Grzegorz ”Greg” Kakareko

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EXPERIENCES

Head of Artificial Intelligence & Machine Learning, Spire Global, Boulder October 2021 - Present

- Technical supervision and active development of all AI/ML projects in Spire.
- Lead and manage a team of 6 individuals that included machine learning engineers, applied scientists, and software engineers.
- Active model development, deployment, monitoring and testing of Spire machine learning products.
- Set development priorities and timelines, with a focus on developing solutions that directly support Spire’s core businesses, such as Space, Weather, Maritime, and Aviation.
- Interface with customers and stakeholders, providing insights into products and services.
- Collaborate with peers on the Executive Leadership Team (ELT) to develop and execute broad-scale business strategy.

Senior Machine Learning Engineer, Spire Global, Boulder January 2020 – October 2021

- Developed Spire weather machine learning platform that includes components like infrastructure, deployment, monitoring, and verification.
- Developed machine learning capabilities for Spire space business including active training, predictions, and monitoring on Spire satellites on orbit.
- Mentored and supervised junior members of the machine learning team.

Data Scientist, Risk Management Solutions, Tallahassee July 2017 - September 2019

- Developed machine learning products for insurance and reinsurance industries.
- Developed machine learning pipelines for global weather data collection.
- Developed and maintained PostgreSQL database.
- Developed verification and monitoring systems for machine learning models.

Graduate Research Assistant, Florida State University, Tallahassee May 2015 - December 2019

- Developed machine learning algorithms for better data handling, damage detection, prognostics and damage classification.
- Develop innovative machine learning approaches that change the behavior of coastal businesses and/or residents so that they are more resilient when making decisions and taking actions in a risk-prone environment.

Teaching Faculty, Warsaw University of Technology, Warsaw October 2014 - April 2015

- Instructor for Programming II - introduction to C++course. This course introduces students to object-oriented programming, recursion, data structures, and basic search algorithms with the aim of expanding their programming skills.
- Instructor for Computer Engineering Graphics course. The course's objective was to introduce students to advanced computer science techniques for 3D modeling.

EDUCATION

M.S. Florida State University May 2016 - December 2019
Thesis: Convolutional Neural Networks for Hurricane Road Closure Probability and Tree Debris Estimation. Computer Science

Ph.D. Florida State University May 2015 - November 2019
Dissertation: Multi-scale Hurricane Loss Estimation. Structural Engineering

M.S. Warsaw University of Technology October 2013 - March 2015

Thesis: Effective Stiffnesses of Plates of Repetitive Structure. Structural Mechanics and Computer Aided Engineering

B.S. Warsaw University of Technology October 2009 - July 2013
Thesis: Dynamic Analysis of the Footbridge Considering Different Dampers Solutions. Structural Engineering

PUBLICATIONS

Farr A.J., I Petrunin, **Kakareko, G.**, Carpet J., Self-Supervised vessel detection from low resolution satellite imagery, AIAA SCITECH 2022 Forum

Kakareko, G., Jung, S., Ozguven, E.E., Estimation of tree failure consequences due to high winds using convolutional neural networks, International Journal of Remote Sensing

Kakareko, G., Jung, S., Mishra, S., Vanli, O.A., 2020. Bayesian capacity model for hurricane vulnerability estimation. Structure and Infrastructure Engineering, 1-11.

Kakareko, G., Jung, S., Vanli, O.A., 2019. Hurricane Risk Analysis of the Residential Structures Located in Florida. . Sustainable and Resilient Infrastructure, 1-15.

Kocatepe, A., Ulak, M.B., **Kakareko, G.**, Ozguven, E.E., Jung, S., Arghandeh, R., 2019. Measuring the accessibility of critical facilities in the presence of hurricane-related roadway closures and an approach for predicting future roadway disruptions. Natural Hazards 95, 615-635.

Mishra, S., Vanli, O.A., **Kakareko, G.**, Jung, S., 2019. Preventive maintenance of wood-framed buildings for hurricane preparedness. Structural Safety 76, 28-39.

Amirinia, G., Jung, S., **Kakareko, G.**, 2019. Effect of piezoelectric material in mitigation of aerodynamic forces, Sensors and instrumentation, aircraft/aerospace and energy harvesting, volume 8. Springer.

Kakareko, G., Jung, S., Vanli, O.A., Tecle, A., Khemici, O., Khater, M., 2017. Hurricane loss analysis based on the population-weighted index. Frontiers in Built Environment 3, 46.

CONFERENCE PRESENTATIONS

Jung. S., Amirinia, G., **Kakareko, G.** 2019, Analysis of hurricane wind effects on buildings and community, Structures Congress 2019.

Kocatepe, A., Ulak, M.B., **Kakareko, G.**, Pinzan, D., Cordova, J., Ozguven, E.E., Jung, S., Arghandeh, R., Sobanjo, J.O., 2018. Assessment of emergency facility accessibility in the presence of hurricane-related roadway closures and prediction of future roadway disruptions. Transportation Research Board 97th Annual Meeting

Kakareko, G., Jung, S., Vanli, O.A., Tecle, A., Khemici, O., Khater, M., 2017. Hurricane loss analysis of wood-frame structures in Florida. The 13th Americas Conference on Wind Engineering (13ACWE).

Kakareko, G., Jung, S., Ozguven, E.E., Weresa S., 2017. A new approach for road closure probability estimation caused by hurricane winds. Engineering Mechanics Institute Conference 2017.

Kakareko, G., Jung, S., Vanli, O.A., Mishra, S., Vulnerability estimation of low-rise buildings against wind hazard considering uncertainty in building components, Engineering Mechanics Institute 2016.

INVITED SPEAKER

Keynote speaker for ECCV 2022 - 2nd Workshop on AI for Space https://aiforspace.github.io/2022/
Topic: Challenges of machine learning systems deployed in space.

SCHOLARSHIPS & AWARDS

Federal Alliance for Safe Homes (FLASH) Scholarship.	2016
Dean's Scholarship for Sport Achievements.	2009-2015
Dean's Scholarship for Academic Achievements.	2010-2012
President of the Bialystok City Scholarship for Sport Achievements.	2012
Award from President of the Bialystok City (Diligentiae Medal) for city promotion.	2010