

SUMMARY

Taro Narahara is an Associate Professor with tenure at New Jersey Institute of Technology. He has published extensively in the fields of architecture and computational design, with works featured in IEEE TMM and SIGGRAPH. In recognition of his innovative floor plan analysis using machine learning, he was awarded the IDR Excellence Award by the National Institute of Informatics (NII) Japan in 2021 and the Human Communication Award from IEICE Japan in 2020. Narahara has led NSF-funded projects as a Principal Investigator, focusing on computational design research for multifamily residential architecture in 2022, and collaborated as a Co-Principal Investigator with biomedical engineers on rehabilitation robotics and therapeutic gaming in 2016. As a licensed architect, he had been associated with prestigious firms such as Skidmore, Owings & Merrill, and Gluckman Mayner Architects, contributing to award-winning projects including the Mori Art Museum.

EDUCATION

2007 - 2010

Harvard University Graduate School of Design (GSD), Cambridge, MA**Doctor of Design**Dissertation: *Self-organizing Computation: A Framework for Generative Approaches in Architectural Design*Focus: Architectural Computing, Generative Design, and Robotic Fabrication [[PDF](#), [Website](#)]

Advisers: Martin Bechthold (GSD), Kostas Terzidis (Tongji University), and Takehiko Nagakura (MIT)

Awards: Peter Rice Prize and Digital Design Prize

2005 - 2007

Massachusetts Institute of Technology (MIT), Cambridge, MA**Master of Science in Architecture Studies (Design and Computation)**Thesis: *The Space Re-Actor: Walking a Synthetic Man through Architectural Space*. [[PDF](#), [Website](#)]

Adviser: Takehiko Nagakura (MIT)

1994 - 1997

Washington University, Graduate School of Design, St. Louis, MO**Master of Architecture**

Adviser: Adrian Luchini

1990 - 1994

Waseda University, School of Science and Engineering, Tokyo, Japan**Bachelor of Science in Mathematics**

Focus: Differentiable Manifolds and Twister Space.

ACADEMIC POSITIONS

2010 - present

New Jersey Institute of Technology (NJIT)

2016 - present

Associate Professor (Tenured), Hillier College of Architecture and Design, NJIT

2010 - 2016

Assistant Professor (Tenure track), Hillier College of Architecture and Design, NJIT

Tenured appointment teaching graduate and undergraduate architecture and digital design courses, including [USYS792: Urban Systems Ph.D. Research](#), [ARCH689: AI / VR in Architecture](#), [ARCH 595/496: Adv. Studio I](#), [ARCH 563/464: Options Studio](#), [DD464: Digital Design Thesis Studio](#), [DD375: Physical Computing Studio](#), [AD490 \(Electives\): Smart Products/ Robotics for Architects and Designers/ Computational Design, etc.](#)

2018 - 2019

Graduate School of Information Science and Technology, The University of Tokyo

Visiting Scholar (Computer Science)

(Prof. Toshihiko Yamasaki's Laboratory while on sabbatical leave from NJIT).

2018 - 2019

Institute of Technology in Architecture (ITA), ETH Zurich

Academic Guest (Architecture)

(Invited by Dr. Vahid Moosavi and Dr. Arash Adel while on sabbatical leave from NJIT).

2009 - 2010

Harvard Digital Media Workshop (*Three-week intensive courses for 40+ graduate students*)

Instructor

- [Processing Workshop](#) (*Web-based interactive graphic programming*)
- [Rhino Script Workshop](#) (*Programming within the 3-D CAD application*)

2010 Spring

Harvard University Graduate School of Design (GSD)

2009 Fall

Teaching Fellow ▪ [GSD6.415: Construction Automation](#)*(Lectured on swarm intelligence, Robotic Fabrication using 6-axis ABB robot arms, and coding.)*

2007 Fall -

Harvard University Graduate School of Design

2008 Fall

Research Fellow

(Assisted in the research on Architectural Robotics led by Prof. Martin Bechthold. Worked on the installation of a vision system for an ABB robot arm.)

Academic Positions continued:

- 2007 Fall - **Harvard University Graduate School of Design**
2009 Spring Teaching Assistant (*Taught architectural computing using Processing (Java) and MEL.*)
 - [GSD2.107: Digital Design: Algorithm and Scripts](#) / [GSD2.309: Algorithmic Architecture](#)
- 2007 Spring **Massachusetts Institute of Technology (MIT)**
2006 Fall Teaching Assistant (*Organized tutorials and recitations. Taught a 3-D printing process.*)
 - [MIT4.156: Advanced Design Studio Level III](#) / [MIT4.560: Geometric Modeling](#)
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HONORS AND AWARDS

- 2021 **Informatics Research Data Repository (IDR) Excellence Award**, [Link](#)
National Institute of Informatics ([NII](#)) in Japan, 2021 (with Kitabayashi, R., Kasanishi, T., & Yamasaki, T.)
- 2020 **Human Communication (HC) Award**, IEICE
(The Institute of Electronics, Information and Communication Engineers) in Japan.
Annual best paper award for my presentation and co-authored paper (Narahara, T (first author), Wang, X. & Yamasaki, T, "What is the Key to Attract People in Apartments?: Construction and Analysis of Attractiveness Dataset for Real Estate Floor Plans". Selected as the best among papers in MVE areas presented in all venues organized by IEICE in Japan for the year [Link](#).
- 2019 **Media Experience and Virtual Environment (MVE) Award**, IEICE.
For my presentation and paper (co-authored with Wang, X. & Yamasaki, T.) at MVE2019 Nagoya.
- 2016 **Excellence in Research Award**, NJIT.
This award recognizes NJIT faculty from each college who have achieved a sustained record of contributions that have enhanced the reputation of the university. Five NJIT faculty received it in 2016.
- 2010, 11, 14, 18 **Academy Encouragement Award**, the 4th, 5th, 7th, and 11th International VR Symposium, Tokyo.
- 2014 **Faculty Seed Grant Initiative Award**, NJIT.
Awarded for my proposal, "Exploration of Unity 3D as a Physics and Animation Engine for Therapeutic Gaming and Rehabilitation Robotics", PI: Narahara, T., and Co-PI: Foulds, R. (\$10,000) (also in grants).
- 2010 **Digital Design Prize**, Harvard University, GSD.
Awarded for my research titled "Self-organizing Computation." The prize is awarded annually by the Graduate School of Design for the most creative use of computer graphics in relation to the design profession.
- 2009 **Peter Rice Prize**, Harvard University, GSD.
Awarded for my research titled "Generative Design Strategies: Software Development." This prize was established in recognition of the ideals and principles represented by the late eminent engineer Peter Rice.
REAL Research Grant Award, Harvard University.
The Real Estate Academic Initiative (REAL) at Harvard University offers grants to support real estate and urban development research by Harvard faculty and students. The grant was awarded for my research proposal on the simulation of Spontaneous Settlements.
Penny White Prize, Harvard University, GSD.
Awarded for my research titled "Simulating Informal Settlements: Understanding Correlation between Landform, Environment, and Human Habitations in Yemen" from the Graduate School of Design.
- 2007 - 2009 **Doctor of Design Grant**, Harvard University, GSD.
This grant covered a portion of the tuition and Teaching Fellow work award.
- 2006 - 2007 **Merit-Based Full Tuition Fellowship**, MIT, School of Architecture.
Full Tuition Fellowship was awarded based on a portfolio competition among students at MIT.
- 2005 - 2006 **Stipend Scholarship Award**, MIT, School of Architecture.
- 2007 **Smart Geometry Workshop / Conference Full Scholarship** from Bentley Systems Inc.
- 1998 **AIA Design Excellence Award** (Unbuilt category; Design Team).
Member of the award-winning Beersheba Chapel Project team led by the design principal, Adrian Luchini at the Design Center, Sverdrup Facilities, Inc. Contributed as a project designer.

Awards won by students under my supervision:

- 2022 **The ARCC King Student Medal for Excellence in Architectural + Environmental Design Research**
[Zhongming Peter Zhang](#) (an undergraduate student based on independent study courses with me)

Professional Work: (selected images of built projects that I worked on while associated with GMA):



