



*School of Design and Environment
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Professor Khee Poh LAM *Ph.D., FRIBA, FIBPSA*

Academic and Professional Qualifications



Ph.D. (Architecture) Carnegie Mellon University, USA. 1994
Bachelor of Architecture (Hons) University of Nottingham, UK 1982
Bachelor of Arts (Architecture & Environmental Design)(Hons),
University of Nottingham, UK. 1979
Registered Architect, Architects Registration Board, UK. 1984
Chartered Member, Royal Institute of British Architects, UK. 1984
Fellow, Royal Institute of British Architects, UK, 2016
Fellow, International Building Performance Simulation Association 2019

Appointments

**2016-2022 Provost's Chair Professor of Architecture and Building
School of Design & Environment, National University of
Singapore**

Aug, 2018 Professor Emeritus
College of Fine Arts, Carnegie Mellon University

2003-2018 Professor (Tenured)
School of Architecture, Carnegie Mellon University

1998-2003 Associate Professor (joint appointment in the Department of
Architecture and Department of Building, NUS since 2000)

1984-1998 Lecturer/Senior Lecturer School of Architecture, NUS

1982-1984 Architect, Nottinghamshire County Council Architects
Department, County Hall, West Bridgford, Nottingham, NG2
7QP, UK.

2015 Visiting Professor
School of Design & Environment, National University of
Singapore

2009-2015 Adjunct Professor
School of Architecture, Chinese University of Hong Kong

2011-2014 Visiting Professor, Tsinghua University, Beijing, P R China

2007-2010 Adjunct Professor, Xian Jiaotong University, P R China

NATIONAL UNIVERSITY OF SINGAPORE

ADMINISTRATIVE RESPONSIBILITIES

- 2016-2021** **Dean, School of Design and Environment**
- 2000-2002 Head, Department of Building, School of Design and Environment
- 1998-2000 Acting Dean, Faculty of Architecture, Building & Real Estate
- 1998-1999 Director, Graduate School of the Built Environment

APPOINTMENTS AND SERVICES

- 2017- Member of the Management Board, Institute of Real Estate Studies, NUS. (Jan 2017 -).
Member of the Board, Institute of Systems Science (formerly Interactive and Digital Media Institute, NUS. (Jan 2017 -).

School of Architecture

- 1996-1998 Director of B.Arch/M.Arch Degree Programme
Member of School Management
Committee Member of School Corporate Planning Committee
Chairman of Dissertation Committee
Year 5 Design Course Leader
Chairman of B.Arch/M.Arch. Admission Committee
Chairman of Academic Review Committee
Chairman of RIBA 2000 Visitation Committee
Member of Career Guidance Committee
Member of Editorial Board for the international refereed Journal of Southeast Asian Architecture

Faculty of Architecture, Building and Real Estate

- Vice-Dean, Faculty of Architecture and Building
Member of Faculty Strategic Planning Team
Member of Research and Postgraduate Committee
Member of Board of Selection for the Faculty of Architecture and Building

- 1995-97 **National University of Singapore**

- Represent Faculty in the following University Committees:
Alumni UEF Committee
Committee for Seminar on teaching Methodology
PS21 Committee
University Foundation Module Committee
University Modular Committee

- Member of Senate sub-committee on Entrance Examination for Special Candidates

- 1995-96 **School of Architecture**

- Director of Bachelor of Architecture Degree Programme
Member of School Management
Chairman of Dissertation Committee
Year 5 Design Course Leader
Chairman of B.Arch Admission Committee
Chairman of Academic Review Committee
Chairman of RIBA 2000 Visitation Committee
Practical Training Advisor
School Handbook Editor
Member of Career Guidance Committee
Member of Aptitude Test Committee
Member of Editorial Board for the international refereed Journal of

Southeast Asian Architecture

Faculty of Architecture, Building and Real Estate

Vice-Dean, Faculty of Architecture and Building
Member of Board of Selection for the Faculty of Architecture and Building

1994-95

School of Architecture

Building Construction Course Leader
Building Technology Course Leader
Building Services Course Leader
Member of School Management Committee
Coordinator of BA(AS) Construction Courses
Chairman of Academic Review Committee, School of Architecture
Member of Editorial Board for the international refereed Journal of Southeast Asian Architecture
Chairman of Eco-Architecture Design Competition Committee

1988-89

School of Architecture

Coordinator for BA(AS) Building Construction and Building Structure Courses
Member of School Management Committee
Member of the Working Committee for the RIBA Visit in Sept. 1990

1987-88

School of Architecture

Coordinator of BA(AS) Building Construction and Building Structure Courses
Member of School Management Committee
Member of organising Committee for the Inter-Faculty Conference on "Towards Excellence in the Built Environment"

1986-87

School of Architecture

Coordinator of BA(AS) Building Construction and Structure Courses
Member of School Management Committee

1985-86

School of Architecture

Editor, School of Architecture Newsletter

CARNEGIE MELLON UNIVERSITY

ADMINISTRATIVE RESPONSIBILITIES

2012-2015 Chair, PhD (Building Performance & Diagnostics) Program

2008-2012 Chair, MS (Architecture) Program

2003-2007 Director, Graduate Programs

APPOINTMENTS AND SERVICES

2014-2017 University Research Review Committee

2011-2014 College of Fine Arts Council / College Review Committee

2008 University International Strategic Planning Committee
S08-48405: 4th Year Architecture Design Studio Coordinator

2007 School of Architecture Promotion & Tenure Review Committee
Chair
Carnegie Mellon University Presidential Review Committee

2007-2008	Carnegie Mellon Fulbright Scholars Program Committee
2005-2007	University Committee on Tenure Appointments
2004-2005	Presidential Appointee, Faculty Senate

SINGAPORE

APPOINTMENTS AND SERVICES

Government

Appointed member of the Future Economy Council Urban Systems Sub Committee, co-chaired by Minister of State for National Development Mr. Tan Kiat How and Mr. Liam Wee Sin, Group CEO of UOL Group Ltd., (1 May 2021 - 31 Mar 2023).

Director, Centre for Liveable Cities Ltd. (1 Jan 2021 - 31 Dec 2022).

Member of judging panel for the Land Transport Excellence Awards 2022 – Best Design Rail/Road Infrastructure and Best Design Land Transport Integration Awards (July 2021)

Member of judging panel for the Land Transport Excellence Awards 2019 – Infrastructure & Development Category (August 2018).

