**ALBERTO MOEL**
amoel@alum.mit.edu

**professional experience**

2023-present **UNIVERSITY OF HONG KONG** **HONG KONG**
*Professor of Practice in Finance*
- Teaching undergraduate corporate finance courses.

2024-present **SYMBOTIC, INC.** **WALTHAM, MA**
*Vice President, Strategy and Partnerships, FreeMove*
- Post-merger integration after acquisition of Veo Robotics by Symbotic, Inc.

2017-2024 **VEO ROBOTICS** **WALTHAM, MA**
*Vice President, Strategy and Partnerships*
Deep-tech startup making industrial robots collaborative (www.veobot.com). Responsible for industry partnerships and relationships, thought leadership, intellectual property, market intelligence, and overall company strategy. Key participant in fundraising and investor relationships.
- Helped company raise over $60 million in funding from GV (Google Ventures), Lux Capital, Alpha Intelligence Capital, Amazon Robotics, Yamaha Motors, Next47 (Siemens Ventures), Baidu Ventures, SBI Group, Nikon, and other investors.
- Acquired by Symbotic, Inc (www.symbotic.com).

2010-2017 **BERNSTEIN RESEARCH** **HONG KONG**
*Director, Vice President, and Senior Research Analyst*
Research Analyst for Asian technology sector, focusing on investment opportunities in automation and robotics, flat panel displays, display glass, manufacturing supply chain, and PC OEMs.
- Joined Bernstein's Hong Kong office as a startup, with limited infrastructure and capabilities, #3 hire in Hong Kong. Office currently has 60+ staff.
- Substantially involved in hiring, recruiting, business development and client acquisition, in addition to building tech research franchise into respected source of information and insight.
- Spent more than 50% of time on the ground with manufacturing technology end users, suppliers, and industry participants. Viewed by clients and industry participants as a resource and authority in robotics and automation, manufacturing technology, and display technology.
- Authored or co-authored over 600 company reports, research notes, in-depth-valuations, and investment recommendations. Was the main author or co-author on 30 Bernstein Black Book in-depth analyses aimed at professional investment managers.

2004-2010 **MONITOR GROUP** **HONG KONG and TOKYO**
*Principal*
Co-leader of the Tokyo Office, responsible for lead generation, consultative selling, closing, and delivery of projects. Specializing in work at the intersection of finance and technology strategy.
- Advised a major Korean consumer electronics manufacturer on investment planning, technology strategy, product portfolio, and business model strategy for flat panel displays.
- Advised strategic and financial entities in consumer electronics, semiconductors, and flat-panel displays on diverse topics such as B2B go-to-market strategies, value chain rationalization, technology strategy, acquisition programs, and large-scale investment planning.
- Worked with Japanese and pan-Asian asset management and financial services firms on corporate strategy, acquisitions, risk management, and consumer understanding.

**HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY** **HONG KONG**
2003-2004 *Assistant Professor of Finance*
- Taught courses on Investments and Corporate Finance in the MBA and Executive MBA program.
- Carried out research in expectations and stock returns, and on cross-border investments.
- Published research in top-ranked finance and accounting journals.

2001-2003 **MONITOR GROUP** **CAMBRIDGE, MA and HONG KONG**

*Principal, Monitor Corporate Finance*

Consultant to senior management of corporate clients, specializing in work at the intersection of finance and technology strategy. Main areas of client engagement:

- Helped US-based investor group negotiate with Eastern European sovereign regarding impaired assets in the broadcasting industry.
- Worked with major UK, Canadian, US, Brazilian, and South African oil and gas, mining and raw materials concerns on investment decision-making, acquisition and joint-venture strategies.

1999-2001 **AAA ASSET MANAGEMENT** **SÃO PAULO, BRAZIL**

*Managing Partner and Director of Research*

General partner in fund that invests in Brazilian equity and fixed income instruments. Developed synthetic fixed income, alpha-transfer, market-neutral and market-timing trading strategies, and general asset allocation models. Responsible for fundraising, hiring, building research and trading infrastructure.