PROFESSIONAL WORK

- 2000 - 2005** **Gluckman Mayner Architects (GMA).** New York, NY. (Full-time employment as an architect)
- 2000 – 2003 Mori Art Museum. Tokyo, Japan (Currently known as Gluckman Tang Architects)
Project Architect from the schematic design through to the opening of the museum for the design of a cable-net-shell structure entrance pavilion, 30,000 ft² exhibition spaces, and coordination between Japanese local architects and general construction companies (Mori Building Co. Irie-Miyake Architects, JV: Kajima, Obayashi)
(American Architecture Award, 2004;
(The Chicago Athenaeum, Museum of Architecture and Design, 2004) [[Photos 1 & 2](#)]
- 2004 MoMA Store. New York
Project Architect for the interior design of a total 5,700 ft² store area and display fixtures from the schematic design to the construction document phase.
- 2003 Hotel Puerta de America. Madrid, Spain
Project Architect for the interior design of hotel rooms, suites, and common spaces in a 14-story building in Madrid from schematic design to construction document phase. [[Photos](#)]
- 2004 Museo Picasso Malaga, Madrid, Spain
Project Team. Schematic design, design development, and monograph publication with 2X4 Inc.
(Institute Honor Award for Architecture, American Institute of Architects, 2006)
- 2004 Philadelphia Museum of Art Annex. PA
Project Team. Construction document phase.
(Grand Jury Presentation Achievement Award, Preservation Alliance for Greater Philadelphia, 2007)
- 2005 Robin Hood Library for P.S. 192. New York
Project Team. Construction document phase.
(Award of Excellence in Library Architecture, AIA/American Library Association (ALA), 2007)
- 2002 Vassar College – Kenyon Hall Renovation. Poughkeepsie, NY
Project Team. Construction document phase.
- 2002 Close Residence. Bridgehampton
Renovation and studio addition for the house of an artist, Chuck Close.
- 1997 – 2000** **Skidmore, Owings & Merrill LLP (SOM).** New York, NY. (Full-time employment)
- 1997 – 2000 Kuwait Police Academy, Kuwait (Principal: Roger Duffy)
Design Team. Design of a total 4.5 million ft² campus. Master planning, schematic design, and design development phases.
- 2000 Woolworth Tower Renovation, NY (Principal: Roger Duffy)
Design Team. Landmark submission, schematic design, and design development phases for the renovation and addition of penthouses.
- 1999 Manguf Hilton Resort Hotel, Kuwait (Principal: Roger Duffy)
Design Team. Design development phase.
- 1998 Time Warner Center (Columbus Center,) NY (Principal: David M. Childs)
Design Team. Submission for the final phase of the competition entry. **(Winner: The First Place)**
- 1998 Swiss Bank, Connecticut (Principal: Mustafa Abadan)
Design Team. Design development phase.
- 1999 2 Broadway, NY (Principal: Roger Duffy)
Design Team. Interior renovation of the lobby and the design of the security desks.

Professional Work continued:

- 1998** **Rafael Viñoly Architects PC, New York, NY.** (Summer Free-lance Work)
Philadelphia Concert Hall, PA., schematic design phase, Design Team.
The Jazz at Lincoln Center Theater, NY., schematic design phase, Design Team.
- 1997** **Adrian Luchini, Design Center, Sverdrup Facilities, Inc. St. Louis, MO.**
Beersheba Chapel, TN. Design Team. (**AIA Design Excellence Award: Unbuilt Project Category, 1998**)
Gateway Transportation Center, St. Louis, MO., schematic design phase, Design Team.
Costantini Museum Competition, Buenos Aires, Argentina, schematic design phase, Design Team.

PROFESSIONAL LICENSES

- 2004 – **Licensed and Registered Architect (RA)** in the State of New York.
NCARB Certification (National Council of Architectural Registration Boards) qualified.
(I completed the Intern Development Program (IDP) in 2003.)
- 2018 – **First-Class Architect in JAPAN** (*1st-class Kenchikushi: National License in Japan*)
(Passed the national qualification exam by the Ministry of Land, Infrastructure, Transport and Tourism).
- 1994 – **Teacher's License**, Tokyo Metropolitan Board of Education, Japan.
Eligible for teaching mathematics at a high school in Japan.

PATENTS

- 2020 Narahara, T., and Yamasaki, T., "**Information processing equipment, information processing methods, and programs (prediction of real estate living comfort).**" Japan Patent Application No. 2020-155588, filed on July 6, 2020 (Pending)
- 2022 Narahara, T. and Zhang, Z. P., "Method to generate schematic designs of multifamily apartment buildings with environmental performance estimations based on user-defined graphic sketches." Provisional patent filed on June 2022 (U.S. Serial No. 63/359,015 filed through NJIT IP Committee)

PROPOSALS AND GRANTS

Awarded:

- 2022 Jun. PI, "An Intuitive Design Platform for Sustainable Multifamily Residential Buildings," PI: Narahara, T., Entrepreneurial Lead (EL): Zhang, P. Z., Industry Mentor (IM): Portelli, P., National Science Foundation (NSF) Innovation Corps - National Innovation Network Teams Program (I-Corps™ Teams). (\$50,000), 2022 – 2023.
- 2021 May. PI, "Creation and Analysis of a Large-scale Dataset of Real Estate Floor Plans in US Metropolitan Areas," NJIT Faculty Research Seed Grant (\$5,000), 2021.
- Mar. PI, "Creation of a Large-scale Dataset of Real Estate Floor Plans in US Metropolitan Areas," the HCAD (Hillier College of Architecture and Design) Faculty Research Seed Grant, NJIT (\$5,000), 2021.
- Feb. Academic Lead, "A Generative Design Platform with Intuitive Multiuser Interfaces for Architects," PI: Michael Ehrlich, Entrepreneurial Lead: Zhong Ming Zhang, NSF I-Corps Site Mini-Grant, (\$3,000), 2021.
- 2020 Feb. Academic Lead, "Feel and Experience Architecture: A Neuroscience Approach to Design," PI: Michael Ehrlich, Entrepreneurial Lead: Craig Gallo, NSF I-Corps Site Mini-Grant, (\$2,000), 2020.
- 2019 Sep. Academic Lead, "Data-driven Approach in Residential Floor Plan Generation," PI: Michael Ehrlich, Co-PI: Judith Sheft, Entrepreneurial Lead: Anthony Parker, NSF I-Corps Site Mini-Grant, (\$2,000), 2019 – 2020.
- 2016 Sep. Co-PI, "MRI-Development of an Open Architecture and Scalable Exoskeleton for Research on the Restoration of Ambulation of Persons with Disabilities" PI: Foulds, R., Co-PIs: Adamovich, S., Narahara, T., Lu, L., and Wang, C., NSF: Major Research Instrumentation Program (MRI), (\$225,500), 2016 – 2018.
- Sep. Academic Lead, "Interactive Content Generations using UAV Photogrammetry and Gaming Technologies," PI: Michael Ehrlich, Co-PI: Judith Sheft, Entrepreneurial Lead: William Busarello, NSF I-Corps Site Mini-Grant, (\$1,500), 2016 – 2017.
- Jan. Co-PI, "School of Art + Design Software Grant," Sponsored by Unity Technologies, Goldman, G. (PI), Narahara, T. (Co-PI), Wendell, A. E., (Co-PI), Kehoe, M (Supporting), Private, (\$3,500), 2016.
- 2015 Sep. Academic Lead, "Turning Physical into Digital: Photogrammetry-based 3-D Model Generation and Re-Materialization", PI: Michael Ehrlich, Co-PI: Judith Sheft, Entrepreneurial Lead: Amos Dudley, NSF I-Corps Site Mini-Grant, (\$2,500), 2015 – 2016.

Proposal and Grants continued:

- 2015 Jun. Investigator (Faculty Team), “NJIT and the Kessler Foundation Rehabilitation Engineering Research Center (RERC) on Wearable Robots” PI: Foulds, R., National Institute on Disability, Independent Living and Rehabilitation Research, Department of Health and Human Services, (\$5M over 5 years), 2015 – 2020.
- Mar. Co-Investigator, “Innovation and Translation Studio for Biomechatronic Devices in Neurorehabilitation,” PI: Richard A. Foulds (BME), Venturewell, (\$19,500), 2015 – 2017.
- 2014 Nov. PI, “Exploration of Unity 3D as a Physics and Animation Engine for Therapeutic Gaming and Rehabilitation Robotics”, PI: Narahara, T., and Co-PI: Foulds, R., NJIT Faculty Seed Grant Initiative (\$10,000), 2014-2015. (Also listed in Honors and Awards)
- Jul. Investigator (Technical Faculty VIS Team member), “NJ MarketShift: A New Jersey Proposal for Community Economic Adjustment Assistance for Advanced Planning and Economic Diversification (CFDA 12.614)”. PI: Timothy V. Franklin, Co-PIs: William J. Marshall III and Donald H. Sebastian (Principal Authorizing Officer), Department of Defense (DoD) Office of Economic Adjustment, (\$5.6M for 18 months), 2014-2016.

Submitted (Pending):

- 2022 Oct. PI, “In Search of Livable and Sustainable Dimensions through Creation and Analysis of Large-scale Global Datasets of Floor Plans,” Architectural Research Centers Consortium Research Incentive Award (\$10,000).
- 2022 Oct. Co-PI, “Co-designing Social Experiments with Digital Immersive Modeling for Space-sufficient Housing” Consortium Lead PI: Cohen, M., Co-PIs: Narahara, T., et al., Belmont Forum: Collaborative Research Actions (CRAs), Systems of Sustainable Consumption and Production (SSCR), (246.0 Mo.1564.0 K€), 2022.
- 2022 Mar. Co-PI, “Planning the Next Generation of Human-Computer Architectural Design” PI: Weiss, T. (50%), Co-PI: Narahara, T. (50%), NSF: Future of Work at the Human-Technology Frontier (FW-HTF), (\$150,000), 2022.

