

SNEHA JAIN

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Research Areas: Human comfort & wellbeing, Indoor environment quality, Windows, Building automation & control

EDUCATION & TRAINING

Stanford University, USA Postdoctoral Scholar, Civil and Environmental Engineering School <i>Advisor:</i> Prof. Sarah Billington	2023-2025
École Polytechnique Fédérale de Lausanne (EPFL), Switzerland Ph.D. Civil and Environmental Engineering School <i>Advisors:</i> Prof. Marilyne Andersen and Dr. Jan Wienold Dissertation: <u>Influence of transmitted color and the eye's macular pigment on discomfort glare</u>	2019 – 2023
International Institute of Information Technology (IIIT), India Lawrence Berkeley National Laboratory (LBNL), USA (6-months fellowship) M.S. Information Technology in Building Science <i>Advisors:</i> Prof. Vishal Garg (IIIT), Dr. Luis Fernandes (LBNL), Christian Kohler (LBNL) Dissertation: <u>Daylighting estimation for control using high dynamic range imaging</u>	2016 – 2018
National Institute of Technology, Bhopal, India B.Arch. Architecture (<i>Registered Architect in India</i>)	2010 – 2015

ACADEMIC APPOINTMENTS

<u>Assistant Professor</u> School of Architecture Planning and Landscape (SAPL), University of Calgary, Canada PI: Creating living lab to monitor indoor environment; A Transdisciplinary Framework for Designing Healthier Living Environment; Co-PI: Affordable housing: a Canada- Germany initiative. Courses: ARCH 500, ARCH 514, ARCH 614, ARCH 512, ARCH 608	Sep 2025 – Present
Post-Doctoral Scholar, Stanford University, USA - Co-PI: Impact of affordable housing rehabilitation on the elderly residents' health & wellbeing (social, physical, mental and financial wellbeing) in San Francisco Chinatown (Raised USD25K). - Co-designed and co-led a project on the impact of lighting exposure on elderly residents' sleep-wake patterns using mix-method approach by incorporating ambient intelligence, individual light history, and actigraphy. - Designed the curriculum and co-instructed undergraduate Design Studio; mentored graduate and undergraduate students on various research projects.	Nov 2023 – Aug 2025
Post-Doctoral Scholar, EPFL, Switzerland - Contributed to successful grant proposal for Swiss National Science Foundation (SNSF) on "Visual comfort without borders: Glare perception across spectrum, sources and time". (~CHF800K) - Evaluated eye-tracking data (gaze direction and pupil size) for predicting visual comfort.	Jul 2023– Oct 2023
Doctoral Assistant, EPFL, Switzerland - Proposed modification to European Standards-EN 17037 on <i>Daylight in Buildings</i> by defining window transmittance required for glare protection in typical office spaces (<u>Paper 1</u>, <u>Paper 2</u>). - Designed and conducted psychophysical experiments to determine the influence of transmitted color of daylight on the subjective visual comfort perception (<u>Key publication</u>). - Evaluated the impact of anatomic-physiologic features of human eye on the inter-individual variability in sensitivity to light intensity in collaboration with ophthalmologists (<u>Key publication</u>).	Feb 2019– May 2023
Research Fellow, Lawrence Berkeley National Lab, USA	Feb 2018 – Aug 2018

- Evaluated the physical properties of daylight from a light pipe for determining the non-visual effects in an indoor space (Key publication- Best paper award)
- Evaluated the performance of battery-backed LED lighting in demand response and real-time pricing scenario.

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

J Garretton, **S Jain**, A Villalba, J Christoffersen, T Kuhn, A Pattini, J Wienold, The influence of daytime on discomfort glare: Results of an inter-laboratory comparative study, *Energy and Building*, 2026

S Jain, J Wienold, L Hellwig, M Andersen, Influence of color on glare perception revealed when seeing the sun through colored, *Scientific Reports by Nature*, Sep 2025.

A Green, J Xu, D Chan, **S Jain**, S Billington, Impact of sustainable retrofitting on resident wellbeing: A critical review, *Building and Environment*, Jul 2025.

B Altaf, A Tavakoli, P Ruth, A Green, J Xu, **S Jain**, E Choi, L Bencharit, E Murnane, J Landay, S Billington, Impact of windows, natural materials, and diverse representations in built environments on psychological and physiological well-being: A between-subjects experiment in immersive virtual environments, *Building and Environment*, Apr 2025.

S Jain, J Wienold, C Eandi, S Gisselbaek, A Kawasaki, M Andersen, Influence of macular pigment on the sensitivity to discomfort glare from daylight, *Scientific Reports by Nature*, Oct 2023.

G Quek, **S Jain**, C Karmann, C Pierson, J Wienold, M Andersen, Comparison of questionnaire items for discomfort glare studies in daylight spaces, *Lighting Research & Technology*, Oct 2023.

