Abdoulie Fatty, Ph.D.

Machine Learning Scientist working on the frontier of research and development. Experienced in developing and deploying Machine and Deep learning models combined with a track record for identifying new problem areas and researching technical details to develop innovative products and solutions by leveraging AI to solve real-world problems.

fatty-bamba.me (portfolio) | linkedin.com/in/fatty-bamba | github.com/fatty-bamba | afatty13@gmail.com

Experience

01/2019 | 12/2022 **AI Doctoral Research Associate,** National Taiwan University of Science and Technology, Taipei.
- Developed AI-based mobile apps for landslide assessment while considering critical factors like earthquakes and heavy rainfall.
- The apps enable engineers to perform quick assessment of slope safety in less than 10 seconds instead of the 1 hour it takes using conventional methods.

01/2021 | 01/2022 **Project-Based Machine Learning Engineer,** sinotech engineering consultants, Taipei.
- Developed an automated instance segmentation based model for building extraction from aerial imagery data.
- Reduce building extraction cost and time from aerial imagery data by up to 95%.

Education

2019-2022 **Ph.D. in Civil Engineering,** National Taiwan University of Science and Technology, Taipei.
- Published 6 papers on ML and DL methods for solving complex engineering problems.

2017-2019 **M.Sc. in Civil Engineering,** National Taiwan University of Science and Technology, Taipei.
- Focused on predictive analysis and optimization to solve challenging slope safety problems.

2012-2016 **B.Sc. in Civil Engineering,** National Taipei University of Science and Technology, Taipei.

Selected Publications

02/2023 **Instance Segmentation Based Building Footprint Extraction Using Multispectral Aerial Imagery Data.**

05/2022 **Recurrent Neural Network Based IOS Mobile Applications for Slope Safety Assessment.** [Paper]

08/2018 **Back Analysis Algorithm Based on Particle Swarm Optimization.** [Paper]

Additional ML publications are available on my Google Scholar. [publications]

Selected ML Projects

06/2022 **Slope Safety Prediction.** Developed a hybrid GA-XGBoost model for safety assessment of slopes. Deployed a web app for stability number prediction of slope cases. GitHub

02/2023 **Predictive Time Series Forecasting Model for Property Price Prediction.** Implemented exploratory data analysis, data visualization, and featuring engineering to developed a highly efficient predictive time series forecasting model ($R^2 \approx 0.97$). GitHub

Technical Skills

Tools: Python, JavaScript, PyCharm, Flask; Jupyter, VS Code; AWS: EC2, Lambda, S3; Git, Node.js

Packages: Pytorch, Tensorflow, Fastai, Core ML; NumPy, Pandas, SciPy, Seaborn; XGBoost, RNN, Mask R-CNN

Soft Skills

Key skills
- Detail-oriented and scientific mindset
- highly motivated and collaborative team player
- Highly experienced in working on team projects
- Excellent communication and writing skills

Languages **English** (native), Chinese (fluent)