Submitted (Not awarded):

- 2020 Mar. Co-PI, “Design for All: Towards Personalized Democratized Responsive Designs; Their Analysis, Simulation, Synthesis, and Manufacturing” PI: Musialski, P., Co-PIs: Narahara, T., Weiss, T., NSF: Future Manufacturing (FM), (\$604,333), 2020.
- 2015 Jan. Co-PI, “Development of an Open Architecture and Scalable Exoskeleton for Research on the Restoration of Ambulation of Persons with Disabilities” PI: Foulds, R., Co-PIs: Adamovich, S., Narahara, T., NSF: Major Research Instrumentation Program (MRI), 2015.
- 2013 Feb. Co-PI, “Unmasking the hidden webs of life: persuasive technology for environmental awareness” PI: Gareth J. Russell, Co-PIs: Daniel Bunker, Andrzej Zarzycki, Blair MacIntyre, and Taro Narahara. National Science Foundation (NSF), (\$249,224), 2013.
- Feb. Collaborator, “Development: CREATE Cube: instrumentation to support collaborative, immersive 3D visualization in a large-scale physical space”, PI: Doug A. Bowman, Co-PIs: Ico Bukvic, Yong Cao, Benjamin Knapp, Nicholas Polys, Thomas Tucker, and Dane Webster, Collaborator: Taro Narahara. NSF: Major Research Instrumentation Program (MRI), 2013.
- 2012 Nov. Investigator, “Development of an open-source code repository for new education in design science,” PI: Shun Watanabe, Co-PIs: Kazuhisa Iki, Naoki Kato, Makoto Osaki, Haruyuki Fujii, Ichiro Nagasaka, Shinichiro Iwata, Norihiro Kawasumi. Investigator: Taro Narahara, The Japan Society for the Promotion of Science (JSPS) Grants-in-Aid for Scientific Research, Scientific Research (B), (\$240,900 (19,908,000 yen)).

PUBLICATIONS

Book Chapters:

- [1] Narahara, T. (2015). Architecture Meets Gaming and Robotics: Creating Interactive Prototypes and Digital Simulations for Architects. In: Celani, G., Sperling, D., Franco, J. (eds) *Computer-Aided Architectural Design Futures. The Next City - New Technologies and the Future of the Built Environment. CAAD Futures 2015. Selected Papers* (pp. 474-492), Communications in Computer and Information Science, vol 527. Springer, Berlin, Heidelberg. (Peer-reviewed in 3 stages) https://doi.org/10.1007/978-3-662-47386-3_26 [PDF]
- [2] Narahara, T. (2014). The computer as a tool for creative adaptation: Biologically inspired simulation for architecture and urban design. In Zander, J., & Mosterman, P. (Eds.), *Computation for Humanity: Information Technology to Advance Society* (1st ed., pp. 69-94). CRC Press, Taylor & Francis Group, LLC. (Peer-reviewed in 2 stages) <https://doi.org/10.1201/9781315216751> [PDF, Website].
- [3] Narahara, T. (2010). Crowd simulation and interactive device. In Ota, N. (Ed.), *Programming for Civil Engineers for VR and Structural Analysis* (1st ed., pp. 222-233). Nikkei Business Publications, Inc. (Invited). [Link1, Link2]
- [4] Narahara, T. (2010). The space ReActor: Walking a synthetic man through architectural space. In S. Chen, S. Li, & J. Lobel (Eds.), *Computational Constructs: Architectural Design, Logic, and Theory* (pp. 71-83). The China Architecture and Building Press. (Peer-reviewed) [PDF]

PEER-REVIEWED PAPERS / ARTICLES:

- [1] Narahara, T., Moulaii, M., & Mostafavi, M. (2024). Reimaging Muqarnas: Exploring Generative Design for Innovative Patterns in Iranian-Islamic Architecture. *International Conference for The Association for Computer-Aided Architectural Design Research in Asia (CAADRIA)*. [Accepted] [\[PDF\]](#).
- [2] Jia, M., & Narahara, T. (2024). Characterizing Residential Building Patterns in High-Density Cities Using Graph Convolutional Neural Networks. *International Conference for The Association for Computer-Aided Architectural Design Research in Asia (CAADRIA)*. [Accepted] [\[PDF\]](#).
- [3] Riether, G., & Narahara, T. (2023). AI Tools to Synthesize Characteristics of Public Spaces. *Proceedings of the 41st Association for Education and Research in Computer-Aided Architectural Design in Europe (eCAADe) Conference*. [\[PDF\]](#).
- [4] Jia, M., & Narahara, T. (2023). Spatial Analytics of Housing Prices with User-Generated POI Data: A Case Study in Shenzhen. *International Conference for The Association for Computer-Aided Architectural Design Research in Asia (CAADRIA)*. [\[PDF\]](#).
- [5] Narahara, T., & Yamasaki, T. (2022, October). Subjective Functionality and Comfort Prediction for Apartment Floor Plans and Its Application to Intuitive Online Property Searches. *IEEE Transactions on Multimedia (TMM)*. <https://doi.org/10.1145/3532724.3535602> [[IEEE Xplore](#), [PDF](#), [Video](#)] (arXiv:2202.12799 Feb. 2022).
- [6] Kitabayashi, R., Narahara, T., & Yamasaki, T. (2022). Graph Neural Network Based Living Comfort Prediction Using Real Estate Floor Plan Images. In *Proceedings of the 4th ACM International Conference on Multimedia in Asia (ACM MM Asia)*. <https://doi.org/10.1145/3551626.3564970> [\[PDF\]](#).
- [7] Narahara, T. (2022, August). Presenting Architectural Research in VR. *ACM SIGGRAPH 2022 Educator's Forum*. <https://doi.org/10.1145/3532724.3535602> [\[PDF\]](#). (Video available here).
- [8] Zhang, Z. P., & Narahara, T. (2022). Sketch to Build: An Intuitive Design Platform for Sustainable Housing Complexes. *Annual Modeling and Simulation Conference (ANNSIM)*, 537-548. [[IEEE](#), [PDF](#), [Video](#)].
- [9] Narahara, T. (2022, April 11). Kurashiki Viewer: Qualitative Evaluations of Architectural Spaces Inside Virtual Reality. *International Conference for The Association for Computer-Aided Architectural Design Research in Asia (CAADRIA)*, 1(1), 32. [\[PDF\]](#), [Demo](#).
- [10] Narahara, T., Wang, X., & Yamasaki, T. (2021). Graph-Based Analysis of a Large-scale Attractiveness Dataset for Real Estate Floor Plans. *Proceedings of the Annual Conference of the Japanese Society of Artificial Intelligence (JSAI)*, Volume JSAI2021, 35th. https://doi.org/10.11517/pjsai.JSAI2021.0_4F3GS10n04 [\[PDF\]](#).
- [11] Schnabel, M. A., et al. (2021). Virtual World16 - Virtual Design Collaboration for the Intersection of Academia and Industry. *Proceedings of the 26th CAADRIA Conference - Volume 2*, The Chinese University of Hong Kong and Online, Hong Kong, 29 March - 1 April, 203-212.
- [12] Narahara, T., Wang, X., & Yamasaki, T. (2020, August 2-5). Attractiveness Prediction for Real Estate Floor Plans using Graph Analysis. *The 23rd Meeting on Image Recognition and Understanding (MIRU)*, virtual online/Japan. (In Japanese, Paper, and Poster) [\[PDF\]](#).
- [13] Narahara, T., Wang, X., & Yamasaki, T. (2020, June 9-12). Construction and Analysis of a Large-scale Attractiveness Dataset for Real Estate Floor Plans based on users' attributes. *JSAI 2020: The 34th Annual Conference of the Japanese Society for Artificial Intelligence*, virtual online/Japan. https://doi.org/10.11517/pjsai.JSAI2020.0_2P6GS1305 [\[PDF\]](#).
- [14] Narahara, T., Wang, X., & Yamasaki, T. (2020). A Comparative Study of Data-driven Approaches for the Generation of Floor Plans in Japanese Apartments. *The 10th International Workshop on Image Media Quality and its Applications*. [\[PDF\]](#).
- [15] Narahara, T. (2019, October 15-18). A Preliminary Study on Attractiveness Analysis of Real Estate Floor Plans. *2019 IEEE 8th Global Conference on Consumer Electronics (GCCE)*, Osaka, 454-455. [[IEEE Xplore](#), [PDF](#)].
- [16] Narahara, T. (2019, September 9-13). Megastructure: Past, Present, and Future. *Architecture in the Age of the 4th Industrial Revolution, The eCAADe + SIGraDi Conference*, Porto, Portugal, 637-644. [\[PDF\]](#), [Video](#).
- [17] Narahara, T., Wang, X., & Yamasaki, T. (2019, August 29-30). What is the key to attract people in apartments?: Construction and analysis of attractiveness dataset for real estate floor plans. *Technical Committee on Media Experience and Virtual Environment (MVE), The Institute of Electronics, Information and Communication Engineers (IEICE)*, Nagoya, Japan. (**MVE Award for the best paper at the 2019 conference**) (**2020 HC Award for the annual best paper in the MVE area**). (In Japanese). [\[Website\]](#).
- [18] Narahara, T., & Yamasaki, T. (2019, July 29 - August 1). Creation and analysis of a dataset for attractiveness of real estate floorplans based on subjective evaluations. *The 22nd Meeting on Image Recognition and Understanding (MIRU)*, Osaka, Japan. (In Japanese, Paper, and Poster). [\[PDF\]](#).

