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Author Pages: [SSRN](#); [Google Scholar](#); [ResearchGate](#)

**RELEVANT EXPERIENCE**

**HELD IP, LLC, Cooksville, MD**

***Senior Valuation Consultant***

February 2020 – Now

*Provide IP valuation for corporate transaction and IP transaction, estimate royalty base, and determine royalty rates. Patent infringement damage analysis, including royalty rate determination, royalty base estimate, and lost profit calculation. Conduct royalty rate/royalty base analysis for licensing negotiation.*

• Representative projects:

- 1) Patent valuation, ownership investigation, and monetization strategies for a bank group assigned the patents as part of collaterals.
- 2) Patent portfolio valuation and analysis for patent sale.
- 3) Patent damage analysis.

**Licensing Executives Society (USA Canada), Reston, VA**

***Senior Vice President for Economic Analysis & Survey***

October 2018 – Now

*Plan and manage the deal term and royalty surveys and the compensation survey. Analyze data for High Tech Sector Deal Term and Royalty Surveys, manage the writing and production of the Survey Reports, and author the chapters in economic and financial analysis. Monitor major events in the industry and analyze their economic and financial implications for licensing professionals.*

*Previously served on the Survey Committee of LES High Tech Royalty Survey for three consecutive surveys (the inaugural Survey in 2011, the 2014 Survey, and the 2017 Survey), and authored the chapters about economic and financial analysis in the Survey Reports*

**Intellectual Property Market Advisory Partners (IPMAP), LLC, Austin, TX**

***Founding Partner and Chief Economist***

May 2014 – Now

*Perform economic study, financial analysis, assets valuation, and strategic advisory for IP transactions & litigation, and for IP-intensive corporate transactions and disputes in financing (VC & PE), M&A, equity investment, and distressed assets investment.*

*Conduct economic and financial consulting for transactions, litigation, and regulatory procedures involving data assets, data loss, privacy breach, and security incident, including data assets monetization, valuation of data-based platforms/companies, Article III standing, class certification, and damage/settlement estimate.*

*Deliver valuation reports, pre-transaction studies, fairness opinions, competition analysis, pre-litigation & pre-assertion assessments, settlement & mediation packages, and damage/settlement estimates.*

- Selected categories of monetization and pre-litigation projects:
  - 1) Pre-acquisition analysis and valuation for patent portfolio acquisition: acquisition cost vs. potential royalties/damage awards.
  - 2) Royalty estimate for litigation financing and patent portfolio acquisition financing.
  - 3) Pre-assertion/pre-litigation estimate and risk analysis: potential damage award/exposure, cost of litigation, cost of acquiring patents for reinforcing current portfolio or for countersuing, and IPR cost and risk/success rate etc..
  - 4) Patent, technology (trade secret and know-how etc.), and data assets valuation for investment analysis, financial reporting, and SEC requirements.
  - 5) Patent, technology (trade secret and know-how etc.), and data assets valuation for various corporate transactions: M&A (acquiring IP assets vs. the company, IP valuation vs. business valuation), IPO, bankruptcy, restructuring/reorganization, distressed assets investment, and VC/PE investment.
- Selected categories of IP litigation projects:
  - 1) Royalty and lost profit damage estimate for settlement and mediation.
  - 2) Damage contentions.
  - 3) Research, analysis, and report drafting for damage expert report.
  - 4) Examples of major topics covered:
    - i) Damage period determination involving apparatus/method claims, direct vs. indirect infringement, product marking, and notice date vs. first infringement date.
    - ii) Impact of non-infringing alternatives/products on royalties and lost profits.
    - iii) Infringing feature/function analysis and demand analysis.
    - iv) Convoyed sales and the impact on royalty rate vs. royalty base.
    - v) Comparable royalty rates and adjustment modeling.
    - vi) SPPU vs. entire product; incremental profit vs. EMV.
    - vii) Royalty rates and base for SEPs vs. standard-practicing non-essential patents: FRAND rate partitioning, patent incremental contribution, patent value vs. tech value vs. standard value.
- On-going research projects:
  - 1) Patent market and monetization strategies.
  - 2) Patent portfolio valuation approaches and methods.
  - 3) Data assets and data platform valuation for transaction and monetization.

