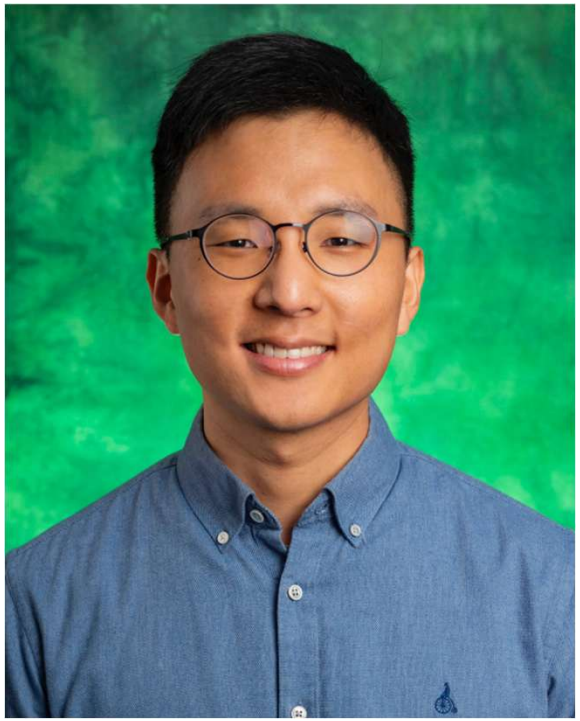
About Me



NAME

Junhyeon Kwon

TITLE

Assistant Professor of Statistics
Data Analytics and Statistics

YEARS AT UNT

3 years (since 2023)

RESEARCH FOCUS AREAS

- Spatio-temporal statistics
- Point processes and event dependence
- Environmental and ecological applications

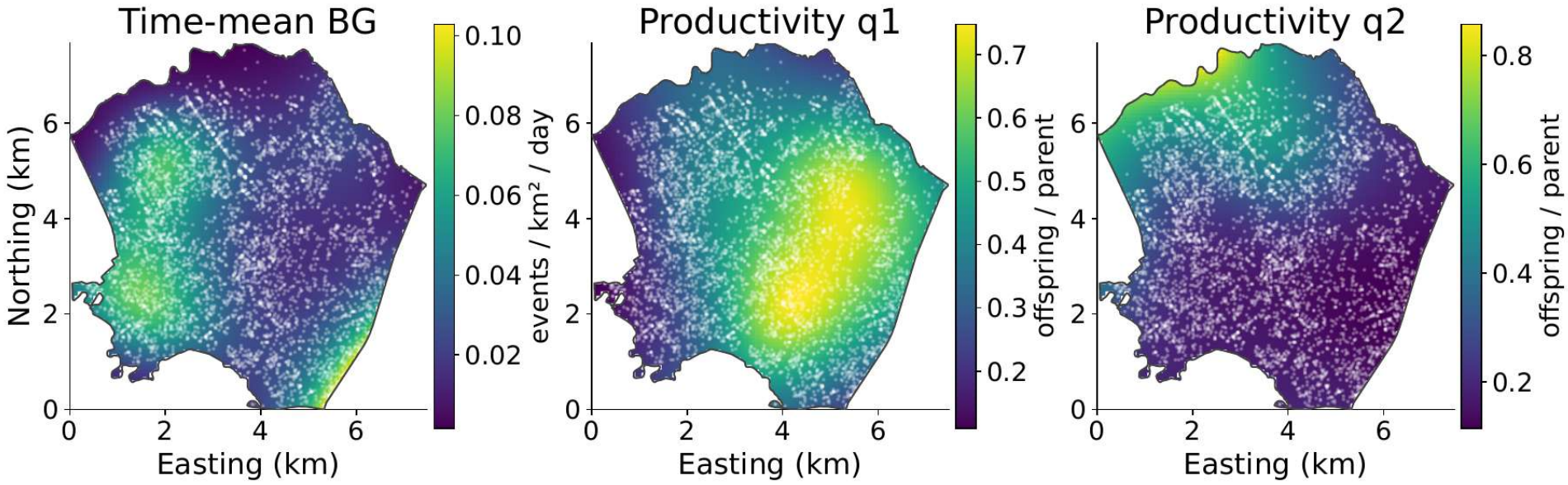
Ph.D. in Statistics, Seoul National University (2021)

I study where and when events occur, and how they depend on one another.