- [19] Narahara, T. (2019, September 3-6). Home as a sacred place in an offline environment. *VR and MR Technologies in Architecture and Urban Design, The Annual Convention for the Architectural Institute of Japan (AIJ)*, Kanazawa, Japan, 26-29. (In Japanese).
- [20] Narahara, T., & Yamsaki, T. (2019, March 14-15). Reenactments of game-play styles in VR through personal bots: Speculative visions for applications of attractiveness computing. *Technical Committee on Media Experience and Virtual Environment (MVE), The Institute of Electronics, Information and Communication Engineers (IEICE)*, Kagoshima, Japan.
- [21] Narahara, T., & Kobayashi, Y. (2018, December 4-7). Personalizing homemade bots with plug & play AI for STEAM education. *SIGGRAPH Asia 2018 Technical Brief*, Tokyo, Japan. <https://doi.org/10.1145/3283254.3283270> [PDF, Video].
- [22] Narahara, T. (2018, August 12-16). Creating the Unreal: Speculative visions for future living structures. *SIGGRAPH 2018 Talks (The 45th International Conference and Exhibition on Computer Graphics and Interactive Techniques)*, Vancouver, Canada. <https://doi.org/10.1145/3214745.3214799> [PDF, Video].
- [23] Narahara, T. (2017, September 20-22). Collective construction modeling and machine learning: Potential for architectural design. *Proceedings of the 35th Association for Education and Research in Computer Architectural Design in Europe (eCAADe) Conference*, Sapienza University of Rome, Rome, Italy, 341-348. [PDF].
- [24] Narahara, T. (2015). Design exploration through interactive prototypes using sensors and microcontrollers. *Computers & Graphics: An International Journal of Systems & Applications in Computer Graphics*, 50, 25-35. <https://doi.org/10.1016/j.cag.2015.04.008> [PDF, Video].
- [25] Narahara, T., Abbruzzese, K., & Foulds, R. (2015). Haptic collaboration: Biomedical engineering meets digital design. *SIGGRAPH 2015 Talks*, Los Angeles, CA. <https://doi.org/10.1145/2785585.2792520> [PDF].
- [26] Narahara, T., & Kobayashi, Y. (2015). Crowd Mapper: Projection-based interactive pedestrian agents for collective design in architecture. *Proceedings of the 33rd Association for Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference*, The Vienna University of Technology, Vienna, Austria, 191-200. [PDF, Website].
- [27] Narahara, T. (2015). A tool kit for architects to create interactive prototypes and digital simulations. *Proceedings of the 16th International Computer Aided Architectural Design Futures (CAAD Futures) Conference*, Sao Paulo, Brazil, 464.
- [28] Narahara, T. (2014, April 7-11). Teaching interactivity: Introducing design students to sensors and microcontrollers. *The 35th Annual Conference of the European Association for Computer Graphics (EUROGRAPHICS 2014)*, Strasbourg, France, 25-32. (Best Education Paper/Presentation).
- [29] Narahara, T. (2014, August 10-14). Exploring board game design using digital technologies. *SIGGRAPH 2014 Talks*, Vancouver, Canada. <https://doi.org/10.1145/2619195.2656294>
- [30] Narahara, T. (2013). A generative approach to robotic fabrication. In R. Stouffs & S. Sariyildiz (Eds.), *Proceedings of the 31st eCAADe Conference*, Delft University of Technology, Delft, Holland, 1, 673-678. [PDF, Website].
- [31] Narahara, T. (2013). Physical prototypes for interactive building technology. In J. R. Dermody & A. Zarzycki (Eds.), *Proceedings of the 4th BTES Conference*, Bristol, Rhode Island. (The featured project also appeared in IJAC 2010).
- [32] Narahara, T. (2013). Co-evolutionary design with robotic devices. *Proceedings of The Association for Computer-Aided Architectural Design Research in Asia (CAADRIA)*, National University of Singapore, Singapore, May 15–18. (The featured project also appeared in eCAADe 2013).
- [33] Narahara, T. (2012, March 1-4). Self-organizing strategy: An adaptable growth model for architecture. *ACSA 100th Annual Meeting (The Association of Collegiate Schools of Architecture): "Digital Aptitudes,"* Host School: Massachusetts Institute of Technology, Boston, MA, USA.
- [34] Narahara, T. (2011, October 28-30). A conceptual framework for applications of self-organizing logics in urban design. *2011 PUARL International Conference: "Generative Process, Patterns, and the Urban Challenge,"* The Portland Urban Architecture Research Laboratory, University of Oregon, Portland, Oregon.
- [35] Narahara, T. (2011, November 13-14). Generative applications inspired by emergent behavior. *Proceedings of the International Symposium on Algorithmic Design for Architecture and Urban Design, ALGODE TOKYO 2011*, Tokyo, Japan.
- [36] Narahara, T. (2011, March 10-12). Beyond quantitative simulations: Local control strategy using architectural components. *Proceedings of the ACADIA 2011 Regional, Parametricism (SPC)*, University of Nebraska Lincoln, Lincoln, Nebraska, USA.
- [37] Narahara, T. (2010). Designing for constant change: An adaptable growth model for architecture. *International Journal of Architectural Computing (IJAC)*, 8(1), 30-40. [PDF, Website]
- [38] Narahara, T. (2010). Form, evolution, and agents: New approaches in spatial design. *The 33rd Symposium on Computer Technology of Information, Systems, and Applications* organized by Architectural Institute of Japan (AIJ) (In Japanese)
- [39] Kobayashi, Y., Terzidis, K., Narahara, T., et al. (2009, June 17-19). World8: International working group for new virtual reality applications in architecture. *Proceedings of the CAAD Future09 Conference, "Joining languages, cultures and visions,"* Montreal, Canada, 547-556.

- [40] Narahara, T. (2009, September 16-19). Bottom-up design inspired by evolutionary dynamics. *Proceedings of eCAADe 2009: (Education and Research in Computer Aided Architectural Design in Europe), Computation: The New Realm of Architectural Design*, Istanbul, Turkey, 391-398.
- [41] Narahara, T. (2008, October). New methodologies in architectural design inspired by self-organization. *Proceedings of the Association for Computer-Aided Design in Architecture (ACADIA), Silicon + Skin: Biological Processes and Computation*, Minneapolis, USA, 324-331.
- [42] Narahara, T. (2007, November 15-17). Enactment software: Spatial designs using agent-based models. *Proceedings of AGENT 2007: Conference on Complex Interaction and Social Emergence*, **Argonne National Laboratory** (sponsor) and Northwestern University (host), Norris Center, Evanston.
- [43] Griffith, K., & Narahara, T. (2007, October 7-9). Standardized algorithms and design descriptions for “one-off” designs. *Proceedings of MCPC 2007: World Conference on Mass Customization & Personalization*, Massachusetts Institute of Technology (MIT), Cambridge.
- [44] Narahara, T. (2007, September 26-29). The space re-actor: Walking a synthetic man through architectural space. *Proceedings of the 25th Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference*, Frankfurt, Germany, 195-202.
- [45] Narahara, T., & Terzidis, K. (2006, October 12-15). Multiple-constraint genetic algorithm in housing design. *Proceedings of the Association for Computer-Aided Design in Architecture (ACADIA) International Conference, Synthetic Landscapes, Digital Exchange*, Louisville, USA, 418-425. [\[PDF\]](#).
- [46] Narahara, T., & Terzidis, K. (2006, November 21-23). Optimal distribution of architecture programs with multiple-constraint genetic algorithm. *Proceedings of the International Conference, SIGRADI 2006, Post Digital*, Santiago, Chile, 293-303.

Articles About / Mention:

- 2013 **AD Magazine** (05/2013): “Design Robotics – New Strategies for Material System Research” in *“Inside Smartgeometry: Expanding the Architectural Possibilities of Computational Design”* in Brady Peters and Terri Peters (Editors), AD 05/2013, John Wiley & Sons. pp. 258 – 259. (May 2013).
(Design and research work was introduced in the article with figures)
- 2011 **GSD Platform 4: Narahara, T.** “Self-Organizing Computation: A Framework for Generative Approaches in Architectural Design,” in GSD Platform 4, Howeler, E. (Editor), New York, New York: Actor, 2011. pp. 76-78.
(Publication of Design and Research Work)
- 2010 **AD magazine** (04/2010): “The Return of the Future” by Martin Bechthold in “New Structuralism: Design, Engineering and Architectural Technologies” in Oxman, R. (Editor), AD 04/2010, John Wiley & Sons. pp.116 - 121. (April 2010). (Design and research work was introduced in the article with figures)
- 2009, 2010 **Tank Books: A View on Harvard GSD Vol 1 & Vol 2**, Tank Form Ltd. London, UK.
2009. pp.441-442. & 2010 pp.426-427. (Publication of Design and Research Work)
- 2008 **GSD 08 Platform**, Kubo, M. (Editor), New York, New York: Actor, 2008.
(Publication of Design and Research Work)
- 2005 **Publication of Museo Picasso Malaga project monograph**
Collaborated with the graphic design firm, 2X4 Inc. Worked on drawings, renderings, and layouts.