**Applied Economics Consulting Group, Inc., Austin, TX.**

***Chief Economist and***

***Senior Director for IP Market Advisory Practice***

May 2012 – April 2014

***Director of Economic Analysis***

2006 – May 2012

***Senior Economist***

2000 – April 2014

*Conducted economic analysis and financial modeling for patent transactions and litigation, including damage analysis, valuation, and revenue or profit forecast. Developed patent monetization strategy, and perform feasibility study for patent acquisition, divestiture, assertion, and litigation. Typical topics include damage estimate, royalty determination, deal structuring, risk & return analysis, payment options & scheduling, cost sharing vs. profit (or revenue) sharing, equity/debt vs. cash payments.*

- Selected categories of non-litigation projects:

- 1) Patent portfolio valuation.
  - 2) Patent monetization and licensing advisory.
  - 3) Financial distress forecast modeling and advisory.
- Selected categories of litigation projects:
    - 1) Case management.
    - 2) Royalty and lost profit damage estimate for settlement and mediation.
    - 3) Research, analysis and report drafting for IP damage expert report.
    - 4) Research, analysis and report drafting for damage expert reports in antitrust, securities fraud, and contract dispute (including oil and gas related contracts)
  - Led the firm's research efforts in intellectual property, antitrust, and financial analysis.

**The American Enterprise Institute**, Washington, DC  
*Intern*

June to August, 1997

**The University of Texas at Austin**,  
*Research Assistant*

1995-1999

## EDUCATION

**PhD in Public Policy.** Concentration: Economic Policy.

The University of Texas at Austin.

**Master of Philosophy.** Concentration: Technology Management.

**Bachelor of Engineering in Electrical Engineering.**

Huazhong University of Science and Technology, China.

**CFA (Chartered Financial Analyst) Charter**, CFA Institute.

**CIPP/US (Certified Information Privacy Professional/United States)**, IAPP

## REPRESENTATIVE PUBLICATIONS

Study in Patent Valuations across the Markets of Patent Transaction, Licensing, and Litigation, Part I: "Patent Valuations across Transaction and Licensing Markets", Bloomberg Law, August, 2020.

Study in Patent Valuations across the Markets of Patent Transaction, Licensing, and Litigation, Part II: "Can Big Damages Awards Affect Patent Valuation Dynamics?", Law360 Expert Analysis, August 17, 2020.

"Assessing The Cost, Legal Fallout Of Capital One Data Breach", Expert Analysis, Law360, August 15, 2019.

"Chapter 5: Three Surveys, A Decade Journey: IPR Tax, Alice Shock, and the Dynamics of Licensing Market as Reflected by LES High Tech Royalty Surveys", 2017 High Technology Sector Deal Term & Royalty Rate Survey Report, Licensing Executives Society USA and Canada, March 2019

"Chapter 4: Financial Terms: Descriptive Statistics and Analysis", with Manta Zhang, 2017 High Technology Sector Deal Term & Royalty Rate Survey Report, Licensing Executives Society USA and Canada, March 2019.

“An Augmented Market Approach to Patent Portfolio Valuation”, IAM Magazine, Issue 79, September/October 2016.

“Chapter 5. Economic and Econometric Analysis on Key Issues Raised in the 2011 and 2014 Surveys”, 2014 High Technology Sector Deal Term & Royalty Rate Survey Report, Licensing Executives Society USA and Canada, October, 2015.

“Chapter 4. Financial Terms: Descriptive Statistics and Analysis”, with Manta Zhang, 2014 High Technology Sector Deal Term & Royalty Rate Survey Report, Licensing Executives Society USA and Canada, October, 2015.

“Executive Summary”, with Bob Held, 2014 High Technology Sector Deal Term & Royalty Rate Survey Report, Licensing Executives Society USA and Canada, October, 2015.

"Patent Portfolio Valuation As Reflected by Market Transactions: Market dynamics and the impact of AIA and Alice", Les Nouvelles, September, 2015. Also as “Patent Portfolio Valuation as Reflected by Market Transactions: What can we learn from history?” Licensing Economics Review, February, 2015; and as “Patent market dynamics and the impact of Alice and the AIA” , IPWatchdog, May 17, 2015. The Chinese version, translated by Min Ding (丁珉), " 美国专利组合定价及专利市场演化", 《电子知识产权》, 2015年第7期.

“Comparison of Royalty Rates, Deal Terms, and Best Practices across the CEEM, High Tech, and Life Sciences Sectors”, with Hal Craig, Bob Held, and Deni Zodda; LES Insights Featured Article, featured on LES USA and Canada homepage during the week of March 4 to March 11, 2013.

