

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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- in linkedin.com/in/xpsong
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- 🔗 scholar.google.com
- 👤 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 / LLMOps
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
- 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-

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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