Other Periodicals Published:

- 2013 – 2014 **Articles for “Up and Coming” (vol. 99-107)**
Narahara, T., “Report on international education in architectural computing” in “Up and Coming” (Japanese architectural software magazine), Oota Natsuko (Ed.), Forum8 Publishing Co., Ltd., Tokyo.
(Articles: quarterly; Also available in an online format: <http://www.forum8.co.jp/topic/TAR00.htm>)
- 2010 **Kyoryo & Toshi Project (Bridge & Cities)**, pp. 52-54, vol. 46, No.4, 2010 (Article)
Title: “Development of a Linking System for VR and Interactive Devices”.
(A summary of my talk at the VR Symposium 2010 in Tokyo)
- 2009 **Kyoryo & Toshi Project (Bridge & Cities)**, pp. 52-54, vol. 45, No.2, 2009 (Article)
Title: “Use of Motion Capture Files on Agent-based Models for Realistic Simulation.”
(A summary of my talk at the VR Symposium 2009 in Tokyo)
- 2008 **Kyoryo & Toshi Project (Bridge & Cities)**, pp. 52-54, vol. 44, No.1, 2008 (Article)
Title: “Spatial Design using Agent-based Models.”
(A summary of my talk at the VR Symposium 2008 in Tokyo)

Translations

- 2014 (Translation of a Book) **Behaviour. Security. Culture (BeSeCu): Human behavior in emergencies and disasters: A cross-cultural investigation, Silke Schmidt and Edwin R. Galea, Forum8 Publishing Co., Ltd., Tokyo, Japan, November 2014.** (Worked on translations and revisions in several stages. Supervised the team of translators for the book from Pabst Science Publishers (ISBN: 978-3-89967-867-3) in Japanese. Prof. Galea at the University of Greenwich is a leading scholar in agent-based simulations.)
- 2001 (Translator of an Article) **A+U Magazine: Translation of the article written by Richard Gluckman, FAIA.** "Fashionable Collaborations," A+U (Architecture and Urbanism), No.375, December 2001, pp.34-39.

Internet-based Media Contribution

- 2013 – 2014 **Up and Coming, vol.99 – 107** are also available online. (URL: <http://www.forum8.co.jp/topic/TARO0.html>)
- 2011 **Exploring New Trends: Information-oriented Strategy and Technologies in Civil Engineering, Construction, Transportation and Environment, June 1, 2011.** Web-based magazine article about my presentation at the VR symposium in 2011. (URL: <http://www.wsolutionsjp.com/201106VRworld1609Narahara.html>)
- 2000 **Spatial-Lounge**, A short essay for an A+U magazine's web-based magazine. (URL: <http://www.spatial-lounge.com> ; Not available anymore)

INVITED LECTURES, KEYNOTE LECTURES, CONFERENCE PRESENTATIONS

2024. 02.21 **NJIT Prof. Branko Kolarevic's AI course** (invited lecture)
2023. 11.07 **World16 Symposium** at Cambridge Innovation Center (CIC) Tokyo (invited lecture; online)
- 07.12 **The 14th International VR Symposium Summer Workshop** (invited online).
- 04.10 **MIT** Guest lecture for Prof. Takehiko Nagakura's course (invited lecture; online)
- 03.21 The Association for Computer-Aided Architectural Design Research in Asia (**CAADRIA**) (Peer-reviewed; Co-Presenter & Co-Author; online)
- 01.27 ACM SIGGRAPH EDU Symposium On Innovation, Research, and Experiences in Education (**SOIREE**) (Peer-reviewed (abstract); Presenter; online)
2022. 11.17 **The 15th International VR Symposium** (invited lecture; online)
- 09.01 **Leir Research Institute (LRI) Conference 2022, Disruptive Technologies, Regulations, & Business: Implications in the Real Estate and Property Tech Industry** (invited lecture; online)
- 08.08 **ACM SIGGRAPH 2022 Educator's Forum, Vancouver, Canada.** (Peer-reviewed; Presenter & Author; online and physical),
- 07.18 2022 Annual Modeling and Simulation Conference (**ANNSIM**) with Zhongming Peter Zhang, San Diego, CA. (Peer-reviewed; Co-Presenter & Author)
- 07.12 **The 13th International VR Symposium Summer Workshop**, Tokyo, Japan.
- 05.13 ACM/SIGGRAPH Education Committee Symposium On Innovation, Research & Experiences in Education (**SOIREE**) (Peer-reviewed (abstract); Presenter; online)
- 04.11 The Association for Computer-Aided Architectural Design Research in Asia (**CAADRIA**) (Peer-reviewed; Presenter & Author; online)
- 03.01 Guest lecture at Ph.D. Colloquium, **Rutgers/NJIT** (guest lecture; online)
2021. 11.17 **The 14th International VR Symposium** (online)
- 07.06 **The 12th International VR Symposium Summer Workshop** (online)
- 02.15 The 4th Advanced Technology Education Program Review Committee in the field of architecture and community development, "Prospects for architecture, AI field, and human resource development using advanced technology," sponsored by the **Ministry of Education, Culture, Sports, Science and Technology commissioned business in Japan** (Keynote lecture; online)
2020. 12.11 The 4th Industry-Academia Collaboration Seminar Symposium "How to Implement Attractive Commercial Real Estate and Town Development with AI" sponsored by **Geomarketing Co., Ltd.** online/Japan (Keynote)
- 10.30 AIJ Symposium on New Development of VR/MR Technology in Architecture and Urban Design, "Data-driven approaches in architecture," **Architectural Institute of Japan (AIJ)**, online/Tokyo (Keynote lecture)
- 10.19 **The University of Florida**, online (Guest lecture invited by Ruth Ron in her class).
- 08.03 The 23rd Meeting on Image Recognition and Understanding (**MIRU**), "Attractiveness Prediction for Real Estate Floor Plans using Graph Analysis," The 23rd Meeting on Image Recognition and Understanding (**MIRU**), Virtual (online) (Presenter & Author)

- 2020 07.06 **The 11th International VR Symposium Summer Workshop**, "Recent works using deep neural networks in architectural design," The State of the Art Technologies in Expression Association, and Forum8 co., Ltd., online. (Invited lecture)
- 06.10 **JSAI2020**: The 34th Annual Conference of the Japanese Society for Artificial Intelligence, 2020. "Construction and Analysis of a Large-scale Attractiveness Dataset for Real Estate Floor Plans based on users' attributes," The Japanese Society for Artificial Intelligence, virtual (online) (Presenter & Author)
2019. 11.14 **The 11th International VR Symposium**, Tokyo, "Recapturing Images of Cities using Generative Adversarial Networks with VR Data
- 06.16 **The 10th International VR Symposium Summer Workshop** in Paris (Invited lecture)
- 03.27 Make it digital: A constructive experimentation between Italy and Japan, Seminar sponsored by the **University of Camerino** (UNICAM) in Ascoli, Italy. (Keynote lecture).
- 03.25 Small-scale architecture through digital fabrication, Seminar sponsored by the **University of Naples Federico II**, (Keynote lecture).
- 02.01 Division of Sustainable Energy and Environmental Engineering, Graduate School of Engineering, **Osaka University** (Guest lecture invited by Prof. Tomohiro Fukuda).
- 01.31 Life Science and Living Environment Laboratory, **Osaka City University** (Guest lecture invited by Prof. Atsushi Takizawa).
2018. 12.15 **SIGGRAPH Asia 2018 Technical Brief**, Tokyo (Peer-reviewed; Presenter & Author).
- 11.15 **The 11th International VR Symposium**, Tokyo (Awarded Academy Encouragement Award)
- 11.07 **Institute of Technology in Architecture (ITA), ETH Zurich** (Invited guest lecture).
- 11.22 **PLP Symposium: Future Research Directions**, PLP/Architecture, London (Invited guest lecture).
- 11.13 Department of Information and Communication Engineering, Graduate School of Information Science and Technology, **The University of Tokyo** (Guest lecture invited by Prof. Toshihiko Yamasaki)
- 10.02 Chair for Digital Building Technologies, **ETH Zurich** (Guest lecture invited by Prof. Benjamin Dillenburger)
- 09.20 Chair for Computer Aided Architectural Design (CAAD), **ETH Zurich** (Invited lecture)
- 08.14 **SIGGRAPH 2018 Talks**, Vancouver (Peer-reviewed; Presenter & Author).
- 06.16 **The 9th International VR Symposium Summer Workshop in Wellington, NZ** (Invited lecture)
2017. 09.21 **eCAADe** (the 35th association for education and research in computer-aided architectural design in Europe) Sapienza University of Rome, Roma, Italy (Peer-reviewed; Presenter & Author)
- 08.22 **Construction Bionics 2017**: Bio-inspired Concepts for the Built Environment, School of Civil and Environmental Engineering, **Technische Universität Dresden**, Germany (URL: [Link](#)) (Keynote lecture)
- 08.05 **The Urban Design Committee at the Japan Institute of Architects (JIA)**, Tokyo, Japan (Invited lecture)
2016. 11.17 **The 9th International VR Symposium**, Tokyo, Japan (Invited speaker)
- 07.16 **The 7th Virtual Reality (VR) Summer Workshop**, Osaka University, Japan
"Interfacing VR Environment with Sensors," ([Link](#)) (Invited speaker)
2015. 11.20 **The 8th International VR Symposium**, Tokyo, Japan (Invited speaker)
- 11.14 **AQS** (The International Symposium on Algorithmic Design), Tokyo, Japan (Keynote lecture & Panelist)
- 09.18 **eCAADe**, the Vienna University of Technology, Austria (Peer-reviewed; Presenter & Author)
- 08.13 **SIGGRAPH 2015 Talks** (The 42nd International Conference and Exhibition on Computer Graphics and Interactive Techniques), Los Angeles, California (Peer-reviewed; Presenter & Author)
- 07.10 **CAAD Futures** (the 16th International Computer Aided Architectural Design Futures 2015 Conference), Sao Paulo, Brazil, July 6-10, 2015. (Peer-reviewed; Presenter & Author)
- 06.03 **The 6th Virtual Reality (VR) Summer Workshop**, Thessaloniki, Greece, June 29 – July 3, 2015.
"Projects using photogrammetry and drone technologies" (Invited lecture)
- 02.23 NJIT: Third Annual Faculty Research Symposium, Campus Center, NJIT, February 23, 2015.
 (local venue; Selected to present; Digital poster presentation)
2014. 11.21 **The 7th International VR Symposium**, sponsored by Computer Graphic Arts Society (CG-ARTS), KENTSU SHINBUNSHA, SHINKENCHIKU Co., Ltd. and International Alliance for Interoperability Japan Association (IAI), Tokyo, Japan. (November 21, 2014). (Invited Lecture)
Awarded Academy Encouragement award for the presentation.
- 08.12 **SIGGRAPH 2014 Talks**, Vancouver, Canada,
"Exploring Board Game Design Using Digital Technologies." (Peer-reviewed; Presenter & Author)