“Decompose and Adjust Patent Sales Prices for Patent Portfolio Valuation”, Les Nouvelles, March 2013. A brief version of the paper was published as “Patent Portfolio Valuation: Bubbles, Trolls, and Strategies” on Licensing Economics Review, December 2012.

"The Myths and Facts of Patent Troll and Excessive Payment: Have Non-Practicing Entities (NPEs) Been Overcompensated?" Business Economics, Vol. 47, No. 4, October 2012.

"Profitability and Royalty Rates Across Industries: Some Preliminary Evidence", with Jon Kemmerer, KPMG Global Valuation Institute Publications, October 2012.

"Financial Terms: Descriptive Statistics and Analysis", Chapter 5, Final Report of the Inaugural High Tech Royalty Survey, Licensing Executive Society, March 2012.

"Economic and Econometric Analysis on Major Issues in Survey", Chapter 6, Final Report of the Inaugural High Tech Royalty Survey, Licensing Executive Society, March 2012.

"The Economics and Controversies of Nonpracticing Entities (NPEs): How NPEs and Defensive Patent Aggregators Will Change License Market", Part I and Part II, March and June issue, Les Nouvelles, 2012.

"Intangible Assets Valuation by License Market and Stock Market: Cross-Industry Analysis based on Royalty Rate and Tobin's q", les Nouvelles, June, 2011.

"Does Upfront Payment Reduce Running Royalty Rate? Theoretical Perspectives and Empirical Analysis", les Nouvelles, September, 2010.

"25% Rule Still Rules: New Evidences from Pro Forma Analysis in Royalty Rates", Licensing Economics Review, April, 2010, and les Nouvelles, March, 2011.

"Royalty Rate and Industry Structure: Some Cross-industry Evidence", with Stephen Becker, presented at the Annual Conference of the International Academy of Business and Economics, Las Vegas, 2009..

"The Impact of Regulatory Intervention in Stock Options Backdating Disclosures", with Stephen Becker, 2007 Oxford Business & Economics Conference, Oxford University, UK, 2007.

"Measuring the Evolution of Inequality in the Global Economy ", with James Galbraith, Chapter 8 of the *Inequality and Industrial Change: A Global View*, edited by J. Galbraith and Maureen Burner, Cambridge University Press, 2000.

"Economic Regionalization, Inequality, and Financial Crisis", with James Galbraith, Chapter 9 of the *Inequality and Industrial Change: A Global View*, edited by J. Galbraith and Maureen Burner, Cambridge University Press, 2000.

"Cluster and Discriminant Analysis on Time Series as a Social Science Research Tool", with James Galbraith, Chapter 16 of the *Inequality and Industrial Change: A Global View*, edited by J. Galbraith and Maureen Burner, Cambridge University Press, 2000.

"Sustainable Development and the Open-door Policy in China (1978-1999)", with James Galbraith, Council for Foreign Relations, 2000. Also in *The Bridge to a Global Middle Class*, Walter Russell Mead and Sherle Schwenninger, eds., Springer/Kluwer Academic Publishers, January 2003.

"How Surprising Was Asian Currency Crisis? A Cluster Analysis on Major Macroeconomic Indicators ", 1999. First draft presented at the Pacific Rim Allied Economic Organization Conference at Bangkok, Thailand, January 1998.

## **SELECTED PRESENTATIONS, COMMENTS, AND OTHER ACTIVITIES**

Quoted in "Investors Eye Patents After 'Extraordinary' Damage Awards Run", Bloomberg Law, by Matthew Bultman, November 6, 2020.

Speaker, "The Alice Shock: The Impact of Alice on Licensing Market and Software IP Licensing", Patent Masters™ Symposium - Alice Five Years Later", Washington DC, June 25, 2019.

Speaker, "Value IP Assets Using Market Data from High Tech Royalty Surveys", HIGH TECHNOLOGY SECTOR BUSINESS MEETING & LUNCHEON, moderated by Bob Held, President & Chairman of the Board Licensing Executives Society USA & Canada (LES); LES USA Canada Annual Meeting, October 17, 2018, Boston.

Panelist, "LES 2017 High Tech Royalty Rate Survey Results and status of EU FRAND jurisprudence based on recent Court Cases", Licensing Executives Society International Annual Conference, May 1, 2018, San Diego.

Co-presenter (with Bob Held), "High Tech Sector: Royalty Rate and Deal Terms Survey", Licensing Executives Society US and Canada, webinar, March 29, 2018.

