

# Sohei Yamada

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Climate risk researcher, translating environmental datasets into actionable planning

## EDUCATION

### New York University

Urban Systems Ph.D. | Department of Civil and Urban Engineering | GPA 4.00

Brooklyn, NY, USA

Expected May 2027

- Integrated satellite imagery, CFD, and ML models to quantify **extreme heat risks citywide**; built a supercomputer-based urban digital twin to evaluate nature-based adaptation strategies and produced actionable resilience recommendations.

### University of California, San Diego

Master of Public Policy, Environmental Policy | School of Global Policy and Strategy

La Jolla, CA, USA

June 2023

- Demonstrated causal impact of **transportation investment** on regional economic growth using regression, difference-in-differences, and RCT frameworks; evaluated government interventions for environmental externalities.

### Waseda University

Master of Engineering | School of Advanced Science and Engineering | Valedictorian

Tokyo, Japan

March 2015

- Advanced nuclear-coolant **CFD models** for safer reactor assessment; honored with Best Presentation Awards and Fellowship from Japan's mechanical engineering and atomic energy societies.

## PROFESSIONAL EXPERIENCE

### New York University

Teaching Assistant, Climate Risk Analysis/Urban Sustainability | Professor Yuki Miura

Brooklyn, NY, USA

January 2025 – May 2026

- Instructed master's and doctoral students in **flood-risk management** for urban environments, teaching Python-based statistical analysis, GIS workflows, and physics-based simulation techniques.

Teaching Assistant Fluid Mechanics | Professor Yuki Miura

September 2025 – December 2025

- Taught undergraduate juniors the **mathematical and physical foundations** of mechanical, structural, civil, and aerospace engineering, covering vector calculus, derivations of the Bernoulli and Navier-Stokes equations, and the principles of CFD.

Teaching Assistant Monitoring Cities | Professor Masoud Ghandehari

September 2025 – December 2025

- Guided **remote sensing theory**, satellite data acquisition, and processing via Google Earth Engine, and photogrammetric generation of point clouds and 3D models using QGIS.

GIS Specialist | NYU Data Services Co-Head Himanshu Mistry

May 2025 – December 2025

- Demonstrated **GeoAI** applications at university events, designed syllabi and delivered lectures on ArcGIS Pro/Online and StoryMaps, guided students in geospatial data sourcing, and served as a tutor for GIS coursework.

### Ministry of the Environment, Japan

Deputy Director | Nuclear Regulation Authority

Tokyo, Japan

April 2015 – August 2024

- Led post-Fukushima **policy revisions** through cross-sector stakeholder engagement; contributed to IAEA safety standards and reviewed nuclear facilities against earthquakes, tsunamis, floods, and other natural and human-induced hazards.

### Toshiba Corporation

Research Intern | Power and Industrial Systems R&D Center

Yokohama, Japan

August 2013 – September 2013

- Led the validation and verification of a newly introduced **CFD** software package and authored comprehensive technical documentation and user manuals to support institutional adoption and reproducibility.

## TECHNICAL SKILLS

- **Urban Data Science:** climate risk analysis, hazard mitigation, benefit-cost evaluation, infrastructure resilience, disaster recovery
- **GIS & Remote Sensing:** ESRI ArcGIS, QGIS, Google Earth Engine, satellite imagery (Landsat, ECOSTRESS), LiDAR, flood modeling, geospatial data management
- **Data & Programming:** Python (GeoPandas, Scikit-learn, TensorFlow, NumPy), R, STATA, C, deep learning
- **Modeling Tools:** ANSYS Fluent, OpenFOAM, digital twin simulation, climate projections, physics-based and data-assisted modeling, predictive analytics

## SELECTED PROJECTS

AI-Enabled Climate Risk Analytics: Land Surface Temperature Prediction

- Built **weather-aware ML model** predicting land surface temperature at 10 m / 5-min resolution ( $R^2 > 0.9$ ).

Climate Exposure Inequity Under Future Risk Scenarios

- Applied climate projections to assess **future heat-risk inequity** in NYC under changing environmental conditions.

Nature-Based Solutions: Cooling Effectiveness of Urban Green Infrastructure

- Quantified via CFD digital twin that a 0.5-hectare **urban green infrastructure** cools surroundings  $\sim 1^\circ\text{C}$  up to 300 m downwind, informing benefit-cost evaluation of adaptation investments.

## LEADERSHIP ACTIVITIES

- **Co-founder** and secretary of the ASPRS NYU Student Chapter; organized invited lectures by faculty specializing in remote sensing and geospatial science.
- Participated in **post-disaster recovery efforts** following the 2011 Great East Japan Earthquake, making two site visits to affected regions and contributing to the restoration of private residences and seafood processing facilities.