Appointed member of the Future Economy Council Built Environment Sub Committee, co-chaired by Minister for Social and Family Development & Second Minister for National Development Mr. Desmond Lee and Mr. Lim Ming Yan, President & Group CEO of CapitaLand Ltd (1 June 2018 - 31 May 2020)

Appointed by the Ministry of National Development, Singapore to serve on the Land and Liveability National Innovation Challenge (L2 NIC) mid-term review panel (10 - 12 October 2017).

Appointed by the Minister of Communications and Information to be a Member of the Design Education Review Committee, Design Singapore Council (1 Aug 2017 - 31 Jul 2018).

Appointed by the Minister of National Development to be a Member of the Centre for Liveable Cities (CLC) Advisory Board (1 July 2017 – 30 June 2020).

Appointed by Building and Construction Authority as a member of the Green Mark Advisory Committee, April 2016 – June 2019.

Appointed by Building and Construction Authority as a member of the international expert panel to review Singapore's Building Energy Efficiency Technology Roadmap, July 2013 – February 2014.

Appointed by Building and Construction Authority as a member of the inaugural C21 Best Practices Award Committee (2000- 2003)

Resource Person for the Construction 21 Steering Committee, chaired by the Permanent Secretary of Manpower Ministry, Dr. Tan Chin Nam. (May 1998 - October 1999)

Member of the Constructions 21: Industry Practices & Techniques Group. (September 1998 - October 1999)

Member of the Industry Committee on Manpower Projections and Needs of the Constructions Industry in Singapore, convened by the Construction Industry Development Board. (1996)

Industry

Expert panel member for The Study on Future Workplaces -

commissioned by the Monetary Authority of Singapore (MAS) and the Association of Banks in Singapore's (ABS) Return to Onsite Operations Taskforce. Sep 2020 – Mar 2021.

Member of the judging panel for the Singapore Facilities Management Awards 2018 (27 August 2018).

Member of judging panel, CDL-E Generation Challenge 2017, 30 September 2017.

Member of the judging panel for the Singapore Facilities Management Awards 2017 (18 September 2017).

Member of judging panel, Energy Innovation Challenge 2017, National Engineers Day, July 2017.

Member of the Advisory Board, Singapore Sustainability Academy, City Developments Limited, Singapore (May 2017 -).

Member of the Jurong Town Corporation Design Review Committee (2000-2002).

Member, Housing and Urban Design Committee, Singapore Institute of Architects. 1995/96, 1996/97, 1997/8, 1998/99.

Appointed by the Council of the Singapore Institute of Architects as a member of the Panel of Jury for the inaugural "SIA GOLD MEDAL AWARD for Lifetime Contribution to Architecture", to be awarded to an architect in Singapore. (From January 1998 for two terms)

Member of the Committee for the Outstanding Architectural/Engineering Firms Awards 1999, Society of Project Managers, Singapore. (October 1998)

Member of the Panel of Judges for the 1998 Singapore Institute of Landscape Architects Professional Award Competition. (November 1998)

Member of the panel of assessors for the Eco-Building Architectural Design Competition organised by the Singapore Institute of Architects, Estate Developers' Association of Singapore and the Faculty of Architecture and Building, NUS. (October 1995)

Member of the multi-disciplinary study team from Jurong Town Corporation to visit industrial developments in Japan (28 May - 8 June 1995).

Academic

Ministry of Community Development - The Institute of Policy Studies. Conference on "Ageing in Singapore: Facing Challenges, Seizing Opportunities", 24-25 September 1999. Orchard Hotel, Singapore Chairman, Parallel Workgroup on Housing and Land Use Policies.

URA - The Institute of Policy Studies.
World Conference on Model Cities, 19-21 April 1999. Westin Stamford, Singapore. Moderator, Sectorial Session on "Identity and the City"

Appointed as a member of the Validation Panel for the Diploma in Architectural Technology Course at Singapore Polytechnic (December 1997)

National University of Singapore

Member of the Building & Technical Planning Committee, Tropical

Marine Science Institute, NUS (April - December 1998).

Designed and procured the construction of the Faculty booth at the NUS Exhibition – University of the 21st Century held on Alumni Day (September 1996). Also conceptualized and coordinated the fabrication of a sculpture made of scrap material contributed by various departments in the University.

Member of the panel of assessors for the Harley Davidson Bike Centre design competition organised by the School of Architecture and Harley Davidson, Singapore (November 1995)

Member of the panel of assessors for the NUS Centre for the Arts logo design competition organised by the School of Architecture and CFA.

USA and INTERNATIONAL

APPOINTMENTS AND SERVICES

Industry

Member of the World Economic Forum Global Future Council on Clean Electrification, (Oct 2020 – Sep 2021).

Co-Chair, International Well Building Institute Task Force on COVID-19 and other Respiratory Infections: Prevention and Preparedness, Resilience and Recovery. (6 Apr 2020 -).

Member of the World Economic Forum Special Policy Study Expert Panel for the China Council for International Cooperation on Environment and Development (CCICED) on Major Green Technology Innovation and Realization Mechanisms in the context of green urbanization. (Feb – May 2020).

Member of the World Economic Forum Global Future Council on Energy Technologies, (Oct 2019- Sep 2020).

Juror, Hong Kong Green Building Award 2019, Hong Kong Green Building Council, 7 – 8 Sep 2019.

Member of the judging panel for the 2018 World Green Building Council Asia Pacific Leadership in Green Building Awards (February 2018).

Member of the Advisory Board, Delos LLC, USA (Sep 2017 -)

Advisory Board of the Asia-Pacific Economic Cooperation Sustainable Energy Centre (APSEC), (Sep 2017 – Sep 2023).

International Energy Agency (IEA) Annex 66: Definition and Simulation of Occupant Behavior in Buildings. Co-Leader of Subtask E: Applications in building design and operations (2013 – 2017).

Invited to participate in the USA President's Council of Advisors on Science and Technology (PCAST) Workshop on Technology and the Future of Cities. 12 Feb 2015, Palo Alto, CA. Final report presented to President Obama on 23 Feb 2016.

Reviewer for the Natural Sciences and Engineering Research Council of Canada (NSERC) – Discovery Grant proposal. Nov 2014

Reviewer for the National Science Foundation Environmental Sustainability Program (Sustainable Buildings) – research proposals, June 24-25, 2014, at the NSF.