**HARVARD UNIVERSITY GRADUATE SCHOOL OF BUSINESS ADMINISTRATION** **BOSTON, MA**

1997-2000 *Lecturer in Finance*

Taught required First Year Finance and Quantitative Methods courses in the MBA program. Published research in top-ranked finance journals such as *Journal of Financial Economics* and *Review of Financial Studies.*

1996-1997 *Charles M. Williams Fellow, Finance Department*

Carried out research and course development in Finance with Peter Tufano, Ken Froot, and Robert C. Merton.

1995 **JP MORGAN AND COMPANY** **NEW YORK, NY and MEXICO CITY**

*Global Markets/Emerging Markets Sales, Trading, and Research Summer Associate*

Analyzed the opening of a JP Morgan broker (Casa de Bolsa) in Mexico City. Managed the Casa de Bolsa startup process. Developed swap pricing and valuation models for local market IR and currency swaps.

1992-1994 **TOSHIBA CORPORATION ULSI RESEARCH CENTER** **KAWASAKI, JAPAN**

*R&D Staff Member*

Determined fabrication budget and process specifications for advanced semiconductor memory manufacturing. Worked on technology transfer for fab pilot lines, and managed product development cycle for 1 GB DRAM memories. Built semiconductor manufacturing tools.

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY** **CAMBRIDGE, MA**

1988-1992 *Research Assistant and Teaching Assistant*

Researched x-ray lithography in MIT's Submicron Structures Laboratory. Fabricated x-ray masks, constructed precision machinery and equipment, and x-ray sources.

1985-1986 *Undergraduate Researcher*

Developed and implemented computer control and communications system for underwater Remotely Operated Vehicle (ROV). Tested ROV in Boston Harbor and open waters.

**INTERNATIONAL BUSINESS MACHINES**

1987 *Scientific Staff Member, IBM Zurich Research Lab & IBM Cambridge Scientific Center.*

Carried out experimental work in Scanning Tunneling Microscopy. Worked with 1986 Physics Nobel Prize winners. Worked on STM technology transfer to production line toolset. Designed and implemented an antialiasing zoom algorithm for high performance graphics processor.

1985-1987 *Researcher, IBM T.J. Watson Research Center*
Developed robust, factory-ready acquisition, control, and image processing system for Scanning Tunneling Microscope. Carried out experimental work in Scanning Tunneling Microscopy. Developed experimental PC-Local Area Network/Mainframe gateway server.

**other professional experience**

Limited Partner in VC funds, direct equity investment in hardware, IoT, and robotics startups.
Mentor, METI J-StarX program, 2023.
Expert Mentor, Singapore-MIT Alliance for Research and Technology (SMART), 2023-present.
Advisor, MindMics, 2022.
Advisor, Alpha Intelligence Capital, 2017-present.
Expert in Residence, Q Ventures Fund, 2017-present.
Instructor, HBX "Leading with Finance" course, 2016.
Mentor, MIT Hong Kong Innovation Node, 2016-2018.
Mentor, Lane Crawford Cage.io accelerator program, 2016-2018.
Director, Eastspring Asset Management Japan, 2007-2010.
Partner, MMO y Asociados, Guadalajara, Mexico, 2001-2008. Specialized in principal investment, turnaround management, and financial advisory for Mexican middle-market companies.
Instructor, FGV-YPO Program, São Paulo, Brazil, 2002.
Visiting Professor, IDE, Ecuador, 2001.
Advisor, Global Project Design, San Francisco, CA, 2000-present.
Director, ATR, S.A., Guadalajara, Mexico, 1999-2002.
Advisor, Altgate Capital, New York and London, 1999-2001.
Instructor, IPADE, Mexico City, 1999-2000.
Instructor, Allen Resources, CFA Level II and Level III Training, 2000-2002.
Instructor, Violy, Byorum & Partners, New York, 1999.
Instructor, Bank of Nova Scotia/Inverlat Mexico City, 1997-1998.
Instructor, ABN-AMRO Bank Brazil Capital Markets program, São Paulo, Brazil, 1998.
Instructor, JP Morgan Training Program, New York, 1997.
Director, Harvard Cooperative Society, 1994-2004. Finance and Executive Committees.

