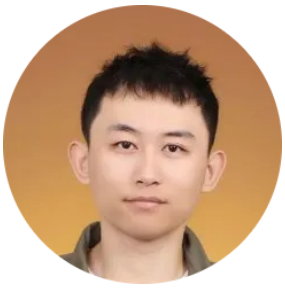
Xuanren Song

Research Assistant



Contact

0451953558

kowdataanalyze@gmail.com

Melbourne, Australia

Key Skills

- Python
- SQL
- Streamlit
- data cleaning
- web scraping
- automation
- API use
- Cross-cultural teamwork

Education

Master of Artificial Intelligence
Monash University, Melbourne, Australia

Master of Business Analytics
Deakin University, Melbourne, Australia

Professional Summary

Master's student in Artificial Intelligence at Monash University with over three years of research experience in large-scale geospatial and environmental data systems. Specialized in backend automation, full-stack data visualization, and AI-driven forecasting models for carbon and energy monitoring. Skilled in integrating multi-source datasets (energy, satellite, transport) into near-real-time pipelines and deploying interactive visualization platforms.

Research & Technical Experience

Tsinghua University - Carbon Monitor Project

Research assistant | Beijing, China | March 2022 - Present

Carbon Monitor Power — Full-stack platform

- Built a website for near-real-time power data covering 40+ countries.
- Wrote Python pipelines to collect, clean, and combine data every day.
- Exposed data through simple APIs and an interactive dashboard.
- Cut update time from weeks to under one month; daily runs take hours, not days.
- Links: [Website] · [GitHub] · [Demo]

Carbon Monitor (Global / China / Cities / EU / GRACED) — Backend & automation

- Combined several databases into one workflow with checks and logs.
- Turned raw data (energy stats, mobility, satellite) into clean tables for charts and partners.
- Co-authored 10+ papers/datasets (e.g., *Scientific Data*, *Nature Cities*, *GMD*).
- Link: [Carbon Monitor Website]

Research automation tools

- Built an auto-publishing bot on Twitter (X) to fetch, summarize, and post environmental research updates, with basic monitoring/rollback; service later paused for funding reasons.

Monash University — Master of AI

X-TransformerCO_2 (Thesis) | Melbourne, Australia | 2024 - Present

- Built a time-series model to estimate daily national CO_2.
- Made feature pipelines (resample, lags, holidays/weather).
- Compared with simple baselines and reported errors clearly.
- Link: [Github]

Chang Tsi & Partners

Senior Billing Specialist | Beijing, China | 2016 - 2019

- Coordinated with international clients to review and process legal billing requests via email and document exchange.
- Improved billing workflows by developing systematic data-cleaning and verification steps, cutting task time from several days to a few hours while reducing error rates.

Graduated with Honors, Nov 2020

Bachelor of Economics
University of Oregon, Oregon, USA
Graduated with Honors, June 2016

Professional Affiliation

Research Assistant - Carbon Monitor Project

Tsinghua University (2022-Present)

Languages

Chinese (Native)

English (Fluent)

Interests

#Cyclying #Swiming

#Coding #Automation

- Promoted to Senior Billing Specialist within six months for outstanding efficiency and reliability.
- Produced standardized billing summaries and reports according to client-specific requirements, ensuring compliance and accuracy across multiple jurisdictions.

Publications

Co-first author

1. CarbonMonitor-Power: near-real-time monitoring of global power generation on hourly to daily scales, *Scientific Data* (2023)

Co-authored

1. Monthly methane emissions in Chinese mainland provinces from 2013–2022, *Scientific Data* (2025)
2. Health co-benefits of post-COVID-19 low-carbon recovery in Chinese cities, *Nature Cities* (2024)
3. Revisiting anthropogenic CH_4 emissions from fossil fuel activities based on space observations, *AGU Fall Meeting Abstracts* (2024)
4. Carbon Monitor Power-Simulators (CMP-SIM v1.0): a data-driven approach to simulate daily power generation, *Geoscientific Model Development* (2024)
5. Near-real-time monitoring of fossil CH_4 emission from fossil fuel activities, *EGU24 Conference Abstract* (2024)
6. Near-real-time monitoring of global ocean carbon sink, *arXiv* (2023)
7. Carbon Monitor AutoForecast-Asia: a real-time emission estimates of the residential sector for Asian major emitters with an automatic machine learning framework, *EGU23 Conference Abstract* (2023)
8. Carbon Monitor Europe near-real-time daily CO_2 emissions for 27 EU countries and the United Kingdom, *Scientific Data* (2023)
9. Near-real-time global gridded daily CO_2 emissions 2021, *Scientific Data* (2023)
10. Monitoring and quantifying CO emissions of isolated power plants from space, *Atmospheric Chemistry and Physics* (2023)
11. Carbon Monitor Power-Simulators (CMP-SIM v1.0) across countries: a data-driven approach to simulate daily power demand, *EGUsphere* (2023)
12. Scenarios of demographic distributional aspects of health co-benefits from decarbonising urban transport, *The Lancet Planetary Health* (2022)
13. Daily CO_2 emissions for China's provinces in 2019 and 2020, *Earth System Science Data Discussions* (2021)
14. Carbon Monitor: a near-real-time daily dataset of global CO_2 emission from fossil fuel and cement production, *Scientific Data* (2021)