


# XIAO PING SONG, PhD


9 years of experience in data science and 3 years leading end-to-end delivery for technical projects. Currently working on software and data engineering across on-premise and cloud platforms. Research and teaching expertise in applied machine learning and geospatial techniques.


Certified PMP and AWS Solutions Architect. My track record includes developing use cases for data products, acquiring exclusive data, leading technical workshops, and aligning diverse stakeholders in highly matrixed environments.


## EMPLOYMENT

- 2024

  - Senior Data Engineer**  
Esri Singapore  Singapore
- 2021  
|  
2023

  - Postdoctoral Fellow, Project Manager, Adjunct Lecturer**  
National University of Singapore, Dept. Architecture  Singapore
    - Secured a 3-year grant for \$1.5 mil
    - Led deployment of IoT sensor networks, delivering real-time data with 60% cost savings by refining requirements and adopting specific wireless technologies
    - Assembled and managed a diverse, cross-organisational team to develop sustainability reporting standards across six work streams
    - Pioneered new methods to reduce spatial disparities in park access, published in a software journal
- 2020  
|  
2022

  - Postdoctoral Fellow, Project & Product Manager**  
National University of Singapore, Faculty of Science  Singapore
    - Led the delivery of a data product that provides biodiversity performance benchmarks, gaining buy-in from senior management
    - Developed data pipelines and predictive models to assess the spatial distribution of 1,100 species
    - Secured access to sensitive high-resolution (LiDAR) data and \$60,000 for satellite images
    - Led and trained a team of five to proficiency in coding best practices and GitHub collaboration, leading to model training at 8x speed
- 2016  
|  
2020

  - PhD Researcher**  
ETH Zürich, SEC, Future Cities Laboratory  Singapore, Switzerland
    - Drove initiatives for industry collaboration, presented at conferences (UK, US, Switzerland, Japan), and published four research papers in leading global journals

## EDUCATION

- 2020

  - Ph.D. in Architecture (Urban Planning / Analytics)**  
National University of Singapore, College of Design and Engineering
    - Applied statistical/ML techniques to develop a cost-effective strategy for managing trees citywide
    - Predicted recreational preferences and crowd behaviour at parks based on social media photos
- 2016

  - B.Sc. (Hons) in Life Sciences, Minor in Technology Entrepreneurship**  
National University of Singapore

## CONTACT

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 [xpsong.com](http://xpsong.com)

 [linkedin.com/in/xpsong](https://www.linkedin.com/in/xpsong)

 [github.com/xp-song](https://github.com/xp-song)

 [scholar.google.com](https://scholar.google.com)

 [udemy.com/user/xp-song](https://www.udemy.com/user/xp-song)

## CODE & TOOLS

Python / PyTorch / Tensorflow  
R / tidyverse / r-spatial / Shiny  
SQL / PostgreSQL / PostGIS  
ArcGIS Pro / Enterprise / ArcPy  
Azure DevOps / AWS / Google Cloud  
Jira / Workflows / Automation  
Docker  
Git  
RegEx  
Command-line interfaces  
HTML / CSS  
APIs (REST, GraphQL)  
QGIS / Google Earth Engine

## DOMAINS & METHODS

Data, software & cloud migration  
User acceptance testing  
Data visualization / dashboards  
Spatial data manipulation / modelling  
Remote sensing (satellite / LiDAR)  
Image processing (inc. spectral)  
IoT / Wireless technologies  
Utility networks (e.g., water)  
Metrics & feature engineering  
Model diagnostics & debugging  
Linear & mixed models  
Decision trees / Ensemble models  
Unsupervised learning  
Parallel programming  
Questionnaire surveys



## TEACHING / TRAINING SKILLS

- 2023 • **Geospatial Data Science with R**  
Udemy online course  
[bit.ly/geospatial-datascience-r\\_udemy](https://bit.ly/geospatial-datascience-r_udemy)
- 2023 • **Geodesign**  
Module Lecturer, National University of Singapore. Master / Bachelor of Landscape Architecture
- 2021 | 2022 • **Introduction to Git**  
University workshops on version control and GitHub collaboration
- 2018 | 2022 • **Introduction to R Programming and Spatial Statistics**  
Online and in-person workshops covering a variety of topics in R  
[xpsong.com/posts/intro2r](https://xpsong.com/posts/intro2r)  
[xpsong.com/posts/intro2r-spatial](https://xpsong.com/posts/intro2r-spatial)
- 2016 | 2020 • **Weekly Music Classes**  
Part-time Educator, My Drum School Pte Ltd. Attained Net Promoter Score of 75 (top 5%); Best Educator of the Quarter twice in 3 years  
[instagram.com/p/BzpCir0HQQA-](https://instagram.com/p/BzpCir0HQQA-)

## ACCOMPLISHMENTS

- **Certifications**
  - Generative AI with LLMs ([DeepLearning.AI](#), [AWS](#))
  - Machine Learning Engineering for Production (MLOps) Specialization ([DeepLearning.AI](#))
  - AWS Certified Solutions Architect ([AWS](#))
  - Project Management Professional ([Project Management Institute](#))
  - Deep Learning Specialization ([DeepLearning.AI](#))
  - Machine Learning Specialization ([Stanford University](#))
- **Awards**
  - SEC PhD Scholarship (Fully Funded), National Research Foundation (2016)
  - Best Full-time National Serviceman, Officer Cadet School (Midshipmen Wing), Singapore Armed Forces (2011)
  - Jacob Ballas Scholar's Award, Perfect score (six distinctions) for GCE 'A' Level Examinations (2009)

## SOFTWARE

-  [biodiversity](#)  
Assess the spatial distribution of urban biodiversity between places, across time, and into the future
-  [home2park](#)  
Assess the spatial provision of parks city-wide