Sedi Lawrence

Infrastructure Resilience Engineer
5157084652

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PROFILE

Experienced environmental scientist with a Ph.D. in Environmental Science, specializing in urban energy modeling, GIS, and climate resilience strategies. Demonstrated success in developing innovative, sustainable infrastructure solutions, including hazard mitigation and nature-based solutions. Proficient in advancing projects through engineering design and construction, with a strong understanding of constructability and permitting needs. Proven leadership in project management and multidisciplinary team collaboration. Proficient in AutoCAD Civil 3D, ESRI, and QGIS for precise engineering design and geospatial analysis. Dedicated to enhancing infrastructure resilience and promoting community safety through state-of-the-art, sustainable engineering practices.

WORK EXPERIENCE

Head Manager of External Connections, Energy & Building Research Department
Mahabim Engineering Company 07/2016 - 12/2019

- Enhanced client retention by 20% through effective coordination and communication with external stakeholders, utilizing project management and stakeholder management skills.
- Improved project efficiency by 15% by managing multidisciplinary project teams, integrating design elements from various professionals, and emphasizing constructability and permitting requirements.
- Increased design accuracy by 25% using AutoCAD, Civil 3D, and Revit for design verification and project management, demonstrating technical proficiency in these tools and methodologies for hazard mitigation.

Urban Energy Modeling Graduate Research Assistant
ISU College of Design Department 01/2020 - 01/2022

- Boosted solar installation efficiency by 30% with a GIS-based map identifying suitable rooftops for solar PV panels, utilizing GIS mapping and solar energy knowledge.
- Achieved a 20% improvement in solar yield through designing a methodology to assess shadow effects on rooftop solar panels, demonstrating analytical and problem-solving skills.
- Enabled 10% energy savings by analyzing Urban Heat Island effects at the neighborhood scale, utilizing data analysis, urban energy modeling, and risk-based decision-making skills.

Urban Energy Modeling Graduate Research Assistant
ISU Department of Geology and Atmospheric Science 01/2022 - 08/2023

- Enhanced accuracy by 30% in tree geometric information extraction using LIDAR data, demonstrating LIDAR data analysis and Python coding skills.
- Developed a dataset to extract geometric information of trees using LIDAR data, enhancing accuracy by 30%. Utilized LIDAR data analysis, Python coding, and research skills.

Urban Energy Modeling Graduate Research Assistant
ISU Department of Environmental Science 8/2023 - 08/2024

- Contributed to sustainable urban planning solutions by developing prototypes of microclimate-based urban energy models for energy use simulation, utilizing urban modeling and energy simulation skills.

EDUCATION

Doctor of Philosophy, Ph.D., Environmental Science *01/2022 - 08/2024*
Iowa State University (ISU), Ames, IA

Master of Science, M.S., Architecture 01/2020 - 01/2022
Iowa State University (ISU), Ames, IA.

PUBLICATIONS

- Comparative Analysis of Urban Heat Island Effects on Building Energy Consumption in the U.S. Midwest.
  37th PLEA Conference for Sustainable Architecture and Urban Design, June 2024.
  Link *Hashemi, F., Salehi, N., Ghiasi, S., Passe, U. (2024)*

- Urban Heat Island Impact on Building Energy Consumption.
  Building Simulation Conference Proceedings,2021
  Link *Ghiasi, S.; Passe, U.; Zhou, Y.; Thompson, J. R.*

- Effect of Neighborhood Density on Energy Consumption: A Comparative Study
  36th PLEA Conference on Sustainable Architecture and Urban Design, 2021
  Link *Ghiasi, S.; Passe, U.; Zhou, Y.*

- Interactive GIS-Based Method for Assessing Feasible Roof Areas for Photovoltaic Panels
  International Conference on Research in Science and Technology, 2015, Kuala
  Link *Ghiasi, S.; Hassanzadeh, M.; Forghanifar, B*

- Role of Public Participation in Sustainable City Initiatives
  International Conference on Research in Science and Technology, 2015, Kuala Lumpur, Malaysia.
  Link *Ghiasi, S.; Hassanzadeh, M.; Forghanifar, B.*

Skills:

Technical Skills: Climate Adaptation Strategies, Hazard Mitigation, Nature-based Solutions, Risk-based Decision-Making, Constructability and Permitting, Engineering Design, LIDAR Data Analysis, Energy Plus, QGIS, ESRI, ArcGIS Pro, AutoCAD Civil 3D, Revit, Rhino, Office, Tableau, ENVI – met.

Soft Skills: Communications, Teamwork, Leadership, Project Planning, Strategy Development, Informatics,Integrity, Adaptability, Time management, Prioritization, Problem Solving, Documentation and Project Management.

ACTIVITIES

- PR Chair, Descarga Latin Dance Club; Executive Board Member, Persian Dance Group, ISU.
- Ranked 5th in Energy & Architecture Entrance Exam, 6th in Architecture Admission Exam.
- Winner of Climate Research Fund; First prize in ISU Carbon Negative Idea Contest.

REFERENCES

1. **Ulrike Passe**
   Associate Professor, Architecture, College of Design
   Iowa State University
   Email: upasse@iastate.edu

2. **Dr. Jan R Thompson**
   Morrill Professor
   Iowa State University
   Email: jrrt@iastate.edu