**education**

**HARVARD UNIVERSITY GRADUATE SCHOOL OF BUSINESS ADMINISTRATION** **BOSTON, MA**

1996-1999 Completed doctoral-level courses in Finance, Economics, and Econometrics as non-degree student.

1994-1996 Master in Business Administration degree, June 1996. Graduated with High Distinction (Baker Scholar, top 5% of class).

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY** **CAMBRIDGE, MA**

1990-1992 Doctor of Science in Electrical Engineering degree, February 1993. Thesis title: "An Aligner for X-ray Nanolithography." Minor in Digital Signal Processing.

1988-1990 Electrical Engineer Degree. Granted for additional coursework and research in the area of micromechanics.

1987-1988 Master of Science Degree, February 1988. Thesis title: "Real-time Control, Acquisition, and Image Processing for the Scanning Tunneling Microscope."

1983-1986 Bachelor of Science in Electrical Engineering, June 1986. Thesis title: "VMCS: A PC-Network to VM System Gateway Server." Application of thesis work to underwater remotely operated vehicles. Enrolled in MIT VI-A Electrical Engineering Internship Program.

**honors**

1996 *George F. Baker Scholar.* Given for extraordinary academic achievement in Harvard MBA, top 5% of graduating class.

1990 *MIT 10K Entrepreneurial Competition finalist.* Third-place finisher.

1990 *MIT Japan Program Prize winner.*

1989-1990 *IBM Graduate Fellow in Materials and Devices.*

1985-1986 *Two-time Sea Grant scholarship winner.* Given for work in development of underwater robotics systems.

**other**

Fluent in Spanish and English. Highly proficient in Japanese (passed highest level of Japanese Language Proficiency Test). Proficient in French and Portuguese. Widely quoted in mainstream media such as Wall Street Journal, Bloomberg, Reuters, and South China Morning Post as a technology analyst.

**patents: granted**

US Patent No. 5,414,514. H. I. Smith, A. Moel, and E.E. Moon. On-axis interferometric alignment of plates using the spatial phase of interference patterns. Patent licensed to Canon, Inc., and to Lumarray, Inc.

US Patent No. 10,099,372. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. Detecting and classifying workspace regions for safety monitoring. Patent assigned to Veo Robotics.

US Patent No. 10,882,185. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. Dynamically determining workspace safe zones with speed and separation monitoring. Patent assigned to Veo Robotics.

US Patent No. 10,887,578. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. Depth-sensing computer vision system. Patent assigned to Veo Robotics.

US Patent No. 10,887,579. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. Depth-sensing computer vision system. Patent assigned to Veo Robotics.

US Patent No. 10,899,007. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. Ensuring safe operation of industrial machinery. Patent assigned to Veo Robotics.

US Patent No. 11,040,450. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. Dynamically determining and monitoring workspace safe zones using semantic representations of workpieces. Patent assigned to Veo Robotics.

US Patent No. 11,097,422. S. Denenberg, P. Sobalvarro, C. Vu, A. Moel, and R. Kelsey. Safety-rated multi-cell workspace mapping and monitoring. Patent assigned to Veo Robotics.

US Patent No. 11,156,981. D. Dedkov, S. Denenberg, I. Kriveshko, P. Schroeder, C. Vu, P. Sobalvarro, and A. Moel. Systems and methods for automatic sensor registration and configuration. Patent assigned to Veo Robotics.

US Patent No. 11,254,004. S. Denenberg, B. Mello, M. Galligan, C. Vu, P. Sobalvarro, M. Wartenberg, and A. Moel. System identification of industrial robot dynamics for safety-critical applications. Patent assigned to Veo Robotics.