- 2014 04.09 **EUROGRAPHICS 2014** (the 35th annual conference of the European Association for Computer Graphics) *"Teaching Interactivity: Introducing Design Students to Sensors and Microcontrollers."* Strasbourg, France. (Peer-reviewed) (**Selected as a best education paper presentation**)
- 04.04 NJIT: *What is the future of Gaming?* (symposium), sponsored by the **National Society of Black Engineers (NSBE)** NJIT Chapter, NJIT Campus Center, Newark, New Jersey (local venue; Invited Presenter/Panelist)
- 04.01 **Virginia Polytechnic Institute and State University**, School of Visual Arts, Collage of Architecture and Urban Studies, Blacksburg, Virginia. "Visiting Artist Lecture Series". (Keynote lecture)
- 03.23 **Shenkar Collage of Engineering and Design**, Louvre Auditorium, Tel Aviv, Israel (Keynote lecture)
- 02.14 **NJIT**: Presentation at the Meeting with Deputy Mayor of Barcelona (local venue; invited lecture)
2013. 09.19 *"A Generative Approach to Robotic Fabrication,"* **eCAADe**, Delft University of Technology, Delft, The Netherlands. (Peer-reviewed; Presenter & Author)
- 06.13 **BTES** (the 4th Building Technology Educators' Society Conference) Roger Williams University, Bristol, Rhode Island. *"Physical Prototypes for Building Technology,"* (Peer-reviewed; Presenter & Author)
- 06.17 Kakogawa Higashi Senior High School, Title: *The First Step to Becoming a Member of a Global Society*, Fukuda, T. (Moderator), Hyogo, Japan (local venue; Invited Guest lecture)
- 06.05 **Tokyo City University**, Faculty of Urban Life Studies, Tokyo, Japan (Guest lecture invited by Prof. Makoto Sei Watanabe)
- 04.17 **NJIT**: Board of Visitors Meeting, Title, *"The role of the Academy vs. the role of the Industry,"* April 17, 2013 (local venue; Selected to give a lecture)
- 03.06 **NJIT**: Distributed Intelligence conference, Title: *The Computer as a Tool for Creative Adaptation*, March 6 (local venue; Selected to give a lecture)
- 05.15 "Adaptive Growth using Robotic Fabrication," **CAADRIA**, National University of Singapore, Singapore (Peer-reviewed; Presenter & Author)
- 2012 05.15 **MIT: Computational Design Lab**: Reinventing BIM (Guest lecture invited by Prof. Takehiko Nagakura)
- 03.03 **ACSA 100th Annual Meeting**, Boston MA (Peer-reviewed)
- 02.22 **NJIT**: Think Pieces (local venue; Selected as one of five faculty members to represent)
- 2011 11.14 **ALGODE 2011**, Tokyo, Japan (Peer-reviewed; Presenter & Author)
- 11.12 **The 5th International VR Symposium**, Tokyo, Japan. (Invited lecture)
Awarded Academy Encouragement award for the presentation.
- 10.30 **The PUARL International Conference**, Portland, OR, USA (Peer-reviewed; Presenter & Author)
- 03.12 **ACADIA 2011 Regional**, University of Nebraska Lincoln, Nebraska (Peer-reviewed; Presenter & Author)
- 2010 12.10 **The 33rd Symposium on Computer Technology of Information, Systems, and Applications**
Organized by Architectural Institute of Japan (AIJ) on December 10, Tokyo (Guest Speaker)
- 11.16 **The 4th International VR Symposium**, Tokyo, Japan (Invited lecture)
Awarded Academy Encouragement award for the presentation.
- 07.15 **Wyss Institute for Biologically Inspired Engineering**, Harvard University.
Title: *"Self-organizing Computation: A Generative Approach for Architectural Design"*. (Invited Lecture)
- 02.22 **MIT: Design Scripting** (Guest lecture invited by Prof. Takehiko Nagakura in his class)
- 2009 11.16 **The 3rd International VR Symposium**, Tokyo, Japan (Invited lecture)
(Awarded Academy Encouragement award for the presentation.)
- 11.13 **Keio University**, SFC, Japan (Lecture; Invited by Prof. Yasushi Ikeda)
- 2008 05.07 **MIT: Design Scripting** (Guest lecture invited by Prof. Takehiko Nagakura in his class)
- 02.13 **The MIT Design and Computation Alumni Symposium**
Recent Work, Cambridge, Boston, MIT (Invited lecture)
- 11.15 **The 2nd International VR Symposium**, Tokyo, Japan, November 19 (Invited)
- 10.15 **ACADIA**, Silicon + Skin: Biological Processes and Computation, Minneapolis, 2008 (Peer-reviewed; Presenter & Author)
- 2007 11.20 **The 1st International VR (Virtual Reality) Symposium**, Tokyo, Japan (Invited)

- 2007 11.17 **AGENT 2007:** Conference on Complex Interaction and Social Emergence, Argonne National Laboratory (sponsor) and Northwestern University (host), Evanston (Peer-reviewed; Presenter & Author)
- 10.09 **MCPC** (World Conference on Mass Customization & Personalization), MIT Cambridge (Presented with Griffith, K.; Peer-reviewed; Presenter & Author))
- 09.18 **eCAADe**, Frankfurt, Germany (Peer-reviewed; Presenter & Author)
- 08.12 **Architectural Institute of Japan** (AIJ), Tokyo, Japan (Keynote lecture)
Presented at Sub-committee on Design Science, Research Committee on Information Systems Technology.
- 2006 11.23 **SIGraDi**, Post Digital, Santiago, Chile, 21-23 November 2006 (Peer-reviewed; Presenter & Author)
- 10.15 **ACADIA**, Synthetic Landscapes Digital Exchange, Louisville, USA, (Peer-reviewed; Presenter & Author)
- 05.12 **MIT: Computational Geometry for Spatial and Design Reasoning** (Guest lecture Invited by Prof. Denise Shelden in his class) Title: "The Entry Structure: 2-way cable-net-shell structure, work from GMA."
- 2005 07.18 **ARUP Japan, Tokyo** (Invited lecture)
Title: "The Entry Structure project," lectured on the project from Gluckman Mayner Architects (GMA).

WORKSHOPS PROPOSED OR CO-ORGANIZED

- 2009 - 2022 **International VR Summer Workshops** (Instructor / Presenter) (Repeated annually)
- 2014 Mar. **Dynamic Surfaces as Building Envelopes**, International Workshop and Exhibition, with Ron, R., and Vital, R. at Shenkar College of Engineering and Design, Tel Aviv, Israel, March 17 – 23, 2014. (<http://dynamicsurfaces.wix.com/dynamic-surfaces#>)
- 2013 May **Open Robotics Systems for Adaptive Buildings**, the CAADRIA 2013 conference with Zarzycki, A. (NJIT) and Park, J. W. (Soongsil University) in Singapore in May 2013. (Peer reviewed; Submitted, accepted, and completed in 2013).
- 2009 Mar **Workshop at Toyohashi University of Technology** (Instructor)
"Flat to Form", Faculty and Staff Development and Diversity Program, Department of Architecture and Civil Engineering, Toyohashi University of Technology, Japan, with Prof. Martin Bechthold (Harvard). Tutorial on programming in architecture (Rhino Scripting) and parametric modeling (Digital Project).
- 2007 Jul **MIT-KEIO University Workshop** in Okuike, Shiga, Japan (Teaching Assistant)
Assisted Prof. Shun Kanda (MIT) and Prof. Hiroto Kobayashi (Keio)

EXHIBITIONS

- 2014 Apr **Dynamic Surfaces as Building Envelopes**, Student Project Exhibit, International Workshop and Exhibition with Ron, R., and Vital, R. at Shenkar College of Engineering and Design, Tel Aviv, Israel. (March 23, 2014). (<http://dynamicsurfaces.wix.com/dynamic-surfaces#>)
- 2013 May **Pottery exhibition at the University of Medicine and Dentistry of New Jersey (UMDNJ)**
Watts, J., Narahara, T., et al., sponsored by the Newark Museum Arts Workshop, Newark, New Jersey (May 19 - August 25, 2014). (Exhibitor; Group exhibition led and curated by John Watts)
- 2013 Feb **The 5th International Exhibition on Media Art and Information Aesthetics (MAIA)**
Narahara, T., Santiago, M., and Hollowell, S. (Exhibitors), Media+ Life: Sensorial Collaboration, hosted by the Faculty of Arts, Tokyo Polytechnic University, and Japan Society of Image Arts and Sciences (JASIAS) in Tokyo, Japan. (February 4-6, 2013)
- 2010 Sep **Tokyo Game Show 2010**, September 16-17, Makuhari Messe, Chiba, Japan
Exhibited an interactive device for crowd simulation in a VR environment with Forum8 Co., Ltd.
- 2010 Jun **3D & Virtual Reality Expo (IVR)**, organized by Reed Exhibitions Japan Ltd.
Exhibited an interactive device for crowd simulation in a VR environment with Forum8 Co., Ltd. Tokyo International Exhibition Center (Tokyo Big Sight), Tokyo, Japan, June 23-25, 2010
- 2008 Mar **Harvard GSD Computational Design Exhibition**
with K. Terzidis, J. Park, and D. Rosenberg (Exhibition of individual works, Swarm-scape Interactive artwork.

