

XIAO PING SONG, PhD

Hands-on technical leader with expertise in data engineering, AI/ML, and geographical information systems (GIS). Comfortable in ambiguous, high-stakes environments — aligning stakeholders with competing priorities and leading teams to deliver with speed and clarity. I care deeply about team culture, transparency, and building systems that last.

Certified PMP, ITIL, and AWS Solutions Architect. Experience across government, defense, homeland, utilities, and sustainability verticals. In academia, I worked as a Postdoctoral Fellow leading research and teaching in machine learning and geospatial programming.

EMPLOYMENT

2025

- **Data Engineering Manager**

Esri Singapore

- Pioneer GenAI adoption using open-standard architectures and agent frameworks
- Drive process unification with a new onboarding framework and playbooks to scale the delivery of repeatable solutions
- Spearhead data-driven performance framework with peer feedback to foster a transparent culture and align incentives with company values
- Scope POCs/proposals and build internal tools to strengthen the pre-sales and delivery pipeline

2024

- **Senior Data Engineer, Tech Lead**

Esri Singapore, Professional Services (Delivery)

- Managed technical rollout of 1000+ web widgets, geo-data layers and API endpoints to 1,200 users and 9 external systems, with all phases delivered on schedule
- Forward-deployed development for data migration, achieving 100% validation and sign-off
- Led client workshops to uncover core needs, delivering solutions that significantly reduced task complexity and duration
- Spearheaded cross-team initiatives and client negotiations, introducing change controls that reduced scope by 375 man-days

2021
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2023

- **Postdoctoral Fellow, Project Manager, Adjunct Lecturer**

NUS College of Design and Engineering

- Secured 3-year grant for \$1.5 mil
- Assembled a cross-organisational team to develop sustainability reporting standards across six work streams
- Led deployment of IoT sensor networks, delivering real-time data with 60% cost savings by refining requirements and adopting specific wireless technologies

2020
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2022

- **Postdoctoral Fellow, Project & Product Manager**

National University of Singapore, Faculty of Science

- Led the delivery of a data product for biodiversity performance benchmarking, gaining buy-in from senior management
- Secured access to sensitive high-res LiDAR and \$60k for satellite images

2016
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2020

- **PhD Researcher**

ETH Zürich, SEC, Future Cities Laboratory

- Drove initiatives for industry collaboration, presented at conferences (UK, US, Switzerland, Japan), and published four research papers in leading global journals

CONTACT

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github github.com/xp-song

scholar [scholar.google.com](https://scholar.google.com/citations?user=xp-song)

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

CODE & TOOLS

Python / R / SQL / Git

Local LLMs (Ollama) / Vector DBs

ArcGIS Pro / Enterprise / Online

AWS / Google Cloud

QGIS / Google Earth Engine

CLI (Bash / Powershell)

APIs (REST, GraphQL, MCP)

CI/CD (Azure DevOps, GitHub)

IaC (Docker / K8s / Terraform)

Jira / Confluence / Automation

DOMAINS & METHODS

Data architecture / modeling

Data, software & cloud migration

Data visualization / dashboards

Geographic Information Systems

Remote sensing (satellite / LiDAR)

Image processing (inc. spectral)

IoT / Wireless technologies

Utility networks (e.g., water)

Metrics & feature engineering

Model diagnostics & debugging

GenAI / LLM Ops

Linear & mixed models

Decision trees / Ensemble models

Unsupervised learning

Curriculum development

Resource & capacity planning

Scrum / Agile transformation

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

TEACHING / TRAINING SKILLS

- 2023 • **Geospatial Data Science with R**
Udemy online course (600+ learners; rated 4.7 / 5)
 [bit.ly/geospatial-datascience-r_udemy](https://www.udemy.com/course/geospatial-data-science-with-r/)
- 2023 • **Geodesign**
Module Lecturer, National University of Singapore. Master / Bachelor of Landscape Architecture
- 2018 | 2022 • **Coding workshops: Spatial Statistics and Version Control**
Online and in-person workshops on R programming and Git
 xpsong.com/posts/intro2r
 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/BzpCir0HQA-](https://www.instagram.com/p/BzpCir0HQA-)

ACCOMPLISHMENTS

- **Certifications**
 - ITIL® 4 Foundation (PeopleCert)
 - AWS Certified Solutions Architect ([AWS](#))
 - Project Management Professional ([Project Management Institute](#))
 - Data Engineering Professional Certificate ([DeepLearning.AI, AWS](#))
 - MLOps Specialization ([DeepLearning.AI](#))
 - Deep Learning Specialization ([DeepLearning.AI](#))
 - Machine Learning Specialization ([Stanford University](#))
- **Awards**
 - Most Valuable Player - Leadership, Esri Singapore (2024)
 - SEC PhD Scholarship, 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)

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