US Patent No. 11,256,241. P. Sobalvarro, C. Vu, J. Downer, P. Ferreira, M. A. Guney, T. C. Ferree, A. Moel, and R. Kelsey. Optimized factory schedule and layout generation. Patent assigned to Veo Robotics.

US Patent No. 11,279,039. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. Detecting and classifying workspace regions for safety monitoring. Patent assigned to Veo Robotics.

US Patent No. 11,376,741. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. Dynamically determining workspace safe zones with speed and separation monitoring. Patent assigned to Veo Robotics.

US Patent No. 11,396,099. M. Wartenberg, P. Schroeder, B. Mello, C. Vu, S. Denenberg, N. Aucoin, and A. Moel. Safe operation of machinery using potential occupancy envelopes. Patent assigned to Veo Robotics.

US Patent No. 11,543,796. D. Dedkov, S. Denenberg, I. Kriveshko, P. Schroeder, C. Vu, P. Sobalvarro, and A. Moel. Systems and methods for automatic sensor registration and configuration. Patent assigned to Veo Robotics.

US Patent No. 11,543,798. S. Denenberg, C. Vu, P. Sobalvarro, L. Persits, I. Kriveshko, E. Simon, A. Moel, P. Foy, and J. Bronder. System architecture for safety applications. Patent assigned to Veo Robotics.

US Patent No. 11,613,017. S. Denenberg, P. Sobalvarro, C. Vu, A. Moel, and R. Kelsey. Safety- rated multi-cell workspace mapping and monitoring. Patent assigned to Veo Robotics.

US Patent No. 11,635,749. P. Sobalvarro, C. Vu, J. Downer, P. Ferreira, M. A. Guney, T. C. Ferree, A. Moel, and R. Kelsey. Optimized factory schedule and layout generation. Patent assigned to Veo Robotics.

US Patent No. 11,679,504. S. Denenberg, C. Vu, G. Malkin, L. Persits, V. Chamorro, M. Wartenberg, P.D. Dalvi, and A. Moel. Crosstalk mitigation for multi-cell workspace monitoring. Patent assigned to Veo Robotics.

US Patent No. 11,766,780. S. Denenberg, B. Mello, M. Galligan, C. Vu, P. Sobalvarro, M. Wartenberg, and A. Moel. System identification of industrial robot dynamics for safety-critical applications. Patent assigned to Veo Robotics.

US Patent No. 11,820,025. C. Vu, S. Denenberg, P. Sobalvarro, and A. Moel. Safe motion planning for machinery operation. Patent assigned to Veo Robotics.

US Patent No. 11,846,916. S. Denenberg, C. Vu, P. Sobalvarro, L. Persits, I. Kriveshko, E. Simon, A. Moel, P. Foy, and J. Bronder. System architecture for safety applications. Patent assigned to Veo Robotics.

US Patent No. 11,919,173. S. Denenberg, C. Vu, P. Sobalvarro, and A. Moel. Motion planning and task execution using potential occupancy envelopes. Patent assigned to Veo Robotics.

US Patent No. 11,945,119. S. Denenberg, C. Vu, G. Malkin, L. Persits, V. Chamorro, M. Wartenberg, P.D. Dalvi, and A. Moel. Crosstalk mitigation for multi-cell workspace monitoring. Patent assigned to Veo Robotics.

US Patent No. 12,036,683. C. Vu, S. Denenberg, P. Sobalvarro, and A. Moel. Safe motion planning for machinery operation. Patent assigned to Veo Robotics.

US Patent No. 12,049,014. C. Vu, S. Denenberg, M. Wartenberg, P. Schroeder, I. Kriveshko, and A. Moel. Workplace monitoring and semantic entity identification for safe machine operation. Patent assigned to Veo Robotics.

European Patent No. 3580735. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. Workspace safety monitoring and equipment control. Patent assigned to Veo Robotics.

European Patent No. 3844948. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. Depth-sensing computer vision system. Patent assigned to Veo Robotics.