Reviewer for the U.S. Department of Energy's Building Technologies Office (BTO) – Program Peer Review, April 22 – 25,

2014, Double Tree Crystal City Hotel, Arlington, VA.
Member of the Board of Directors, Global Buildings Performance Network (2012 – 2015).
Member of the Board of Directors, The Energy Foundation (2008 – 2017).
Consultant to The Energy Foundation – China Sustainable Energy Program (2008 – 2017)
Member, Protocol Committee of the International Performance Measurement and Verification Protocol (IPMVP), USA. (2002 – 2004)
Member of the Dupont (Asia) Advisory Council (2001)

Academic

Member, Scientific Committee, Simulation for Architecture and Urban Design 2015 (SimAUD), 12-15 April, 2015, Washington DC, USA.
Member, Editorial Board, Buildings, MPDI AG, Basel, Switzerland, (2013-).
International Referee, iNTA-SEGA 2009: Bridging Innovation, Technology and Tradition. 2-4 December 2009, Bangkok, Thailand.
Member, inaugural Editorial Board, Journal of Building Performance Simulation, Taylor and Francis, UK, (2008 – 2017).
Member, inaugural Editorial Board, Building Simulation: An International Journal, Springer and Tsinghua University Press, (2007 -)
International Reviewer, 24th international conference on Passive and Low Energy Architecture (PLEA), 22 – 24 November 2007, Singapore.
External Examiner for a PhD thesis, Department of Civil & Environmental Engineering, University College Cork, Ireland. (September 2006)
Member, EuropIA.10 International Advisory Board, 10th International Conference on Design Sciences and Technology, 13-15 September 2005, Damascus, Syria
Member, International Advisory Board, International Journal of Lighting Research and Technology, published by Edward Arnold (Publishers) Ltd, London, UK. (June 2000-June 2003)
Appointed by the President of Carnegie Mellon University as Co-Chairman of the Advisory Board to the School of Architecture at CMU (May 2001)
External Examiner for a PhD thesis, Faculty of Architecture, Delft University of Technology (June 2001)
Member of the International Scientific Committee for the CIB World Building Congress 2001, Wellington, New Zealand. (September 2000)
Member, International Program Committee, 17th International Symposium on Automation and Robotics in Construction, 18-20 September 2000, Taipei, Taiwan
External Examiner for the Architecture Program at the Faculty of Architecture, University Teknologi Mara, Shah Alam, Malaysia (2000 – 2002)
Member, Editorial Board, The Real Estate Times. (International

Refereed Journal by Pidemco Land Research, Singapore).
(November 1998 – 2003)

Member of the Scientific Committee, Building Simulation '99 International Conference, organized by the International Building Performance Simulation Association, to be held in Kyoto, Japan, 13-15 September 1999. Also provided service as a reviewer.

Member, Editorial Board, Journal of Southeast Asian Architecture. (International Refereed Journal published by the School of Architecture, NUS). (1997 – 1999)

Founding member of the Board of Editors, The International Journal of Corporate Real Estate. (International Refereed Journal of the Institute of Corporate Real Estate, NACORE, USA, published by Henry Stewart Publications, UK). (November 1997 – ongoing). Also provided service as reviewer.

ACADEMIC and INDUSTRY AWARDS

International Well Building Institute 2020 Community Award. 17 Dec 2020. <https://resources.wellcertified.com/press-releases/iwbi-recognizes-outstanding-leaders-in-advancing-health-and-wellness-in-buildings-communities-and-organizations-across-the-globe/>

Conferred as an inaugural iBuildSG LEAD Distinguished Fellow by the Building and Construction Authority for contribution to the Built Environment Sector in Singapore, 19 June 2020.

2019 International Well Building Institute Leadership Award - to Asia-based leaders who have demonstrated outstanding achievement in advancing health and well-being for people through WELL projects. (22 Oct 2019).

Outstanding Paper Award:
Zhang, Z, C L Zhang and K P Lam, A Deep Reinforcement Learning Method for Model-based Optimal Control of HVAC Systems, 7th International Building Physics Conference, 23-26 September 2018, Syracuse, NY, USA.

Best Innovative Workflow Award, ASHRAE LowDown Showdown Modeling Challenge sponsored by the Department of Energy (DOE) and the National Renewable Energy Laboratory (NREL). 1 October 2015.

Phipps Conservatory & Botanical Gardens Center for Sustainable Landscapes:

- (a) 2014 Innovative Star Award from the Alliance to Save Energy, for exceeding four of the highest green construction standards - a feat that has never been achieved before - and achieving net-zero annual energy usage through its energy-efficiency Center for Sustainable Landscapes.
- (b) 2014 Engineering News-Record's Best Global Green Project Award.

2013 Alexander Schwarzkopf Prize for Technological Innovation from the National Science Foundation "for exemplary research contribution to technology innovation and positive impact on technology, industry and the society as a whole".

2010 IBM Faculty Award

Autodesk APPHACK 2.0 International Competition, Dec. 2013- 3rd Place Winner: Urban Energy Modeling.

National Library Building, Singapore – awarded the ASEAN Energy Efficiency Award (1st Prize) in 2007.

Urban Redevelopment Authority Building, Singapore – awarded

ASEAN Energy Efficiency Award (2nd Prize) in 2002.

PATENTS

METHODS AND SYSTEMS FOR DIGITAL INFORMATION MODELING FOR CODES AND STANDARDS COMPLIANCE

Application number: 20140372859

Abstract: This invention describes methods and systems to efficiently map and extract information from digital representations of buildings for use for a variety of purposes, including but not limited to the performance of dynamic simulations of building performance, and for codes and standards compliance.

Type: Application

Filed: June 13, 2014

Issued: December 18, 2014

Assignee: CARNEGIE MELLON UNIVERSITY, a Pennsylvania Non-Profit Corporation

Inventors: Khee Poh Lam, Jie Zhao, Rongpeng Zhang, Omer T. Karaguzel

OPTIMAL SELECTION OF BUILDING COMPONENTS USING SEQUENTIAL DESIGN VIA STATISTICAL BASED SURROGATE MODELS

Application number: 20140365180

Abstract: A surrogate model to a building simulation model is built and used for finding a combination of building components that optimize energy use in a building. The surrogate model may be built iteratively using design points comprising a different combination of building product properties that maximize a predefined expected improvement function.