Low-Rank Hawkes Models

With Jorge Mateu, Universitat Jaume I

How many spatial and temporal patterns explain recurring events?



Background rate **Neighborhood recurrence** **Recorded-location recurrence**

Vehicle theft in Kennedy, Bogotá: 4,579 events and two selected recurrence components (2014–2017).

Hawkes Models with Imprecise Locations

With Kyunghee Han, University of Illinois Chicago

How can we use events whose exact locations are unknown?

Precise events only

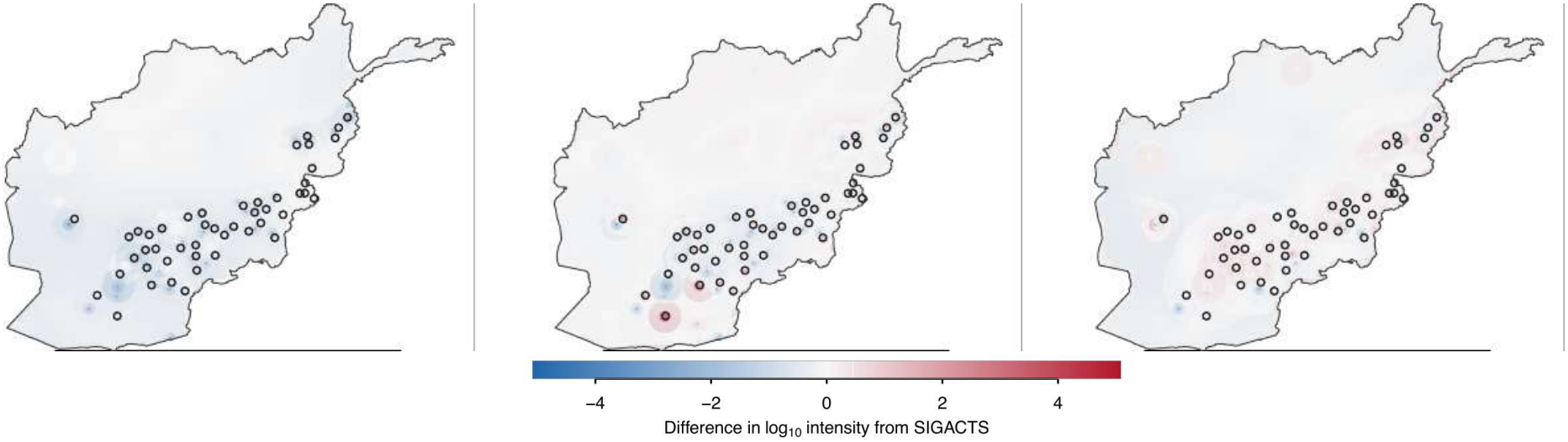
Reconstruction error: 1.33

District centers as exact locations

Reconstruction error: 1.57

Model uncertain locations

Reconstruction error: 0.70

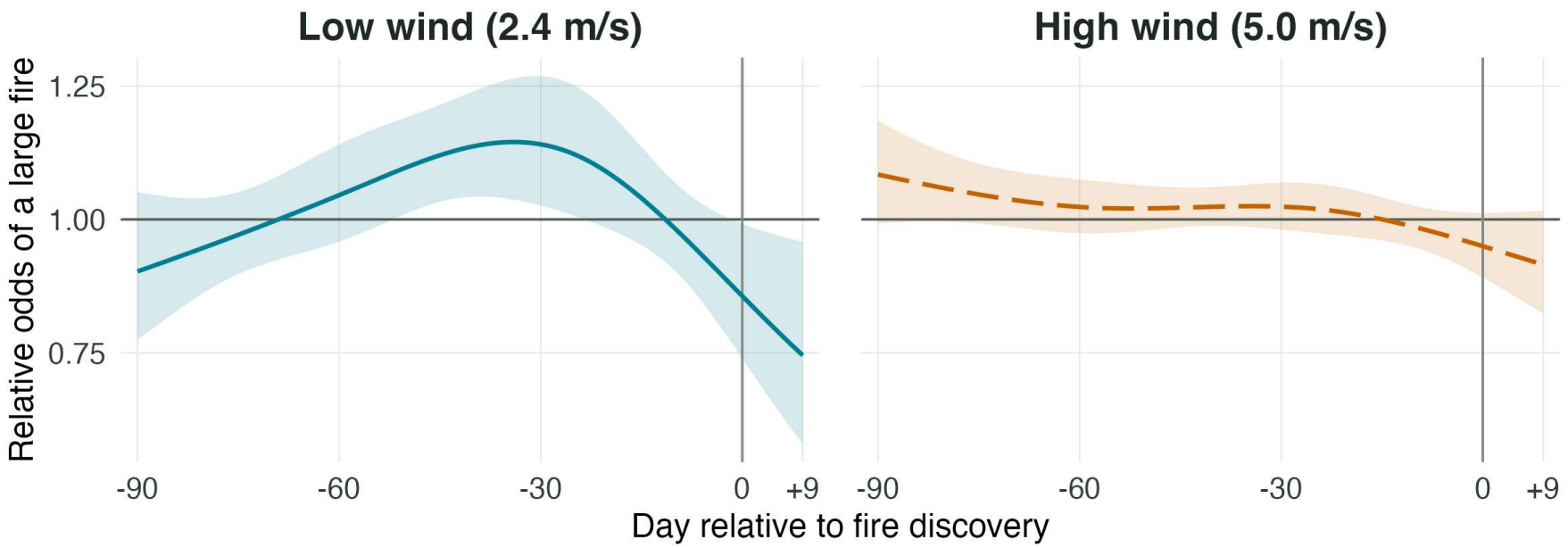


Afghanistan, 6 Nov 2006. Paler colors and smaller errors mean closer agreement with the fitted reference.

Heat Timing and Large Wildfires

