Resume

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PROFILE

- Good at self-learning (Japanese, Programming, Machine learning, Public Health, Dental Health, etc.).
- Have a strong passion for the well-being, clinical and medical field, and ardently want to help those in need, especially children with my knowledge.
- Hope can contribute to humanity.

Research Keyword

Public Health, Data Science, Child Maltreatment, Maternal and Child Health, Well-being, ...

Education Experience

September 2005 – June 2011 **Jiashan Experimental Primary School**

September 2011 – June 2014 **Nanhu School Affiliated To Beijing Normal University**

September 2014 – June 2017 **Jiaxing Nanhu High School Affiliated To Beijing Normal University**

April 2017 – March 2018 **Ikushu International Language Academy, major in Japanese**

April 2018 – March 2022 **Bachelor of Science, Nara Women's University**

Mathematic course, Department of Mathematical and Physical Sciences, Faculty of Science

Major in Mathematics (Topology, Algebra, Calculus, etc.)

- Research:
  - No undergraduate thesis was produced due to departmental policy; instead, I focused on reading seminars of advanced textbooks in my lab and on self-directed study. Rather than pursuing an application-specific project, I developed core strengths—mathematical rigor, logical reasoning, and implementation skills—as well as the ability to independently catch up in unfamiliar domains.
  - Built a solid foundation in Python and trained to understand deep learning algorithms at the mathematical level and implement them in code (reading seminar on *Deep Learning from Scratch*).
  - From my sophomore year, voluntarily joined a reading group in another lab (master's program) and systematically studied machine learning theory through C. M. Bishop's *Pattern Recognition and Machine Learning (PRML)*.

April 2022 – Mar 2024 **Master's-equivalent completion, Kyoto University,** Graduate School of Advanced Integrated Studies in Human Survivability (five-year doctoral program),

- **Master's-equivalent (QE) Research | COVID-19 & Fertility (Japan, 2015–2022)**
  - Title: Factor Analysis of the COVID-19 Pandemic's Impact on Japan's Fertility Rate: Time-Series and Prefecture-Level Correlation Analyses Using Epidemic Waves and Economic Indicators (2015–2022)
  - Integrated Japanese vital statistics with COVID-19 case counts and prefectural economic indicators (e.g., per-capita income) and conducted seasonally adjusted time-series and regional comparative analyses. Identified a clear lagged association in which birth counts decreased significantly ~9 months after major epidemic waves (notably Waves 1, 4, and 6). Found that declines in per-capita prefectural income were significantly associated with reduced births, suggesting that economic shocks—beyond infection dynamics—contributed to fertility suppression and underscoring the importance of economic support during public health crises.

April 2024 – present **Doctor of Philosophy, Kyoto University,** Graduate School of Advanced Integrated Studies in Human Survivability (five-year doctoral program)

Major in Interdisciplinary Studies (Data Science, Public Health, Child Welfare, etc.)

- **Doctoral Research | Child Maltreatment Risk Screening via Dental & Lifestyle Data**
  - Title: Early Risk Estimation of Child Maltreatment Using Dental Checkup and Lifestyle Data: Model Development and Pathways to Implementation
  - Built an early screening model using integrated dental examination and lifestyle data from ~2,480 children in temporary protective custody. Focused on dental neglect indicators (caries, gingivitis, poor oral hygiene) as potential early signals of broader maltreatment subtypes. Applied statistical testing, multinomial logistic regression, and machine-learning methods (e.g., random forests) to capture nonlinear interactions and latent risk patterns, emphasizing interpretability (feature-importance visualization) to support practical use by dentists and child welfare professionals. Future work will expand to socioeconomic and household context variables and physical findings for more comprehensive risk profiling.

Global Experience

April 2017 **Study abroad in Japan**

5 March 2019 **Mathematic Lesson in Junru Primary School**

- Role: Held a mathematic lecture about topology to elementary school students in China
- A 40 minutes lecture about crease pattern topology

22 - 29 August 2019 **NWU CORE of STEM International Summer Programme**

- Role: Leader of research group and present the research findings. Guide to introduce Japanese and Chinese culture to international students from six countries.

- Study Optical Physics and topology of origami cranes: how they stimulate modern Physics and Math with foreign students.

16 December 2019 **Tennoji High School Attached to OKU's university visit**

- **Role**: Teacher Assistant.
- Introduce life in the university as a foreign student.

8 October & 10 December 2021 **English Lessons in the Elementary School Attached to Nara Women's University**

- Role: Held English lessons and introduce Chinese culture.
- Listen to children introduce their school in English and introduce the university life of international students in English.