S Jain, J Wienold, M Lagier, A Schuler, M Andersen, Perceived glare from the sun behind tinted glazings: Comparing blue vs. color-neutral tints, *Building and Environment*, March 2023.

S Jain, C Karmann, J Wienold, Behind electrochromic glazing: Assessing user's perception of glare from the sun in a controlled environment, *Energy and Buildings*, Feb 2022.

S Jain, and V Garg. A review of open-loop control strategies for shades blinds and integrated lighting by use of real-time daylight prediction methods. *Building and Environment*, May 2018.

PEER-REVIEWED CONFERENCE ARTICLES

S Jain, J Wienold, M Andersen, Applicability of CIE supplementary photometry for glare prediction in colored lighting scenes, *Proceedings of CIE 2025*, Vienna.

J Xu, A Green, **S Jain**, D Chan, S Billington, Multidimensional evaluation of tenants' wellbeing after a sustainable retrofit: a case study of low-income Chinese older adults in the U.S., *Healthy Building 2025*, Iceland.

M Gupta, **S Jain**, S Billington, J Wienold, M Andersen, Deep learning model for discomfort glare detection based on occupants' facial analysis, *i3CE 2024*, Pittsburgh.

J Xu, A Tavakoli, M Jörke, P Ruth, N Vainio, P Schmiedmayer, **S Jain**, J Landay, S Billington, Impact of workspace environmental features on occupant well-being: A naturalistic pilot study, *i3CE 2024*, Pittsburgh.

S Jain, C Karmann, J Wienold, M Andersen, Is there an effect of macular pigment density on discomfort glare in indoor daylight conditions?, *Proceedings of CIE 2023*, Slovenia.

S Jain, J Wienold, M Andersen, Comparison between CIE 2° and 10° field photopic luminosity functions $V(\lambda)$ for calculating daylight discomfort glare metrics, *Lux Europa 2022*, Prague, Czech Republic.

S Jain, J Wienold, M Andersen, Effect of window glazing color and transmittance on human visual comfort, *PLEA 2022*, Santiago, Chile.

J Wienold, **S Jain**, M Andersen, Transmittance thresholds of electrochromic glazing to achieve annual low-glare work environments, *Nordic IBPSA 2022*, Copenhagen, Denmark.

S Jain, J Wienold, M Andersen, On Sensitivity to Glare and Its Relationship with Macular Pigment, *Proceedings of CIE 2021*, Malaysia.

S Jain, C Karmann, J Wienold, Subjective assessment of visual comfort in a daylit workplace with an electrochromic glazed façade, Journal of Physics: Conference Series, 2021.

S Jain, J Wienold, M Andersen, Glare assessment in a daylit workplace from a physiological perspective, ANFA 2021 Symposium–Quantified Buildings, Quantified Self, California.

S Jain, L Fernandes, C Regnier, V Garg. Circadian lighting in a space daylit by a tubular daylight device. Asia’s IBPSA ASIM 2018, Hong Kong (*Best paper Award*).

WORKSHOP & POSTER PRESENTATIONS

S Jain, Assessing window view quality in a renovated affordable housing for older adults, Blume 50th Anniversary Symposium, May 2025

S Jain, How to Incorporate Color Influence into Discomfort Glare Models, 22nd Annual International Radiance Workshop, Aug 2024, Salt Lake City, USA.

S Jain, Influence of color of daylight on discomfort glare perception, Optica Vision and Color Data Blast Session, Webinar, Aug 2024.

S Jain, What factors influence human visual comfort perception? Daylight Academy Annual Conference & General Assembly, Oct 2022, Zürich, Switzerland.

S Jain, J Wienold, Glare Behind Blue (Electrochromic) Glazing, 19th Annual International Radiance Workshop, 2021, Bilbao, Spain.

INVITED TALKS

Assessing window view quality in a renovated affordable housing for older adults, 10th VELUX Daylight Symposium, Sep 2025.

Impact of different daylight scenarios on human perception of visual comfort, ANFA Doctoral Program Inauguration meeting, Feb 2024.

Discomfort glare from daylight: Influence of transmitted color and the eye's macular pigment, Bright environments: Daylight in Sustainable Building Design Conference, Aug 2023, ETH Zurich, Switzerland.

What factors influence human visual comfort perception? Evaluating the effect of color of (day)light and eye physiology on discomfort glare in workplace scenarios. The axis Integrated Design, Architecture and Sustainability (IDEAS), Oct 2022, EPFL, Switzerland.

Does glazing color influence our perception of discomfort glare from daylight? Build for Life, VELUX Daylight Symposium 2021, Copenhagen, Denmark.

MEDIA COVERAGE

Daylight Revolution - Work featured in a science documentary premiered at the 6th Global Science Film Festival in Basel, Switzerland 2024.

Is there a physiological explanation behind experiencing glare? , EPFL News, EurekAlert! 2023.

Sneha Jain Bags prestigious internship at Berkeley Lab, IIIT Hyderabad News, Deccan Chronicles 2018.

