

Miguel Martin

POSTDOCTORAL RESEARCH FELLOW · MARIE SKLODOWSKA-CURIE GLOBAL PROGRAM

Delft University of Technology, Julianalaan 134, 2628 BL Delft, Netherlands

✉ M.Martin@tudelft.nl | 🏠 miguelmartin.org

Education

National University of Singapore

PH.D. BUILDING SCIENCE

• Advisor: Prof. WONG Nyuk Hien

Singapore

2016 - 2021

University of Geneva

M.SC. COMPUTER SCIENCE

• Advisor: Prof. PUN Thierry

Geneva, Switzerland

2009 - 2011

University of Geneva

B.SC. COMPUTER SCIENCE

Geneva, Switzerland

2005 - 2009

Professional Experience

- 2023-Now **Visiting Postdoctoral Researcher**, Dept. of Civil and Environmental Engineering, Carnegie Mellon University
- 2012-Now **Postdoctoral Research Fellow**, Dept. of Urbanism, Delft University of Technology
- 2020-2022 **Senior Research Fellow**, Berkeley Education Alliance in Singapore
- 2015-2016 **Research Fellow**, Dept. of Building, National University of Singapore
- 2015 **Visiting Researcher**, Dept. of Building Technology, Massachusetts Institute of Technology
- 2013-2015 **Research Engineer**, Dept. of Engineering Systems and Management, Masdar Institute of Science and Technology
- 2011-2012 **Research Assistant**, Energy Centre, Ecole Polytechnique Federal de Lausanne

Publications

JOURNALS

- Martin, M.**, Ramani, V. and Miller, C., 2024. InfraRed Investigation in Singapore (IRIS) Observatory: Urban heat island contributors and mitigators analysis using neighborhood-scale thermal imaging. *Energy and Buildings*, p.113973.
- Ramani, V., **Martin, M.**, Arjunan, P., Chong, A., Poolla, K. and Miller, C., 2023. Longitudinal thermal imaging for scalable non-residential HVAC and occupant behaviour characterization. *Energy and Buildings*, 287, p.112997.
- Martin, M.**, Chong, A., Biljecki, F. and Miller, C., 2022. Infrared thermography in the built environment: A multi-scale review. *Renewable and sustainable energy reviews*, 165, p.112540.
- Miguel, M.**, Hien, W.N., Marcel, I., Chung, H.D.J., Yueer, H., Zhongqi, Y., Ji-Yu, D., Raghavan, S.V. and Son, N.N., 2021. A physically-based model of interactions between a building and its outdoor conditions at the urban microscale. *Energy and Buildings*, 237, p.110788.
- Wong, N.H., He, Y., Nguyen, N.S., Raghavan, S.V., **Martin, M.**, Hii, D.J.C., Yu, Z. and Deng, J., 2021. An integrated multiscale urban microclimate model for the urban thermal environment. *Urban Climate*, 35, p.100730.
- Lim, T.K., Ignatius, M., **Miguel, M.**, Wong, N.H. and Juang, H.M.H., 2017. Multi-scale urban system modeling for sustainable planning and design. *Energy and Buildings*, 157, pp.78-91.
- Lim, T.K., Ignatius, M., **Miguel, M.**, Wong, N.H. and Juang, H.M.H., 2017. Multi-scale urban system modeling for sustainable planning and design. *Energy and Buildings*, 157, pp.78-91.
- Martin, M.**, Wong, N.H., Hii, D.J.C. and Ignatius, M., 2017. Comparison between simplified and detailed EnergyPlus models coupled with an urban canopy model. *Energy and Buildings*, 157, pp.116-125.

- Martin, M.**, Afshari, A., Armstrong, P.R. and Norford, L.K., 2016. A new validation protocol for an urban microclimate model based on temperature measurements in a Central European city. *Energy and Buildings*, 114, pp.38-53.
- Martin, M.**, Afshari, A., Armstrong, P.R. and Norford, L.K., 2015. Estimation of urban temperature and humidity using a lumped parameter model coupled with an EnergyPlus model. *Energy and Buildings*, 96, pp.221-235

CONFERENCE PROCEEDINGS

- Martin, M.**, Wong, N.H. and Ichinose, M., 2019, July. Impact of retro-reflective glass façades on the surface temperature of street pavements in business areas of Singapore and Tokyo. In *IOP Conference Series: Earth and Environmental Science* (Vol. 294, No. 1, p. 012020). IOP Publishing.

Awards, Fellowships & Grants

AWARDS

- 2019 **Best paper award**, Sustainable Built Environment Conference, Tokyo (Japan)
- 2019 **Best oral presentation**, Sustainable Built Environment Conference, Tokyo (Japan)

FELLOWSHIPS & GRANTS

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|------|---|-------------|
| 2022 | Marie Skłodowska-Curie Postdoctoral Fellowship , European Commission | EUR 297,000 |
| 2019 | President's Graduate Fellowship , National University of Singapore | EUR 72,000 |
| 2018 | Virtual Singapore at 3D City Modelling , National Research Foundation (NRF) of Singapore | EUR 670,000 |
| 2016 | NUS Research Scholarship , National University of Singapore | EUR 61,000 |

Presentations

INVITED TALKS

- Spring 2023. *Smart City Innovations and Experiments using New Climate and Energy Simulations (SCIENCES)*. Invited talk: CAPS seminar, Pittsburgh, Pennsylvania, United States.
- Spring 2023. *Smart City Innovations and Experiments using New Climate and Energy Simulations (SCIENCES)*. Invited talk: AIS seminar, Pittsburgh, Pennsylvania, United States.

CONFERENCES

- Martin, M.**, Wong, N.H. and Ichinose, M., Impact of retro-reflective glass façades on the surface temperature of street pavements in business areas of Singapore and Tokyo (oral), Sustainable Built Environment Conference, 2019, Tokyo (Japan)
- Martin, M.**, Hii, D. J. C., Ignatius, M., and Wong, N. H., Comparison between a simplified and detailed building energy model coupled with an urban canopy model (oral), 4th International Conference on Countermeasures to Urban Heat Island, 2016, Singapore
- Martin, M.**, Hii, D. J. C., Ignatius, M., and Wong, N. H., Predictability of urban air temperature changes from variations of PM2.5 concentration during the 2015 Southeast Asian transboundary haze episode (oral), 4th International Conference on Countermeasures to Urban Heat Island, 2016, Singapore
- Martin, M.**, Afshari, A., Norford, L. K., Parlow, E., and Vogt, R., Validation of a lumped thermal parameter model coupled with an EnergyPlus model using BUBBLE data (oral), 9th International Conference on Urban Climate, 2015, Toulouse (France)
- Martin, M.**, Afshari, A., Armstrong, P. R., and Marpu, P. R., MOBO—An experimental network for urban heat island analysis in a green district of the Middle-East (poster), 9th International Conference on Urban Climate, 2015, Toulouse (France)
- Martin, M.**, Afshari, A., Armstrong, P. R., and Norford, L. K., Validation of a coupled scheme urban canopy model and building simulator (oral), 3rd International Conference on Countermeasures to Urban Heat Island, 2014, Venice (Italy)

Teaching Experience

- Spring 2024 **Autonomous and sustainable buildings**, co-Instructor, Carnegie Mellon University
- Spring 2019 **Digital construction**, Teaching Assistant, National University of Singapore
- Spring 2010 **Project in Software Engineering**, Teaching Assistant, University of Geneva
- Fall 2009 **Software Engineering**, Teaching Assistant, University of Geneva