

# JIWON BAIK

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## Education

**University of California, Santa Barbara** | Santa Barbara, CA

Master: **Geographic Information Science (STEM)** | 2021

Master: **Applied Statistics (Data Science)** | Expected in 2022

PhD.: **Geography** | Expected in 2023

**Seoul National University** | Seoul, South Korea

Bachelor of Arts: **Geography Education** | 2019

Graduate **Summa Cum Laude (top 5% student)**

**Korean National Teacher's License**

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## Skills

- Proficient in data processing and statistical analysis with **Python** and **R**  
(Got an **A Certificate in Samsung SW Expert Algorithm Test with Python**, 08/2019)
- Experienced in text detection in images by **Deep Neural Network** and data analysis using **Machine Learning Algorithms**
- Proficient in statistical methods including **Regression Analysis**
- Highly Experienced in GIS software such as **ArcGIS**, **ArcMap**, and **QGIS**
- Comprehend the real-world problems and build optimization models with **Xpress** and **Gurobi** solvers
- Developed a website with the python-based package **Django** and managed **relational database with SQL queries**
- Deployed the website with Amazon Web Cloud Services  
(**AWS cloud practitioner certificate**, credential ID: B2ZXP60CJ2QE1NG9)
- Communication skills driven by years of **teaching experience** in voluntary mentoring programs, high school student teaching, and **Korean National Teacher's License**

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## Experience

**Graduate Student Researcher** | NSF | 07/2021 - Current

- Writing academic papers and abstracts under the "Understanding Fire Weather Hazards" project
- Detecting traffic signals and stop signs from Google StreetView images using **Convolutional Neural Network (CNN)**
- Building and validating an **Agent-Based Model (ABM)** with **Python** library, MESA

**Teaching Assistant** | UCSB Geography dept. – Santa Barbara, CA | 10/2019 - 06/2021

- Ran the technical lab sections of GIS courses with 20-40 students and guided student GIS projects.
- Taught the basic statistical methods as **Regression Analysis** and **ANOVA**
- **The highest evaluated TA in the department.**

**Trainee** | Samsung Software Academy - Seoul, Korea | 12/2018 - 08/2019

- Trained to be a data scientist in Samsung
- Participated in team-based web building project and got proficient with **GitHub** version-control
- **Got the first prize in the web build project** contest and got an **A certificate in the Samsung Algorithm test**

**Small Online Business Owner** | Account shop - Seoul, Korea | 06/2018 - 08/2018

- Managed an online retail shop connecting users to exchange in-game items
- Communicated with and reached 600 customers online per month
- Revenue \$8000 per month, with Profit 2000\$

#### Intern News Reporter | KTV - Seoul, Korea | 02/2017 - 01/2018

- Broadcasted eight news reports about the government housing supply, municipal office rental service for start-up companies, winter Olympic events in Seoul, etc.
- Selected the new item and communicate with the News desk, and scheduled shootings with camerapersons and interviewees.
- A link to one of the reports: [http://www.ktv.go.kr/content/view?content\\_id=542089](http://www.ktv.go.kr/content/view?content_id=542089)

#### Data Analyst Intern | Leaders Business Consulting - Seoul, Korea | 07/2016 - 09/2016

- Assisted a statistical analysis part of the brochure for a consulting package for small business closures.
  - Conducted **web-crawling** on articles showing the causes of small business closures
  - Conducted a **generalized regression analysis** to find out the factors of small business closures
  - Created infographics and wrote a report to present in the brochure to the customers
- Assisted a pilot project for a welfare counseling terminal in Wanju City.
  - Conducted a **log analysis** and **logistic regression** about the counseling tablet usage with Excel and Python
  - Wrote a report about the findings on user behavior

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## Research

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#### Spatial optimization in strategic siting of urban infrastructure and services Master's Thesis | 2019/9 – 2021/6

- Formulated a new mathematical spatial optimization model to find the best location of a plant (or facility) considering accessibility and coverage of demands at the same time
- Developed a solution algorithm that is more efficient than commercial solvers exploiting GIS techniques in **Python**, including computational geometries.
- Applied the solution algorithm to the real-world dataset and found the best locations for the telecommunication center and juice plant.

#### Understanding Fire Weather Hazards Project funded by NSF | 07/2021 - Current

- Modeling the optimal evacuation process considering the road network and residential environment of a region with Xpress and **Gurobi-Python**.
- Creating an automated data processing pipeline using opensource datasets and **Neural Network and Machine Learning techniques**
- By **ABM (Agend Based Modeling) in Python and Object Oriented Programming**, specifying individual vehicle movement in the evacuation process.

#### The peer-reviewed and Submitted papers

- 2020 Murray, T.A., Xu, J., **Baik, J.**, Burtner, S., Cho, S., Noi, E., Pludow, B., Zhou, E. (2020). Overview of Contributions in Geographical Analysis; Waldo Tobler, Geographical Analysis.
- A.T. Murray and **J. Baik**. "Spatial optimization in strategic siting of urban infrastructure and services." Submitted to International Journal of Urban Informatics (submitted 9/24/21).
- **J. Baik** and A.T. Murray. "Locating a facility to simultaneously address access and coverage goals." Submitted to Papers in Regional Science (submitted 8/19/21).

#### Conference Presentations

- **J.Baik**, "Strategic Location, Coverage and Access," the Annual AAG meeting conference (presented 04/17/2021)
- **J.Baik**, "the emergence of HEW(High-Efficiency Wireless) and public Wi-Fi distribution.", the Korean Cartographic Association conference (presented 12/18/2018)

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## Accomplishments

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#### Seoul National University representative mentor | 08/2014-12/2016

National scholarship, '100 Years Scholarship for Humanities' | 09/2017

Seoul National University Scholarship, 'Academic Excellent Scholarship.' | 2018-2019