European Patent No. 3887101. S. Denenberg, C. Vu, P. Sobalvarro, L. Persits, I. Kriveshko, E. Simon, A. Moel, P. Foy, and J. Bronder. System architecture for safety applications. Patent assigned to Veo Robotics.

European Patent No. 3888306. S. Denenberg, P. Sobalvarro, C. Vu, A. Moel, and R. Kelsey. Safety-rated multi-cell workspace mapping and monitoring. Patent assigned to Veo Robotics.

Japanese Patent No. 6,898,012. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. 作業空間安全監視および機器制御 (Workspace safety monitoring and equipment control). Patent assigned to Veo Robotics.

Japanese Patent No. 6,752,499. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. 作業空間安全監視および機器制御 (Workspace safety monitoring and equipment control). Patent assigned to Veo Robotics.

Japanese Patent No. 7,122,776. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. 作業空間安全監視および機器制御 (Workspace safety monitoring and equipment control). Patent assigned to Veo Robotics.

Japanese Patent No. 7,136,507. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. 深度感知コンピュータビジョンシステム （Depth-sensing computer vision system). Patent assigned to Veo Robotics.

Japanese Patent No. 7,262,847. S. Denenberg, B. Mello, M. Galligan, C. Vu, P. Sobalvarro, M. Wartenberg, and A. Moel. 安全重視用途に関する産業ロボット動力学のシステム識別 (System identification of industrial robot dynamics for safety-critical applications). Patent assigned to Veo Robotics.

Japanese Patent No. 7,299,642. D. Dedkov, S. Denenberg, I. Kriveshko, P. Schroeder, C. Vu, P. Sobalvarro, and A. Moel. 自動的センサ位置合わせおよび構成のためのシステムおよび方法 (Systems and methods for automatic sensor registration and configuration). Patent assigned to Veo Robotics.

Japanese Patent No. 7,319,001. I. Kriveshko, P. Schroeder, M. Wartenberg, B. Mello, C. Vu, S. Denenberg, A. Feldman, M. Galligan, P. Sobalvarro, N. Aucoin, and A. Moel. 潜在的占有エンベロープを使用した機械類の安全動作 (Safe operation of machinery using potential occupancy envelopes). Patent assigned to Veo Robotics.

Japanese Patent No. 7,378,168. S. Denenberg, C. Vu, P. Sobalvarro, L. Persits, I. Kriveshko, E. Simon, A. Moel, P. Foy, and J. Bronder. 安全用途のためのシステムアーキテクチャ (System architecture for safety applications). Patent assigned to Veo Robotics.

Japanese Patent No. 7,448,246. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. 深度感知コンピュータビジョンシステム （Depth-sensing computer vision system). Patent assigned to Veo Robotics.

Japanese Patent No. 7,505,791. S. Denenberg, P. Sobalvarro, C. Vu, A. Moel, and R. Kelsey. 安全定格マルチセル作業空間マッピングおよび監視 (Safety- rated multi-cell workspace mapping and monitoring). Patent assigned to Veo Robotics.

Chinese Patent No. 112640447. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. 深度感测计算机视觉系统 (Depth-sensing computer vision system). Patent assigned to Veo Robotics.

**patents: pending**

CA 3052961. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. Workspace safety monitoring and equipment control.

CN 110494900. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. 工作空间安全监控和设备控制 (Workspace safety monitoring and equipment control).

CN 114296101. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. 深度感测计算机视觉系统 (Depth-sensing computer vision system).

CN 114721007. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. 深度感测计算机视觉系统 (Depth-sensing computer vision system).

EP 3844432. D. Dedkov, S. Denenberg, I. Kriveshko, P. Schroeder, C. Vu, P. Sobalvarro, and A. Moel. Systems and methods for automatic sensor registration and configuration.

EP 3843956. S. Denenberg, B. Mello, M. Galligan, C. Vu, P. Sobalvarro, M. Wartenberg, and A. Moel. System identification of industrial robot dynamics for safety-critical applications.