Type: Application

Filed: June 5, 2013

Issued: December 11, 2014

Assignees: Carnegie Mellon University, International Business Machines Corporation

Inventors: Khee Poh Lam, Young Min Lee, Fei Liu, Jane L. Snowdon, Jeaha Yang, Rui Zhang.

DESIGN PROJECT CITATIONS

National Library Board, Singapore Building Project

Visions of the National Library. The Straits Times, 2 October 1999

A Quiet Revolution. Cover story in Experience Singapore, Issue 13, April 2002. (A newsletter of the Singapore Cooperation Program)

National Library bid to save power rewarded. News published in all 4 major language newspaper in Singapore: The Straits Times, Lianhe Zaobao, Berita Harian, Tamil Murasu, (12 May 2005)

The Urban Redevelopment Authority (URA) Centre, Singapore citation in:

Distinctively modern... The URA Centre. Skyline, Nov/Dec 1999
U R an A. The Straits Times, 27 November 1999.

Shanghai Jiahui International Hospital

Urban Oasis – Shanghai Jiahui International Hospital. Healthcare Design, Vol. 18, No. 4, April 2018. HCDMAGAZINE.COM.
<http://www.nxtbook.com/nxtbooks/healthcaredesign/201804/index.php#/12>

Shanghai Jia Hui International Hospital: Award Winning Project from China. First LEED Gold Hospital in China, (9 Oct 2018)
<https://vimeo.com/294619622>

**INTERNATIONAL
BIBLIOGRAPHIC CITATION**

Marquis Who's Who in Science and Engineering, since 7th Edition, 2003-2004
Marquis Who's Who in America, since 59th Edition, 2005
Marquis Who's Who in the World, since 22nd Edition, 2004
Marquis Who's Who in American Education, since 2007-2008

RECOGNITION OF SERVICE

Certificate of appreciation from the International Performance Measurement & verification Protocol Inc., for valuable contributions to the development of International Performance Measurement and Verification Protocol (11 Dec 2003)

Certificates of Appreciation from the Singapore Institute of Architects (SIA) for contribution and services rendered as:

SIA Gold Medal Award Jury Panel (2002 - 2003)

SIA Gold Medal Award Jury Panel (1999 - 2000)

SIA Housing & Urban Design Committee (1995 - 1998)

**LIST OF RESEARCH
PROJECTS UNDERTAKEN**

CARNEGIE MELLON UNIVERSITY

As Principal Investigator

1. Computational Method for the Calibration of a Whole Building Energy Model – A Japanese Case Study. Toshiba Corporation, Japan. \$460,000.00 (17 Aug 2015 – 16 Aug 2017).
2. The DOE Energy-Efficient Building Systems Design Hub: Greater Philadelphia Innovation Cluster for Energy Efficient Buildings. US Department of Energy. \$4.96 million (Oct 2010 - Apr 2016).
3. Dynamic Life-cycle Digital Information Modeling of Building Industry Products and Processes for Codes and Standards Compliance. Carnegie Mellon University Gap Funding \$25,000.00 and Innovation Works \$39,975.00. (Apr 2013 – Mar 2014).
4. Development of a decision support tool for the selection of optimum glazing systems applicable to high-performance and energy efficient commercial office buildings in different climatic conditions. PPG Industries, Pittsburgh, PA, USA. \$35,000.00. (Mar 2012 - Jan 2013).
5. Simulation-based Performance Assessment of the Pingry School Headmaster's Residence, NJ. The Stone House Group. \$10,000.00 (Apr- Aug 2010)
6. Development of a Web-based Information Technology Infrastructures and Regulatory Repository Frameworks for Green Buildings in China. The Energy Foundation. \$190,000.00 (Sep 2009 - Aug 2011).
7. Impact of Shading Control Strategies on Heating and Cooling Loads of a "Typical" Office Building in Different Climatic Contexts in the USA. Somfy SAS, France. \$24,000.00. (Feb - Aug 2007).
8. Assessment of Physical and Computational Airflow Analysis and Evaluation Tools for Building Design. Konstrukt (on behalf of Northwest Alliance for Energy Efficiency. \$10,100. (Nov - Dec 2005)
9. Guidelines and Goals for Green and Healthy Hospital Operations. Children's Hospital of Pittsburgh Foundation, with support from Heinz Foundation. \$25,000 (Sep 2004 - Feb 2005)
10. Energy Modeling Tools Assessment for Early Design Phase. Northwest Alliance for Energy Efficiency. \$27,000 (Mar. - Dec. 2004)
11. Integrated Concurrent Design of High Efficiency Commercial Buildings. United Technologies Research Center. NIST ATP Program. \$431,078.00. (Oct 2004 - Nov 2007)

As Co-Principal Investigator

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1. Integrated Web-based Platform for Lifecycle Building Energy Modelling. Ng Teng Fong Charitable Foundation Research Funding. SGD\$395,036.00. (Jun 2018 – Dec 2020).
 2. NSF RCN-SEES: Predictive Modeling Network for Sustainable Human-Building Ecosystems (SHBE). \$62,500.00 (out of \$652846.00). (Sep 2013 – Aug 2018).
 3. NSF RCN-SEES: Predictive Modeling Network for Sustainable Human-Building Ecosystems (SHBE). \$62,500.00 (out of \$652846.00). (Sep 2013 – Aug 2018).
 4. BUILD- Barriers, Understanding, and Integration - Life Cycle Development. NSF EFRI SEED. \$430,229.00 (out of \$2 million). (Oct 2010- Oct 2014).
 5. Modeling the Performance of Energy Recovery Technology for Packaged, Rooftop HVAC Equipment. United Technologies Research Center. \$70,000. (Jan - Oct 2004)

Research Gifts/Fellowships

1. The Future of Building Energy Management Systems. Autodesk. \$30,000.00 (Sep 2015 – Dec 2015).
2. Whole Building Energy Modeling and Calibration – A Carnegie Mellon University Building Case Study. Toshiba Corporation, Japan. \$92,871.00 (May 2014 – Mar 2015).
3. Multiple Environmental Sensing Strategies for Determining Occupancy in Building. Robert Bosch Corporation. \$99,290.00 (Dec 2006 - Jun 2008).
4. Information Technology Enabled Sustainable Testbed (ITEST). Siemens Corporation. \$75,880.00 (Dec 2006 – Jun 2008).
5. Residential Building Energy Modeling. IBACOS, Pittsburgh, PA. \$23,000.00. (Sep 2005 – Aug 2006).

