008; 3rd Information and Communications Technology Conference, Telecom-Paris, June 2008; University of Connecticut, October 2008; Goizueta School of Business, Emory University, October 2008; Hong Kong University of Science and Technology, January 2009; Society for Economic Research in Copyright Issues, Berkeley, July 2009.

### **Other recent presentations:**

Oxford University, November 2007; University of Washington, March 2008; University of Tokyo, March 2008.

### **Courses Taught**

Business Environment in Asia, Information Technology Marketing, Telecommunications, Industrial Organization, International Business Economics, Managerial Economics, Price Policies, Doctoral Seminar in Business Economics.

### **Executive Teaching**

NUS APEX-English Executive MBA (Lecturer), 2009- ; NUS-UCLA Executive MBA (Lecturer), 2004-09; NUS APEX-Chinese Executive MBA (Lecturer), 2002; Kellogg-HKUST Executive MBA Program (Lecturer) 2000; NUS Information and Technology Policy (Lecturer), 1997-1999; UCLA General Management Program, Malaysia

(Faculty Director) 1992-94; UCLA Pricing for Profitability (Lecturer), 1992-93.  
Company programs for Texas Instruments and Hsin Chong.

### **Professional Service**

External reviewer for promotion/appointment (last three years): Hong Kong University of Science & Technology, Academia Sinica (Taiwan), Carnegie-Mellon University.

*Journal of Industrial Economics*, Associate Editor, 1996-2001;  
*Information Systems Research*, Associate Editor, 2000-2004;  
*Management Science*, Associate Editor, 2005-2008.

Microsoft Corporation, Trustworthy Computing Academic Advisory Board, 2006- ;  
World Intellectual Property Organization, Expert Meeting on Measurement of  
Copyright Piracy, November 2005.

### **Institutional Service**

Chair, Task Force, NUS Submission to the Economic Strategies Committee, 2009.  
Head, Department of Business Policy, National University of Singapore, 2009- .  
Chair, Promotion and Tenure Committee, School of Business, National University of  
Singapore, 2008.  
Member, Executive Committee, Department of Economics, National University of  
Singapore, 2008- .  
Member, University Committee on Distinguished Appointments, National University  
of Singapore, 2007- .  
Chair, Promotion and Tenure Committee, School of Computing, National University  
of Singapore, 2005-06.  
Chair, Re-Make NUS, National University of Singapore, 2002-03.  
Chair, Task Force on Calendar, Time-table and Examinations, National University of  
Singapore, 1999-2000.  
Chair, Task Force on Quality Assurance, National University of Singapore, 1997-98.  
Deputy Head, Department of Information Systems & Computer Science, National  
University of Singapore, 1997-98.

### **Public Service**

Resource Person, University Admission Committee, Ministry of Education,  
Singapore, 2003-04;  
Member, Selection Committee, National Technology Award, Singapore, 2002-03;  
Member, Entrepreneurship Focus Group and Education Workgroup, Economic  
Review Committee. Singapore, 2001-02.

### **Directorships**

Healthway Medical Corporation Ltd, 2008- ;  
Hyflux Water Trust Management Pte Ltd, 2007- ;  
Hartford Education Corporation Ltd (formerly Hartford Holdings Ltd), 2005-2008;  
Universal Gateway International Pte Ltd, 2005-2007;  
GeoFoto Pte Ltd, 2000-01;  
JIT Holdings Ltd, 1997-2000.

### **Consultancy and Expert Testimony (last 5 years)**

New Zealand Trade and Enterprise: Report on Singapore economic policy;  
Drew & Napier, Singapore (for Competition Commission of Singapore): Effect of price

recommendations by trade associations;  
Rodyk & Davidson, Singapore: Quantification of economic loss in breach of contract;  
World Intellectual Property Organization, Geneva: Methodology for measurement of  
copyright piracy;  
Colin Ng & Partners, Singapore: Quantification of economic loss in breach of  
contract;  
Jones Day, Dallas, Texas: Quantification of economic loss in personal injury;  
Wong, Tan, and Molly Lim, LLC, Singapore: Quantification of economic loss in  
breach of contract by the Raffles Town Club.

**Magazine and Newspaper Articles**

in English: *Australian Financial Review*, *South China Morning Post*, *Business Times*  
(Singapore), *Wall Street Journal*, *Los Angeles Times*, *Straits Times*, *Sunday Times*  
(Singapore), *Asian Wall Street Journal*, *Far Eastern Economic Review*.  
in Chinese: *Central Daily News* (Taipei), *Hong Kong Economic Journal*.

**Languages** English, Chinese (Mandarin)