EP 3980853. I. Kriveshko, P. Schroeder, M. Wartenberg, B. Mello, C. Vu, S. Denenberg, A. Feldman, M. Galligan, P. Sobalvarro, N. Aucoin, and A. Moel. Safe operation of machinery using potential occupancy envelopes.

EP 4052866. I. Kriveshko, P. Schroeder, M. Wartenberg, B. Mello, C. Vu, S. Denenberg, A. Feldman, M. Galligan, P. Sobalvarro, N. Aucoin, and A. Moel. Safe operation of machinery using potential occupancy envelopes.

EP 4052867. I. Kriveshko, P. Schroeder, M. Wartenberg, B. Mello, C. Vu, S. Denenberg, A. Feldman, M. Galligan, P. Sobalvarro, N. Aucoin, and A. Moel. Safe operation of machinery using potential occupancy envelopes.

EP 4088890. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. Workspace safety monitoring and equipment control.

EP 4088891. C. Vu, S. Denenberg, P. Sobalvarro, P. Barragan, and A. Moel. Workspace safety monitoring and equipment control.

EP 4250753. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. Depth-sensing computer vision system.

EP 4446069 S. Denenberg, P. Sobalvarro, C. Vu, A. Moel, and R. Kelsey. Safety-rated multi-cell workspace mapping and monitoring.

JP 2023-178407. S. Denenberg, C. Vu, P. Sobalvarro, L. Persits, I. Kriveshko, E. Simon, A. Moel, P. Foy, and J. Bronder. 安全用途のためのシステムアーキテクチャ (System architecture for safety applications).

JP 2024-056983. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. 深度感知コンピュータビジョンシステム（Depth-sensing computer vision system).

US 2021/0099689. S. Denenberg, L. Persits, C. Vu, R. Randall, P. Sobalvarro, V. Chamorro, G. Malkin, and A. Moel. Depth-sensing computer vision system.

US 2021/0379762. S. Denenberg, C. Vu, P. Sobalvarro, and A. Moel. Motion planning and task execution using potential occupancy envelopes.

US 2022/0234209. I. Kriveshko, M. Wartenberg, C. Vu, S. Denenberg, N. Aucoin, and A. Moel. Safe operation of machinery using potential occupancy envelopes.

US 2022/0379474. C. Vu, S. Denenberg, M. Wartenberg, I. Kriveshko, A. Fiol-Mahon, and A. Moel. Intelligent monitoring of entry points in multi-cell workspaces.

US 2023/0099717. C. Vu, A. Lewis, A. Fiol-Mahon, U.M. Erdem, P. Foy, I. Kriveshko, S. Denenberg, and A. Moel. Systems and methods for information-assisted sensor registration.

US 2024/0036545. S. Denenberg, C. Vu, P. Sobalvarro, L. Persits, I. Kriveshko, E. Simon, A. Moel, P. Foy, and J. Bronder. System architecture for safety applications.

US 2024/0163415. C. Vu, A. Moel, S. Denenberg, M. Wartenberg, and E. Cobane. A sensor for safe detection of intrusions in a 3D volume.

US 2024/0165806. S. Denenberg, C. Vu, P. Sobalvarro, and A. Moel. Motion planning and task execution using potential occupancy envelopes.

US 2024/0326253. C. Vu, S. Denenberg, P. Sobalvarro, and A. Moel. Safe motion planning for machinery operation.

US 2024/0424678. C. Vu, S. Denenberg, M. Wartenberg, P. Schroeder, I. Kriveshko, and A. Moel. Workplace monitoring and semantic entity identification for safe machine operation.