NATIONAL UNIVERSITY OF SINGAPORE

As Co-Principal Investigator

1. Aerosol Infection Control in Buildings: Temperature, Humidity, Airflow and Ventilation. NUS COVID-19 Research Seed Grant. S\$95,000.00. (Apr 2020- Mar 2021).
2. Integrated Web-based Platform for Lifecycle Building Energy Modelling. Ng Teng Fong Charitable Foundation Research Funding. S\$395,036.00. (Jun 2018 – Dec 2020).
3. BCA RID 94.17.2.6. Lifecycle BIM Integration with Energy MM&V for Net Zero Energy Building. S\$963,800.00. (01 Jan 2016 – 30 Jun 2018).

As Principal Investigator

1. R-296-000-068-112 *Integration of CAD and Thermal Simulations Through Industry Foundation Class (IFC) Product Model*, in collaboration with NovaCITYNETS, Singapore, and Temasek Polytechnic. (NUS funded S\$52,000.00). (1 Mar 2003 -29 Feb 2004)
2. R-296-000-052-112 *Mapping of Industry Building Product Model for Detailed Thermal Simulation and Analysis*. (NUS funded S\$29,350.00), in collaboration with NovaCITYNETS, Singapore. (1 Jan - 30 Jun 2002)
3. RP3982110 *SEMPER II - Digital Building Models for Intranet Collaborative Design Computing*. The project was awarded a research grant of

SS\$1,105,600.00, to be co-funded by NSTB (50%) and NUS & TP (50%). This arose from a Memorandum of Understanding for collaborative research between NUS, Carnegie Mellon University, USA and Temasek Polytechnic, under the SingAREN - vBNS high-speed network link between USA and Singapore. (13 May 1999 -13 May 2002).

4. RP950050 *The Establishment of Architectural and Technical Standards and Guidelines for the Design and Maintenance of Marine Mammal Facilities*. (NUS funded S\$152,400.00). (23 Feb 1996 - 23 Feb 1998)
5. RP950015 *Mapping of the Sky Luminance Distribution and Computational Prediction of Daylighting Performance in Singapore*. (NUS funded S\$125,700.00). (26 August 1995 - 25 August 1997).

As Collaborator

1. RP 991020 *To Plan and Design an Innovative Housing Project (32 Acre) at Dondra, Sri Lanka, Integrating Relevant Development Potentials Within and Around the Site*. (NUS funded S\$ 30,000.00). (16 June 1999 - 16 June 2001).
2. *A Pilot Study into the Feasibility of Applying an Integrated and Total Building Performance Method to the Evaluation of School Buildings in Hong Kong*. (Funded by the Chinese University of Hong Kong). (Oct. 1999 - Oct. 2000).
3. RP982073 *A study of the Use of Performance Based Simulation Tools for Building Design and Evaluation in Singapore*. (NUS funded S\$8,200.00). (7 Dec 1998 - 31 Jul 1999).
4. This research produced an important IRJ paper that documented for the first time the status of the use of computer simulation tools for building performance evaluation in the Singapore building industry. This work also provided an important foundation for subsequent research activities in this field.
5. RP3981040 *Study of Daylight Attenuation Through Windows in Urban Environments*, in collaboration with Prof. Peter Tregenza, School of Architectural Studies, University of Sheffield, UK (NUS funded \$169,600.00). (1 Oct 1998 - 1 Oct 2000)
6. Established a Memorandum of Understanding between the Faculty of Architecture & Building and Pidemco Land Limited for research collaboration in the field of *Total Building Performance and Building Services/Automation Systems*. (Funding from Pidemco Land Limited - \$118,000.00). (February 1998 - February 2000)
7. RP972051 *An Integrated Building Assessment Method Using the Total Building Performance Approach*. (NUS funded \$177,300.00). (February 1998 - January 2000)
8. RP960019 *Applying Advanced Lighting Visualization Techniques to Architectural Design in the Local Context*. (NUS funded S\$62,780.00). (15 August 1996 - 1 June 1998).

PUBLICATION JOURNAL PAPERS

1. Lam, K P, Urban Study and conservation in Tiong Bahru, Singapore. SIAJ: Singapore Institute of Architects Journal, 136 (June 1986): 44-47. (Singapore).
2. Lam, K P and R A Hyde, Wrestling with the productivity curve - CAD in architecture. SIAJ : Singapore Institute of Architects Journal, 144 (October 1987): 41-43. (Singapore).
3. Lam, K P and J D Harrison, Towards a defects - free built environment. Building Technology and Management, Annual Journal of the Building Technology Society, Tunku Abdul Rahman College, 15 (1989): 17-22. (Malaysia).
4. Mahdavi, A and K P Lam, Dynamic Analysis and Visualization of Water Vapor Diffusion Through Building Components. ASHRAE Transactions, Part No. 1, 99 (1993): 288-296. (United States).
5. Lam, K P, Design for Eco-Architecture: A Competition for Year 4 Architecture Students. SIAJ : Singapore Institute of Architects Journal, 187 (November / December 1994): 38-41. (Singapore).
6. Mahdavi, A and K P Lam, Multiple strategies toward complex representation in