Exhibitions of Student Work:

- 2012 - 2023 **SIGGRAPH: Faculty Submitted Student Work Exhibit**, The SIGGRAPH Education Committee.
Course works by my students were accepted and digitally exhibited (Double-curated):
- 2015 Jan **NASAD** (National Association of Schools of Art and Design) Exhibition: (January 19 – 23, 2015)
Exhibitions of students' projects and posters of faculty work from the School of Art + Design, NJIT.
- 2012 **Synergis Engineering Design Solution**, Online Student Showcase, course work by my student, B. Sims, was presented. (April 1, 2012). (URL: <http://www.synergis.com/industries/education/student-showcase>)

CONSULTING

- Technical Adviser, **SHIMIZU Corporation** and **Lightblue Technology Co. Ltd.**, (2020 – 2021)
Joint project with IT and General Construction (GC) company Companies, the University of Tokyo, and NJIT
- Technical Adviser, **At Home Lab Co., Ltd.**, Tokyo, Japan. (May 2019 - Present).
Regular periodical meetings (once a month) with a leading Real Estate company in Japan
- Technical Adviser, **Geomarketing Co., Ltd.**, Tokyo, Japan. (May 2019 - Present).
Regular periodical meetings (once a month) with a consulting company for shopping mall developers in Japan
- Technical Adviser, **Forum 8 Co., Ltd.**, Tokyo, Japan. (January 2010 - Present).
Japanese civil engineering, urban planning, VR, and game engine software company
- Advisory Board Member, **NeuroTechR3, Inc.**, Newark, NJ, USA. (May 2021 - 2022).
Biomedical Device/Digital Health company for ML-driven rehabilitation technologies for persons with brain injury.
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RESEARCH AND DESIGN SUPERVISION

Graduate students:

- | | | |
|-------------------------------|---|----------------|
| Kaiheng Zhang (NJIT) | Ph.D. in Urban Systems, <u>Dissertation Chair</u> | 2023 - present |
| | <i>Integrating Waste Heat and Carbon Dioxide from Building Facilities with Algae Cultivation</i> | |
| Muxin Jia (NJIT) | Ph.D. in Urban Systems, <u>Dissertation Chair</u> | 2021 - present |
| | <i>Visibility analysis for hotspot urban areas using social media data</i> | |
| Yunhao Zhang (NJIT) | Ph.D. in Information Technology, <u>Dissertation Committee Member</u> | 2021 - present |
| | <i>Human motion generation/recognition/evaluation in 3D space</i> | |
| Shi Hang (NJIT) | Ph.D. in Computer Science, <u>Dissertation Committee Member</u> | 2020 - 2021 |
| | <i>A Statistical Foreground Detection Method for Video Analysis</i> | |
| Hadi Ghahremannezhad (NJIT) | Ph.D. in Computer Science, <u>Dissertation Committee Member</u> | 2019 - 2020 |
| | <i>Advanced Traffic Video Analytics for Robust Traffic Accident Detection</i> | |
| Ajit Puthenpath-ussery (NJIT) | Ph.D. in Computer Science, <u>Dissertation Committee Member</u> | 2016 - 2018 |
| | <i>Novel Image Descriptors and Learning Methods for Image Classification Applications</i> | |
| Qingfeng Liu (NJIT) | Ph.D. in Computer Science, <u>Dissertation Committee Member</u> | 2016 - 2017 |
| | <i>Investigation of New Learning Methods for Visual Recognition</i> | |
| Kevin Abbruzesse (NJIT) | Ph.D. in Biomedical Engineering, <u>Dissertation Committee Member</u> | 2014 - 2016 |
| | <i>Assessment of a Hand Exoskeleton on Proximal and Distal Training in Virtual Environments for Robot Mediated Upper Extremity Rehabilitation</i> | |
| Fernando Garay (NJIT) | M.S. in Biomedical Engineering, <u>MS Thesis Committee Member</u> | 2014 - 2015 |
| | <i>Adaptable Virtual Reality 3-D Pinball Videogame for Interactive Upper Extremity Rehabilitation</i> | |
| Andreas Wilde (TU Dresden) | Diploma in Architecture, <u>External Dissertation Committee Member</u> | 2017 - 2018 |
| | <i>Application of Video Game Elements for Massive Urban Citizen Co-Design (M.Arch equivalent)</i> | |
| Tarek Al-Hariri (NJIT) | M.ARCH. <u>Independent Study Co-Adviser</u> | 2012 |
| | <i>Architectural Installation using Physical Computing with Arduino (Not a thesis)</i> | |

Undergraduate students (excerpts):

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|--------------------------|--|
| Zhongming Peter Zhang | B.ARCH (NSF I-Corps Site Mini-Grant) <u>Undergrad Research Advisor</u> , 2020 – 2022
<u>Adviser, PI</u> , NSF Innovation Corps Teams Grant |
| Craig Gallo (NJIT) | B.A. in Digital Design (NSF I-Corps Site Mini-Grant) <u>Undergrad Research Advisor</u> , 2020 |
| Anthony Parker (NJIT) | B.A. in Digital Design (NSF I-Corps Site Mini-Grant) <u>Undergrad Research Advisor</u> , 2019 |
| Tulio Squarcio (NJIT) | B.S. in Industrial Design, <u>Independent Study Advisor</u> , 2017 - 2018
<i>Exploration in Sensory Technology for Product Design</i> |
| Michael Centeno (NJIT) | B.S. in Arch., <u>Mentor for NCARB AXP hours</u> , 2017 - 2018
<i>NCARB AXP Design Competition</i> |
| John Ferns (NJIT) | B.Arch., <u>Dissertation Primary Advisor</u> , 2016
<i>Integrating the Digital and the Physical (B.Arch. Dissertation)</i> |
| William Busarello (NJIT) | B.A. in Digital Design (NSF I-Corps Site Mini-Grant) <u>Undergrad Research Advisor</u> , 2016
<i>Interactive Content Generations using UAV Photogrammetry and Gaming Technologies</i> |
| Amos Dudley (NJIT) | B.A. in Digital Design (NSF I-Corps Site Mini-Grant) <u>Undergrad Research Advisor</u> , 2015
<i>Turning Physical into Digital: Photogrammetry-based 3-D Model Generation and Re-Materialization.</i> |
| Mark Sanna (NJIT) | B.A. in Digital Design, <u>Undergrad Research Advisor</u> , 2015, <i>Exploring the impact of virtual reality using 360-degree video</i> (Finalist for the Undergraduate Research Seed Grant Proposal) |

SERVICE

To Professional Societies:

- 2019 - 2020 **Special Issue Co-Guest Editor, Journal: Technologies**, EISSN 2227-7080, Published by MDPI AG, Basel, Switzerland, Special Issue Title: Computer-Aided Architectural Design (w/ Tomohiro Fukuda, Osaka Univ.)
- 2013 - 2024 **Juror / Executive Committee Member, Cloud Programming World Cup (CPWC)**, Tokyo
Annually appointed as a judge since 2013, for CPWC, an international competition aimed at fostering software development across various domains and promoting programming skills among design students. [CPWC](#).
- 2015 **Session Chair, CAAD Futures** (the 16th International Computer Aided Architectural Design Futures 2015 Conference), Sao Paulo, Brazil, July 6-10, 2015. (Appointed)
- 2013 – 2014 **Organizing Member / Juror, ALGODEQ (ALGOrithmic Design Quest)**, Tokyo, 2014
Served as an organizing member and juror for the initial and final stages of ALGODEQ, an international programming competition recognizing exceptional contributions to algorithmic design and its applications in architecture and general design. Overseen by Chair Makoto Watanabe (TCU) and sponsored by Takenaka Co., Ltd. (Nov 7, 2013 - Nov 3, 2014). [ALGODEQ](#).
- 2010 – 2011 **International Relationship Committee member / Session Chair, ALGODE TOKYO**
The International Symposium on Algorithmic Design for Architecture and Urban Design, Tokyo, 2011. *Worked on the selection of keynote speakers from abroad. Chair: Yasushi Ikeda (KEIO), (Link)*
- 2009 **Adviser, Build Live Tokyo 2009 II Design Competition**
with Forum8, T. Fukuda, and K. Terzidis. *Competition to design a housing complex using BIM Technology software. Awarded the “Engineering Award” from the International Alliance for Interoperability Japan Association (IAI Japan).*
- 2008, 2009 **Organizing Member / Session Chair, The International Conference on Critical Digital**, Harvard University, Cambridge, MA, *What Matter(s)?*, Chair: Kostas Terzidis (GSD); (April 2008 & April 2009).