GRANTS

VPR Catalyst Grant , “Creating a Living Lab to monitor the impact of indoor building environment on health and wellbeing”, (PI), \$13,000	2026
Connector Grant , “A Transdisciplinary Framework for Designing Healthier Living Environment”, (PI), \$9000	
Connector Grant , “Affordable, dignified and climate-resilient housing- a Canada- Germany initiative”, (Co-PI), \$18,000	

Community Engagement Impact Funding , “Empowering resident voices: assessing the impact of affordable housing rehabilitation on wellbeing”, (Co-PI), \$25,000	2024- 2025
Swiss National Science Foundation , “Visual comfort without borders: Glare perception across spectrum, sources and time”, (PI Dr. Wienold), \$800,000 <i>Wrote one of the three research tracks on developing spectral visual comfort model.</i>	2024- 2029
Human-Centered Artificial Intelligence Seed Grant , “Personal and Private Ambient Intelligence for Senior Care”, (PI Prof. Billington), \$75,000 <i>Helped write grant proposal.</i>	2024 - 2025

SERVICES & LEADERSHIP

Scientific Chair CAAD Futures 2027 Serving as Scientific chair of Annual conference CAAD Futures Design Agency 2027	2026- Present
International Research Forum Chair CIE Research Forum on Towards a global discomfort glare database development and discomfort glare model advancement	2025-Present
International Energy Agency (IEA) member IEA EBC Annex 95 and Users TCP - Human-Centric Buildings for a Changing Climate Role: Contribution to the writing of a technical report	2024-Present
Reviewer for Scientific Journals Nature Scientific Reports, Building and Environment, Journal of Building Engineering, Buildings, Building Simulation, Leukos, Energy and Buildings.	2021-Present

INDUSTRY EXPERIENCE

Lighting Consultant , <i>Environmental Design Solutions, India</i> Provided lighting and daylighting solutions for optimizing visual comfort and energy requirements through annual building performance simulations.	Dec 2016 –Nov 2017 (part-time)
Building Information Modelling (BIM) Engineer , <i>vConstruct Pvt. Ltd., India</i> Worked as a project architect and team leader for BIM co-ordination, quality assurance, facility management, 4D-simulations, and virtual mock-ups for construction projects. Key Projects- Lucile Packard Children's Hospital Stanford, Facebook datacenter	Oct 2015 – Jul 2016
Junior Architect , <i>Studio Ensemble, India</i> Worked on site documentation, working drawing creation for residential projects.	May 2014 – Sep 2015

TEACHING EXPERIENCE

ARCH 500 Sustainability in Architecture ARCH 608 Lighting Design ARCH 514 Studio II in Architecture ARCH 614 Environment Control System University of Calgary, Canada	2025- Present
CEE 133A: Studio 1 – Architecture: Light, Space, and Movement Sustainable Architecture + Engineering, Stanford University	Fall 2024
Daylight beyond codes: Decoding daylight in Indoor spaces Center of Environment Planning and Technology (CEPT), India	Summer 2023
AR-442: Comfort and Architecture: Sustainable Strategies EPFL, Switzerland	2019- 2021
CS0.301:C Programming for Engineers Building Simulation for Energy Conservation Building Codes IIT Hyderabad	2017- 2018

MENTORING EXPERIENCE

Graduate Student Supervisor, University of Calgary Students: Utku Cerit, Sara Kazoun, Computational Media Design	2026- Present
Summer Research Supervisor, University of Calgary Students: Michaela Reid, Yasmine Baccari, Architecture and Civil Engineering	2025- Present
PhD Students Project Mentor, Stanford, USA Students: Andrea Green, Flora Xu Project: Downstream impact of sustainable retrofitting on low-income renter's wellbeing	2023- 2025
Summer Project Supervisor, Stanford, USA Student: Esteban Germann, B.Arch, EPFL Project: Evaluating daylight availability and thermal comfort in a rehabilitated affordable housing building	Summer 2024
Master Thesis Supervisor, EPFL, Switzerland Student: Oscar Fischer, MSc Microtechnology Thesis: Evaluation of gaze behavior and facial responses to discomfort glare under colored daylighting sources (30 ECTS)	Fall 2022
Semester Project Supervisor, EPFL, Switzerland Students: Kaan Okumus, Mihaela, Roxane, MSc Computer Science Project: Deep learning-based Discomfort Glare Detection using image-based neural networks	Fall 2021
Master Thesis Supervisor, CEPT, India Student: Macha Bhargav, MTech Building Energy Performance Thesis: Exploring the capabilities of Raspberry Pi HQ camera for generating luminance maps in indoor daylight environments	Spring 2021
Summer Project Mentor, IIIT Hyderabad, India Students: Souvik Das, Sai Tanya, Utkarsh Kumar, BTech Engineering and Architecture Summer internship on "Smart daylight glare control system" funded by Sage glass (Glass Academy Fellowship).	Summer 2017