-
- building simulation. *Building Research Journal*, 3, no. 1 (1994): 43-55. (United States).
7. Tham, K W, K P Lam and S E Lee, Eco-Building: A Systemic Phenomenon. *SIAJ : Singapore Institute of Architects Journal*, 187 (November /December 1994): 53-60. (Singapore).
 8. Powell, R and K P Lam, Low-income housing in India. *Singapore Architect: Journal of the Singapore Institute of Architects*, No. 195, 1997, 88-95. (Singapore).
 9. Lam, K P, A Mahdavi and R Ries, Environmental Implications of Alternative Settlement. *Planews*, 16 (1 February 1998): 65-71. (Singapore).
 10. Lam, K P, A Mahdavi, M B Ullah, E Y Y Ng, and V. Pal, Evaluation of six sky luminance prediction models using measured data from Singapore. *International Journal of Lighting Research and Technology*, 31, no.1 (1999 January): 13-17. (United Kingdom).
 11. Chin, L K H and K P Lam, Implementing quality in property management. *Property Management*, 17, no.4 (1999): 310-320. (United Kingdom).
 12. Lam, K P, A Mahdavi and V Pal, Empirical Evaluation of Solar Radiation, Sky Luminance and Daylight Prediction Models. *Journal of the Illuminating Engineering Society*, Vol. 28, No.1 (Winter 1999):30-36. (United States).
 13. Wong, N H, K P Lam and H. Feriadi, The use of performance-based simulation tools for building design and evaluation-a Singapore perspective. *Building and Environment*, 35, 8 (2000): 709-736.
 14. Ng, E Y Y, K P Lam, W Wu and T Nakagura, Advanced lighting simulation in architectural design in the tropics. *Automation in Construction*, Vol. 10, No 3 (2000): 365-379. (The Netherlands).
 15. Lam, K P, A Mahdavi, S Gupta, N H Wong, R Brahme and Z Kang, Integrated and distributed computational support for building performance evaluation. *Advances in Engineering Software*, 33 (2002):199-206.
 16. Wong, N H, A Mahdavi, J Boonyakiat and K P Lam, Detailed multi-zone air flow analysis in the early building design phase. *Building and Environment*, 38 (15 March 2003): 1-10. (United Kingdom).
 17. Ullah, M.B., K P Lam, K W Tham, P. Tregenza and J.T. Kurniawan, Attenuation of diffuse daylight due to dust deposition on glazing in a tropical urban environment. *Lighting Research and Technology*, 35, 1 (2003): 19-29. (United Kingdom).
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2. Lam, K P. Review of Ken Yeang - The Skyscraper Bioclimatically Considered: A Design Primer, Singapore Architect, 196/97 (December 1997): 84-86.

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22. NUS SDE is first in Singapore to achieve the IWBI WELL™ Health-Safety Rating, and first worldwide in the educational sector. 10 Mar 2021.
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 27. Climate For Change: Closing The Loop. Channel News Asia Video on Demand, 26 Jul 2021. <https://www.channelnewsasia.com/watch/climate-change-closing-loop/circular-city-2066786>
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TEACHING**PH.D. THESES
ADVISING****CARNEGIE MELLON UNIVERSITY**

Primary Ph.D. advisor of the following students:

TABLE 1. Ph.D. Students

Year	Student	Project
2003-2008	Chaoqin Zhai	Performance Modeling of Desiccant Wheel Design and Operation
2003-2011	Yi Chun Huang	An Integrated Scalable Lighting Simulation Tool
2004-2009	Yun Shang Chiou	An Occupant-Driven Integrative Household System for Residential Building Energy Simulation
2005-2011	Bing Dong	Integrated Building Heating, Cooling and ventilation Control
2006-2012	Rui Zhang	Advanced Building Thermal Simulation Coupling of Finite Volume Method and Nodal System
2008-2013	Omer Karaguzel	Simulation-Based Parametric Analysis of Building Systems Integrative Solar Photovoltaics (SIPV)
2009-2014	Rongpeng Zhang	Dynamic Optimization of Integrated Active-Passive Strategies for Building Enthalpy Control
2010-2015	Jie Zhao	Design-build-operate Energy Information Modeling For Occupant-oriented Predictive Building Control
2012-2017	Shalini Ramesh	Urban Energy Information Modeling: A framework to quantify the thermodynamic interactions between the natural and the built environment that affect building energy consumption
2012-2017	Adrian Zhun Min Chong	Bayesian Calibration of Building Energy Models for Large Datasets
2012-2017	Chao Ding	CFD Based Coupled Indoor and Outdoor Interactions (CIOI) for Building Natural Ventilation in Urban Environment
2012-2017	Weili Xu	An Energy and Cost Performance Optimization Platform for Commercial Building System Design
2016-2019	Zhiang Zhang	A Reinforcement Learning Approach for Whole Building Energy Model Assisted HVAC Supervisory Control

NATIONAL UNIVERSITY OF SINGAPORE

2020- Eikichi Ono Occupant-Centric Design for Functional and Thermal Zoning at Activity-Based Workspaces

Ph.D. Advisory Committee Member for the following students:

Year	Student	Project
2005-2006	Vipul Singhvi	Machine Learning based Building Control Strategy (Lighting)
2003-2008	Ming Qu	Model-based Design and Operation of Advanced Solar Cooling and Heating System
2011-	Xuesong Liu	Applying A Self-Managing Approach to Improve the Energy Efficiency in Operating and Maintaining HVAC Systems
2009-2014	Erica Cochran	Sustainable Schools and Neighborhoods: Impact of School Building Physical Characteristics and Neighborhood Attributes on Student Performance and Health

MASTER THESES ADVISING

Primary Master Thesis advisor of the following students:

TABLE 2. Master. Students

Year	Student	Project
2011-2013	Boyuan Li	Building Ventilation Control system Design and simulation
2013-2015	Liming Zhang	Urban Microclimate Modeling Integrating ENVI-met and GIS Platform
2013-2015	Xuan Luo	Performance Evaluation and Enhancement of a Probabilistic Occupancy Simulation Model
2013-2015	Zhiang Zhang	Implementation of EnergyPlus based Model Predictive Control (EPMPC): Center for Sustainable Landscape Building as a Case Study

NATIONAL UNIVERSITY OF SINGAPORE**DESIGN THESES
SUPERVISED**

Supervised the following Bachelor of Architecture Year 5 Design Thesis Projects:

TABLE 3. Bachelor of Architecture Year 5 design thesis projects supervised

Year	Student	Project
1997/98	Cho Wee Bin, Jeffrey	Project Delphinus
	Leong Mei Mei	Recycling and the Urban Built Environment
	Ong Tso Sheng	Neighbourhood Tele-commuting Centre
	Seow Lee Koon	Experimental Arts Station
	Siah Yeow Kia, Desmond	Re-examining the Neighbourhood Kindergarten-Space for the Child's Imagination
	Wong Kien Meng	MTV Factory
	Yeo Lee Pin	A Primary School for the Year 2000
1996/97	Chan Hwang Ling, Fanny Kam Leong Heng	Day-care Centre for the Elderly Architecture for Information Accessibility - A Library Network
	Loo Chee Choon	Redefining the Community Centre - A Place for the Elderly
	Sian Chong Ping	Bridge-hotel
	Soh Kee Swee, Maureen	Marine Science Interpretive Centre
1995/96	Chum Tun Jang	Senai Regional Airport (Growth Triangle Singapore, Johor and Riau)
	Lee Chiow Hon	Proposed Headquarters for the Singapore Coast Guard
	Lew Kok Wai	Kuala Lumpur Heritage Centre
	Loh Hai Yew	Marine Ecology Research Centre
	Tan Mui Jee, Eleanor	Botanical Centre in the Park
1994/95	Chan Beng Kiat	An Interpretive Centre on Ecology
	Koh Chin Chye	The Information and Auction Centre for the Arts
	Ooi Sean Yin	The City Gate - Ferry Terminal Penang
	Sam Shyan Yee	Infotech Park

**DISSERTATIONS
SUPERVISED**

Supervised the following Master of Architecture and Bachelor of Architecture dissertations:

TABLE 4. Master of Architecture dissertations supervised

Year	Author	M. Arch. Dissertation Title
2001/02	Low Soon Meng	Being comfortable in flats - Use of CFD in the analysis of comfort in flats
2001/02	Tham Ban Fatt	Impact of computer technology on architectural representation
2000/01	Foo Wan Ching	Assessment and prediction of daylight efficiency in side-lit space in Singapore.
2000/01	Lim Tian Ping	Morphology of skyscrapers - Balanced environment of the interior and exterior - A concept of total building
2000/01	Low Lee Onn, Mark	Thermal comfort in office spaces - Investigation into the parameters of design for thermal comfort in office spaces

TABLE 5. Bachelor of Architecture dissertations supervised

Year	Author	B. Arch. Dissertation Title
1998/99	Low Sok Hwee	Spatial determinism of social interaction patterns in public housing blocks design.
1998/99	Tse Pek Mun	Empirical study: Design intentions and experiential reality in Atria.
1997/98	Leong Mei Mei	(Media) Representation of place: An extensions and limitations of place in private condominiums in Singapore.
1997/98	Lim Chiong Lew Bernice	Commodification and consumption of the past in the built heritage and heritage tourism.
1997/98	Ong Tso Sheng	An alternative to the office tower.
1996/97	Chua Ter Yui Dawn	Evolution of the building envelope: its impact on the environment and on the quality of the interiors.
1996/97	Fatimah Akhtar	Inquiry into the role of specifications for total building performance.
1996/97	Kam Leong Heng	Architecture for the pre-school children.
1996/97	Lee Sze Kai	River cities and their relationship to the rivers - a comparative study of Singapore and Perth.
1996/97	Liam Wai Tak	Changing office physical environment in response to the impact of office automation.
1996/97	Sim Choon Heok	Photo-graphically speaking on architecture and its represented image.

1996/97	Soh Ken Swee Maureen	Role of the structural frame in the architecture of the Barcelona Pavilion & Villa Savoye.
1996/97	Yeo Kwang Teck	Technology, the green issue and architecture.
1995/96	Chia Teck Giap	Nature: The lifeblood of a sustainable built environment.
1995/96	Lee Chiow Hon	Architecture and the art of war.
1995/96	Loh Hai Yew	Seaquest: Concept of sea-based development as an alternative to land-based development.
1995/96	Lee Kok Wai	Kuala Lumpur: a study of a post colonial city.
1995/96	Lim Li Kiang	Image of technology in Nicholas Grimshaw's British Pavilion Expo 1992.

TABLE 6. Bachelor of Science (Building) dissertations supervised

Year	Candidate	B. Sc. Dissertation Title
2002/03	Koh Yaik Meng	The value of architectural design competitions in Singapore
2002/03	Lee Sze Yong	Foreign workers and main-year entitlement
2002/03	Lee Tse Choon, Paul	Effect of HDB upgrading on its occupants
2002/03	Leong Chan Tong	Performance-based codes for fire safety in Singapore
2002/03	Tan Shin Hui, Denise	Urban heat island - a comparison of ambient temperatures

THESES EXAMINED

Examined the following graduate research theses:

TABLE 7. Master of Science (Building Science) theses examined

Year	Candidate	Master Thesis Title
1998	Lim Kok Hee	Lighting conditions and lighting power budget of offices in Singapore
2001	Liaw Wee Lin	Daylight distribution in Housing and Development Board residential blocks

TABLE 8. Master of Arts (Architecture) theses examined

Year	Candidate	Master Thesis Title
2007	Soon Lay Kuan	Daylighting of Atria in Singapore

TABLE 9. PhD theses examined

Year	Candidate	PhD Thesis Title
2014 (TU Wien)	Sokol Dervishi	Habilitation Commission- Architectural Lighting: Boundary Conditions and Computational Applications.

2006 (UC Cork)	Monjur Mourshed	Interoperability-based Optimization of Architectural Design
2001 (TU Delft)	Bay Joo Hwa, Philip	Cognitive biases in design: the case of tropical architecture
1999 (NUS)	Ling Yean Yng, Florence	Multi-attribute decision making model for evaluation and selection of consultants for Design-and-Build projects in Singapore
1999 (NUS)	Tan Chin Chong	Solar induced ventilation
1999 (NUS)	Zhong Qi	Building process modelling using product modelling methodology and its application to scheduling

COURSES TAUGHT

CARNEGIE MELLON UNIVERSITY

Fall 2015	48722 Building Performance Modeling 48116 Building Physics
Fall 2014	48722 Building Performance Modeling 48116 Building Physics
Spring 2015	48721 Building Controls and Diagnostics 48744 Computational Fluid Dynamics in Building Design
Fall 2013	48722 Building Performance Modeling 48116 Building Physics
Spring 2014	48721 Building Controls and Diagnostics
Fall 2012	48722 Building Performance Modeling 48116 Building Physics
Spring 2013	48721 Building Controls and Diagnostics
Fall 2011	48722 Building Performance Modeling 48116 Building Physics
Spring 2012	48721 Building Controls and Diagnostics
Fall 2010	48722 Building Performance Modeling 48410 Environment II-Lighting 48413 Building Acoustics
Spring 2011	48410 Environment II-Lighting 48116 Building Physics 48599 Undergraduate Independent Study
Fall 2009	48722 Building Performance Modeling 48410 Environment II-Lighting 48413 Building Acoustics
Spring 2010	48405 Architecture Design Studio: Systems Integration
Fall 2008	48722 Building Performance Modeling
Spring 2009	48413 Building Acoustics 48721 Building Controls and Diagnostics 48405 Architecture Design Studio: Systems Integration
Fall 2007	48722 Building Performance Modeling