**publications: robotics**

"Implementing effective Speed and Separation Monitoring with legacy industrial robots – state of the art, issues, and the way forward", (with Scott Denenberg and Marek Wartenberg), 2021, in *The 21st Century Industrial Robot - When Tools become Collaborators*, edited by M. I. Aldinhas Ferreira and S. R. Fletcher (Springer). https://doi.org/10.1007/978-3-030-78513-0_13. Author or co-author of regular blog series on robotics, automation, and the future of work. Available at www.veobot.com/blog

**publications: finance**

"Understanding the Hong Kong startup ecosystem: a framework and future directions, 2025, in *Hong Kong Economic Policy Green Paper 2025*, HKU Business School.

Authored or co-authored over 600 company reports and research notes on Asian IT hardware (displays, display glass, automation and robotics, PCs, and electronics manufacturing), and was main author or co-author on 30 Bernstein Black Book in-depth analyses aimed at professional investment managers.

"Czech mate: Expropriation and investor protection in a converging world", (with Mihir Desai), 2008. *Review of Finance* 12, p. 221-251. Presented at the ECGI Corporate Governance Symposium (2005), European Finance Association Meeting, Moscow (2005), Batten Institute Emerging Markets Finance Conference (2005). Third-place winner, ECGI Corporate Governance Competition, 2005. Abstracted in *Beyond Transition* (15:1), World Bank, Oct/Nov/Dec 2004.

"The role of expectations in explaining the cross-section of stock returns", (with Tom Copeland and Aaron Dolgoff), 2004. *Review of Accounting Studies* 9, p. 149-188. Presented at Harvard Business School (2002), UC Berkeley (2003), New York University (2003), RAST Conference (2003).

"Selling company shares to reluctant employees: France Telecom's experience", (with Francois Degeorge, Dirk Jenter and Peter Tufano), 2004. *Journal of Financial Economics* 71, p. 169-202.
Presented at Darden (1999), UCLA (1999), London Business School (1999), NBER Corporate Finance Summer Institute (1999), WFA meeting (2000), and AEA meeting (2002).

"When are real options exercised? An empirical study of mine closings", (with Peter Tufano), 2002, *Review of Financial Studies* 15, p. 35-64.
Presented at Harvard Business School (1998), Wharton (1998), Northwestern (1998), AFA meeting (1999), ITAM (1999) and WFA meeting (1999).

"The role of American Depositary Receipts in the development of emerging markets", 2001, *Economia*, a Brookings Institution journal. A practitioner-oriented version of this paper appeared in *Financial Innovations and the Welfare of Nations*, edited by L. Jacque and P. Vaaler (Kluwer Academic Publishers).
Presented at Tufts Conference in Financial Innovation (1999), London Business School (2000), Oxford University (2001), Hong Kong University of Science and Technology (2001), National University of Singapore (2001), and 3rd Economia Panel Meeting, Harvard University (2001).

"Bidding for Antamina: Incentives in a real option context", (with Peter Tufano), 1997, in *Flexibility, Natural Resources and Strategic Options*, edited by L. Trigeorgis and M. Brennan (Oxford University Press). Reprinted in *Game Choices: New Approaches to Competition Risk*, edited by S. Grenadier (Risk Books, 2000). Presented at Real Options Conference (1997,1999), Harvard Business School (1998), and ITAM (1999).
"Hedging emerging market securities: Theory, calculation, and application to the case of Brazil", (with Gustavo Sisti and Amaury F. Junior), 2000, *Institutional Investor do Brasil*, August 2000 (in Portuguese).

**publications: semiconductors**

A. Moel, Y. Gomei, S. Sugihara, and Y. Takigami. Effect of an $Al_2O_3$ interlayer on linewidth control in electron beam writing on tungsten substrates. *Journal of Vacuum Science and Technology B*, 13(3):1058, May/Jun 1995.

A. Moel and Y. Gomei. "Analysis of mask distortion induced by heating during e-beam writing," in *Photomask and X-ray Mask Technology,* Hideo Yoshihara, Editor, Proc. SPIE 2254, 199-205, 1994.
S. Sugihara, A. Moel, and Y. Gomei. W-Re alloy for x-ray absorber. In *Extended Abstracts; The Japan Society of Applied Physics,* page 557, 1994 (in Japanese).

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