Great Plains case study with Jie Kate Hu, Ohio State University

Does the timing of a hot day matter?

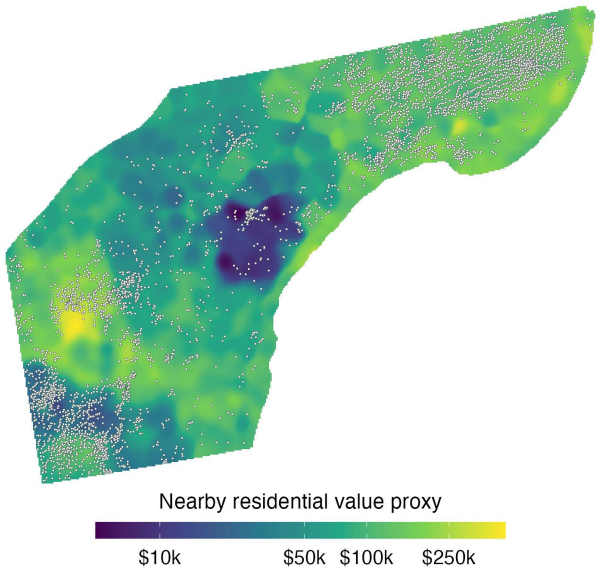


Same one-day +5°C anomaly. Shading: 95% intervals. 1 = no temperature association.

Modeling Fracking Site Locations

With Jihoon Jung, UNT

How are well-pad locations related to nearby residential value?



4,830 estimated well pads
1.85 million residential records

Separate local value from geology, infrastructure and broad spatial patterns.

Ongoing work: estimates remain sensitive to spatial adjustment.

White points: estimated well pads. Color: a tax-derived value proxy (h = 5 km).

Funded projects: NIH R16 – Childhood cancer (Julia Heck); NIH R15 – Cataract risk (Chisom Iwundu)
Submitted proposals: NIH proposal – Biliary atresia (Julia Heck); NSF proposal – Tumor microenvironment (Jungkwun Kim).