Panelist, "LES High Tech Sector Royalty Rate & Deal Terms Survey 2017 – Preliminary Analysis", presented "Part II: Economic and Financial Analysis", Licensing Executives Society USA and Canada Annual Meeting, October 25, 2017, Chicago.

Speaker, “Bridge the Gap: An Augmented Market Approach to Patent Portfolio Valuation”, a webinar for LES, October 6, 2016.

Moderator, “Extincting Dinosaur or Re-emerging Phoenix: The Future Role of NPE in Patent Market and Patent Litigation”, LES Spring Meeting, April 28, 2016, Houston.

Moderator, “The Future of NPE Business Model: Will 2015 Be the Cretaceous for NPE?”, LES Spring Meeting, May 14, 2015, La Jolla.

Panelist, "LES High Tech Sector Royalty Rate & Deal Terms Survey 2014", webinar, Licensing Executives Society USA and Canada, March 18, 2015

Panelist, “PUTTING INNOVATION AND IP AT THE HEART OF YOUR BUSINESS: IP Strategy - key part of company’s corporate strategy”, London IP Summit, October 13, 2014, London Stock Exchange.

Speaker and Co-moderator, “Workshop 6: High Tech – 2014 LES High Tech Sector Royalty Rate & Deal Terms Survey: Preliminary Analysis and Results”, LES USA & Canada Annual Meeting, October 7, 2014, San Francisco.

Panelist and Panel Coordinator, “Workshop 3: High Tech – A Year After the GAO NPE Litigation Report: Its Impact on IP Industry and the Future of NPE Litigation”, LES USA & Canada Annual Meeting, October 6, 2014, San Francisco.

Panelist, “Special Techniques and Insights when Valuing Intellectual Property Transactions: From Early Stage to Maturity”, Concurrent Mini-plenary Session B, 10:30 am – 12:00 pm, LES Annual Meeting at Philadelphia, September 23, 2013.

Panelist, “Patent Market and Monetization: Valuation, Liquidity, and Other Challenges”, Workshop 1-C, 2:00pm – 3:15pm, LES Annual Meeting at Philadelphia, September 23, 2013.

Moderator and Discussant, “Panel Discussion: Important Economic and Financial Decisions in IP Monetization and Assertion”, 11:30am to 1:00pm, LES Austin Chapter, September 13, 2013.

Interviewed as an IP monetization expert in “Get Smarts - Can a Savvy Focus on Intellectual Property Generated Alpha?”, a cover-highlighted article on CFA Magazine, November/December, 2012.

Awarded a grant by KPMG Global Valuation Institute to update an earlier research on profitability and royalty rate, May to October, 2012.

Panelist, “Interpret and Apply Market Prices for Patent Portfolio Valuation” in the Workshop Session “Valuation for Financial Reporting and its Impact on Licensing Deals and Patent Litigation”, October 16, LES USA and Canada Annual Meeting, October 14-17, 2012, Toronto.

Panelist, “Comparison of Royalty Rates, Deal Terms, and Best Practices across the CEEM, High Tech, and Life Sciences Sectors”; October 16, LES USA and Canada Annual Meeting October 14-17, 2012, Toronto.

Speaker, "Mass Aggregators, NPEs and Patent Trolls: Threat, Opportunity or Both for University TTOs" Technology Transfer Tactics webinar, July 27, 2012. Slides available at [www.technologytransfertactics.com](http://www.technologytransfertactics.com).

*Jack Lu, PhD, CFA, CIPP/US*

Panelist, " The 25% Rule After *Uniloc*: From Rule of Thumb to Rule of Science", at the 11th Annual Hot Topics in Intellectual Property Symposium, Duke Law School, Friday, February 3, 2012.

Panelist, "Part II. Financial Terms" in "*Key Deal Statistics from the High Technology Industry -Exclusive Data Revealed from the Inaugural LES High Tech Royalty Rate Survey*", LES Annual Meeting, October 19, 2011.

Speaker, "Patent Portfolio Valuation in the Past Decade" in "*Interpreting Current IP Licensing Trends for Future Advantage*", LES Annual Meeting, October 19, 2011.

Testified in court as a financial expert in *Ibrahim v. Anaz Incorporated et al*, Texas Western District Court, Case No. 1:09-cv-00786, April 4, 2011.

Interviewed and profiled by the *Licensing Economics Review*, in *A View from My Desk* section, August, 2010.