Institutional Service (To NJIT):

- 2019 – present **Chair (2022, 2023), Committee Member ('19 – '21), Sabbatical Committee.**
- 2022 – present **Committee Member, Faculty Senate**, NJIT
- 2024 – present **Member**, Hillier College of Architecture and Design (HCAD) Research Committee, NJIT
Member, Ph.D. Education Subcommittee, HCAD, NJIT.
Member, Research Awards Subcommittee, HCAD, NJIT.
- 2011 – 2022 **Chair ('14, '19, & '21) and Member, Faculty Search Committee** (repeated 11+), HCAD, NJIT.
- 2018 – present **Member, Fabrication Committee**, HCAD, NJIT
- 2017 **Member, Faculty Senate Committee on Faculty Rights and Responsibilities (CFRR)**, NJIT.
- 2017 **Member, Dean Search Committee**, HCAD, NJIT.
- 2017 **Member, Vice Provost for Undergraduate Studies Search Committee**, NJIT.
- 2012 - 2018 **Member, Teaching, Learning, and Technology Committee**, NJIT.
- 2015 - **Faculty Judge, The Dana Knox Student Research Showcase**, NJIT (Participated several times)
- 2012 - 2017 **Founder / Coordinator, GameFest, HCAD (2012-2016)**
Initiated and led the annual November GameFest, showcasing student-designed analog games employing technology-driven design processes. Highlighted event outcomes were featured in a peer-reviewed talk at SIGGRAPH 2015.
- 2010 - 2018 **Program Organizing Member / Presenter, Global Game Jam (GGJ) at NJIT**
Presented the theme, supervised student projects, and coordinated facilities for the 48-hour game development event. In 2012, contributed to the NJIT team by developing a game in C#.
- 2010 - **Faculty Advisor, Undergraduate Open House, HCAD (Quarterly)**
Displayed interactive projects from design studios and courses, incorporating sensor technologies and microcontrollers, to prospective students and parents, providing insights and answering inquiries.

Public Service:

- 2015 **Chair, NJIT Organizing Committee, Greater Newark Mini Maker Faire, Newark, April 11, 2015**
Led the coordination of exhibition booths and workshops showcasing 3-D printing, augmented reality, laser scanning, photogrammetry, and an immersive 3-D gaming experience with Oculus Rift.
- 2015 **Workshop Organizer/Instructor, Girls Who Code, Newark, July 31, 2015**
Facilitated a workshop for 40 high-school female students, teaching computing, robotics, and coding in design via hands-on projects for Girls Who Code, a nonprofit aimed at empowering women in computer science.

REVIEWER

Journal Articles:

2016, 2023 *Automation in Construction, Elsevier.*
2019 *Technologies, Special Issue Title: Computer-Aided Architectural Design (Co-guest Editor)*
2018 - *Computers and Electronics in Agriculture, Elsevier.*
2017 - *Technology | Architecture + Design (TAD), Routledge, Taylor & Francis*
2016 - *Computers & Graphics, Elsevier.*
2016 *Multimedia Tools and Applications, Springer.*
2014 - *Transactions of the Architectural Institute of Japan (JIA).*
2013, 2019 - *The Artificial Intelligence for Engineering Design, Analysis and Manufacturing Journal (AIEDAM), Cambridge University Press.*

Conference Papers:

2018, '22, '24 *ANNSIM: Symposium on Simulation for Architecture and Urban Design (SimAUD) (2018, 2022)*
2021, '22, '23 *The Symposium on Computer Technology of Information, Systems and Applications, Japan Institute of Architects (JIA)*
2020, 2021 *ICME 2021 (IEEE International Conference on Multimedia and Expo)*
2017 - *ACADIA (The Association for Computer-Aided Design in Architecture)*
2017 - *eCAADe (Education and Research in Computer-Aided Architectural Design in Europe) (2017)*
2016, 2019 *ACM SIGGRAPH (The International Conference and Exhibition on Computer Graphics and Interactive Techniques), Reviewer for General Submissions & Posters, (2016)*
2015 - 2023 *CAADRIA (Association for Computer-Aided Architectural Design Research in Asia) (2015, 2016)*
2011 - *ACSA (Association of Collegiate Schools of Architecture) (2011, 2012, 2013, 2015)*
2012 *SIGraDi (The Iberoamerican Society of Digital Graphics) (2012)*
2011 *ACADIA Regional (2011)*
2010 *ALGODE (The International Symposium on Algorithmic Design for Architecture and Urban Design) (2010)*
2008, 2009 *The International Conference on Critical Digital, Harvard University, Cambridge, MA, (2008, 2009)*

Juror for Competitions & Studio Finals (excerpts):

2023 May *MIT M.S. Thesis Final Review (Guest Critic)*
2013 - present *Cloud Programming World Cup (CPWC), (Juror / Executive Committee Member, Appointed annually)*
2019 Dec. *Rensselaer Polytechnic Institute (RPI) CASE (Guest Critic, hereinafter the same, several times)*
2017 - 2022 *Pratt Institute, Final Design Studio/ Undergraduate Thesis Review. (Several times)*
2015 Dec. *Princeton University, Prof. Axel Killian, Final Design Studio Review.*
2012 May *MIT 4.S52: Computational Design Lab: Reinventing BIM, Prof. Nagakura, T., Final Review.*
2010 May *Harvard, Master of Design Thesis, Final Review.*
2008 Dec. *Harvard 6317: CAD/CAM: Application in Architecture, Prof. Bechthold, M., Final Review.*
2008 July *Keio University, Tokyo, Japan, Prof. Hiroto Kobayashi, Final Review.*
1998 Sep. *Tokyo Metropolitan University, School of Architecture, Tokyo, Japan, Studio Final Review.*

Promotion & Tenure Reviews:

2022 Ad Hoc Reviewer (Promotion & Tenure), Drexel University, PA. (Aug. - Oct. 2022).
2018 Ad Hoc Reviewer (Promotion), Drexel University, PA. (Jul. - Sep. 2018).

MEMBERSHIPS AND AFFILIATIONS

2019 – IEEE (Institute of Electrical and Electronics Engineers)
2019 – JSAI (Japan Society of Artificial Intelligence)
2019 – IEICE (The Institute of Electronics, Information and Communication Engineers)
2011 – ACM SIGGRAPH (Special Interest Group on Graphics and Interactive Techniques)
2014 EUROGRAPHICS (European Association for Computer Graphics)
2013 – SOAT (State of the Art Technologies in Expression Association; **Promoter/originator**)
2013 – eCAADe (Education and Research in Computer-Aided Architectural Design in Europe)
2012 – CAADRIA (The Association for Computer-Aided Architectural Design Research in Asia)
2011 – ACADIA (Association for Computer-Aided Design in Architecture)

SKILLS

Languages: English (proficient), Japanese (native),

Computers: Python, ML modules (Keras/TensorFlow, PyTorch, PyTorch Geometric, NetworkX), C#, JavaScript.

Media Skills: Applications: Unity3D, Unreal Engine 5, Rhino/Grasshopper, Revit, AutoCAD, Adobe Creative Suite.
AI Tools: Stable Diffusion WebUI, ControlNet, ComfyUI, Verus, LookX, Midjourney.
Robotics: 6-Axis Robots by ABB, Rapid-Codes, Arduino, Raspberry Pi, ESP32.
Fabrication: G-Codes, CNC machining techniques, and tool path generations.
Prototyping: 3-D Printers (UltiMaker; FormLab), Laser Cutters, OMAX Waterjets, Vacuum Formers.

Relevant Courses Completed:

<u>Harvard</u>	Math153:	Evolutionary Dynamics (Evolutionary Game Theory)	Prof. Martin Nowak
	CS226:	Biologically inspired Distributed and Multi-Agent Systems	Prof. Radhika Nagpal
	Workshop	Kilo-Bots: Workshop on Swarm Robotics (Jointly offered by Harvard CS and NJIT Biological Sciences)	Prof. Radhika Nagpal
<u>MIT/Media Lab</u>	ES252:	Micro / Nano Robotics	Prof. Robert J. Wood
	MAS 961:	How to Make Something that Can Make Almost Anything	Prof. Neil Gershenfeld
	1.124:	Foundations of Software Engineering (C# language)	Prof. John R. Williams
	1.001:	Computers & Engineering Problem Solving (Java language)	Prof. Steven Lehman
	6.270:	Autonomous Robot Design (Finalist for the competition)	
	6.281:	Logistics and Transportation Planning Methods (Queuing/Network Theory)	Prof. Richard Larson Prof. Amedeo Odoni
<u>Waseda Univ.</u>	B.S.in Math:	Differentiable Manifolds and Twister Space	Prof. Toshiaki Kori