Spring 2008	48410 Acoustics and Lighting 48721 Building Controls and Diagnostics 48405 Architecture Design Studio: Systems Integration
Fall 2006	48722 Building Performance Modeling 48410 Acoustics and Lighting
Spring 2007	48721 Building Controls and Diagnostics
Summer 2007	48505 Summer Study Abroad – Design Studio in Hong Kong, China
Fall 2005	48722 Building Performance Modeling 48410 Acoustics and Lighting
Spring 2006	48721 Building Controls and Diagnostics
Summer 2006	48505 Summer Study Abroad – Design Studio in Hong Kong, China
Fall 2004	48722 Building Performance Modeling 48410 Acoustics and Lighting
Spring 2005	48721 Building Controls and Diagnostics 48405 Architectural Design Studio (Gates Center, Carnegie Mellon University)
Fall 2003	48722 Building Performance Modeling
Spring 2004	48721 Building Controls and Diagnostics 48405 Architectural Design Studio – Labs 21 Design Competition (Georgetown University, Washington DC.)

NATIONAL UNIVERSITY OF SINGAPORE

2002/2003	BS5203 Computational Design Support Tools BS5216 Lighting Design and Technology BU4102 Integrated Construction Technology AR3102 Architectural Design (studio consultation) AR6102 Architectural Design Thesis (studio consultation)
2001/2002	AR6141 M. Arch. Dissertation BS5203A Computational Design Support Tools
2000/2001	AR6141 M. Arch. Dissertation BS5216 Lighting Design and Technology BS5203A Computational Design Support Tools
1999/2000	AR5318 Intelligent Buildings AR4203 Research Methodology AR5513 Computational Design Support Tools
1998/99	AR4203 Research Methodology MBS206 Lighting and Technology
1997/98	AR501 Architecture and Urban Design 2 AR503 Dissertation AR4203 Research Methodology
1996/97	AR501 Architecture and Urban Design 2 AR503 Dissertation MBS206 Lighting and Technology
1995/96	AR401 Architecture and Urban Design 1 AR501 Architecture and Urban Design 2

	AR402 Building Technology AR503 Dissertation AR305 Building Construction
1994/95	AR401 Architecture and Urban Design 1 AR501 Architecture and Urban Design 2 AR402 Building Technology
1988/89	AR105 Building Structures 1 AR305 Building Structures 3 AR304 Building Construction 3 AR201 Architecture Design 2
1987/88	AR105 Building Structures 1 AR305 Building Structures 3 AR304 Building Construction 3 AR301 Architecture Design 3
1986/87	AR105 Building Structures 1 AR304 Building Construction 3 AR301 Architecture Design 3
1985/86	AR105 Building Structures 1 AR304 Building Construction 3 AR201 Architecture Design 2
1984/85	AR105 Building Structures 1

CONSULTANCY SERVICES

NBBJ, New York, NY 10006

Jiahui International Hospital, Shanghai, China (Oct 2013 – Oct 2014).

Syska Hennessy Group, New York 10036

Jiahui International Hospital, Shanghai, China (Apr – Oct 2014).

Tiong Seng Properties Pte. Ltd., Singapore

Tianjin Eco-City Residential Development (Sep 2009 - Jul 2010)

NBBJ, Columbus, OH 43204

Koo Foundation Dr. Sun Yat-Sun Cancer Center, Taipei, Taiwan (Jan - Dec 2009)

Phipps Conservatory, Pittsburgh, PA 15213

Review of building performance modeling of the Center for Sustainable Landscape (CSL) project. (September 2007)

Imbue Technology Solutions Inc., Pittsburgh, PA 15108

Building Energy Modeling of McDonald's Restaurant, Kennywood, Pittsburgh, PA. (July - August 2005).

Corning Inc., Corning, NY.

Design charrette team - W C Decker Engineering Building, Corning, NY. (July 2005)

National Library Board, Singapore

Won the international design competition with T R Hamzah & Yeang/Swan and Maclaren Architects team to design and building the new National Library Board (NLB) Building. (May 1999 - January 2000).

Appointed Consultant by the National Library Board on Total Building Performance evaluation of the design of the NLB Building as well as Coordinator of the technical evaluation team comprising 5 other consultant firms appointed by NLB in the tender evaluation process. (February 2000 -July 2003).

Singapore Cricket Club

Assessment of Proposed Remedial Works to the Premises of the Singapore Cricket Club. February 2001

Pidemco Land Ltd., Singapore

A Total Building Performance Study of the CAPITAL TOWER (POSBank Tower).
November 1998 - May 1999

Allegro Investments Pte Ltd, Singapore

Investigation of Moisture and Mildew Problems at a Private Condominium Development.
18 September - 18 October 1998

C&S Construction Pte Ltd, Singapore

Consultant on External Floor Finishes for Pierce Villa Project. 24 June - 21 July 1997

May Oh and Wee Advocates and Solicitors, Singapore

Consultant and Expert Witness on DC Suit - Water Leakage Through Skylights at a Private Residential Property. 14 January - 7 February 1997

Cathay Organisation Pte Ltd., Singapore

Collaborator on the "Cathay Building Redevelopment" Project. 24 May - 24 October 1996

Jurong Town Corporation, Singapore

Consultant on the "Design Evaluation of the 'Model A' Prototype Multi-level Factory Complex". 9 September 1996 - 15 January 1997

Urban Redevelopment Authority, Singapore

Consultant on the proposed URA Headquarters Building Project: (a) Specification of the concept of Total Building Performance in the Design & Build tender documentation. 15 August - 30 September 1995. (b) Tender evaluation, with specific reference to the implementation of Total Building. 18 January - 30 April 1996

RSP Architects Planners and Engineers, Singapore

Preparation of Technical Manual on Good Architectural Detailing Practice. 1 March - 30 April 1989.
Analysis of the Performance of Existing Architectural Details in the Office and preparation of a Technical Manual of Good Detailing Practice. 15 June - 30 June October 1988