Research Projects

Lead Research: Quantifying Child Maltreatment Risk through Multi-sector Data Integration

Aim: Build quantitative evidence to support

(1) refined risk stratification and classification

(2) design of **field-deployable decision-support tools**

(3) evidence for prevention policy and practice

Approach: Integrate multi-professional / multi-institutional datasets and apply statistical modeling and machine learning for interpretable, actionable insights.

Project 1. Dental Examination × Lifestyle Habits × Maltreatment Classification (Children in Temporary Protective Custody)

- **Role: Project Lead** (PI under supervision): Study design, data management, statistical/ML analysis, stakeholder coordination, manuscript preparation.
- **Data:** Reasons for protection, demographics, dental examination findings; subset includes lifestyle questionnaire data.
- **Methods:** Descriptive statistics, group comparisons, multinomial logistic regression, Random Forest, Independent Component Analysis (ICA).
- **Objective/Impact:** Clarify associations between oral health conditions and maltreatment classification to support earlier detection and rapid response; extendable to analyze lifestyle patterns and their links with oral environments.

Project 2. Retrospective Evaluation of Child Abuse Assessments Using Clinical Forensic Medicine

- **Role:** Data Analysis Lead: preprocessing, statistical/ML analysis, figures/tables, drafting Methods/Results
- **Goal:** Evaluate whether clinical forensic medicine improves diagnostic accuracy and clinical decision-making in suspected maltreatment.
- **Design:** Retrospective review of maltreated/suspected-maltreatment cases assessing background risk, clinical findings, testing, consultations, and outcomes.
- **Key variables:** (1) patient background, (2) suspected maltreatment type, (3) injury presence/location, (4) tests and specialty consultations, (5) integrated assessment, (6) disposition/management decision, etc.
- **Expected contribution:** Provide evidence for feasibility and implementation of clinical forensic evaluation pathways in a university hospital setting.

Project 3 (Planned). National Child Abuse Registry Analysis

- **Role:** Analyst as a member of the Research Committee, Japanese Society of Child Abuse and Neglect Medicine.
- **Scope:** Multi-center case aggregation to expand evidence on risk factors, clinical findings, responses, and outcomes.
- **Objective:** Develop generalizable evidence including rare/complex cases that are difficult to capture in single-site studies.

Collaborative Projects: Infectious Disease Epidemiology, Mathematical Modeling, and Measurement Analytics

Theme: Quantify effectiveness and limitations of interventions for public health challenges via applied data analysis and methodological development.

Project 1. Effectiveness of Airport Fever Screening (Okinawa, 2020–2022)

- **Role:** Data Analysis : data visualization
- **Design:** Retrospective evaluation of fever screening using thermography across nine airports.
- **Findings:** Detection sensitivity for infected travelers peaked at **8.2%**, implying >90% missed under fever-only screening.
- **Recommendation:** Standalone temperature screening provides limited border control benefit; add measures such as pre-boarding testing depending on epidemic conditions.

Project 2. Long-term Care Facilities in Okinawa: Infection Control Practices and Outbreak Size

- **Role:** Data Analysis Lead: preprocessing, statistical analysis, figures/tables, contributed to manuscript writing
- **Design:** Questionnaire-based cross-sectional study of facilities with outbreaks (Apr–Jun 2022).
- **Methods:** Negative binomial regression to estimate factors associated with outbreak size.

- **Key findings:** Smaller outbreaks associated with contact-based staff testing (**aRR 0.11**) and resident mask wearing (**aRR 0.40**).
- **Implication:** Risk-based testing may outperform fixed-interval screening strategies in resource-constrained settings.

Project 3. Infectious Disease Mathematical Modeling: Empirical Dynamic Modeling (EDM)

- **Role:** Data Analysis Lead: data collecting, preprocessing, statistical analysis, figures/tables, contributed to manuscript writing
- **Objective:** Infer data-driven interactions among infectious diseases (interference/co-circulation) from time series.
- **Methods:** EDM to estimate causal coupling, strength, and directionality.
- **Output:** Quantified interaction structure to prioritize interventions and anticipate concurrent epidemics.

Project 4. Post-Earthquake Importation Risk of Infectious Diseases Using Mobility Data

- **Role:** Data Analysis Lead: preprocessing, statistical analysis, figures/tables, contributed to manuscript writing
- **Data:** Mobile device mobility data, IDWR weekly infectious disease reports, and public statistics.
- **Methods:** Define a population-adjusted infection risk index; time-series analysis of mobility-risk alignment.
- **Result:** Quantified temporal consistency between a surge in inflow from outside the prefecture (week after the earthquake) and subsequent expansion of infections (following week); visualized increasing trend in external-origin risk.
- **Significance:** Contributes to disaster-time public health risk evaluation models leveraging mobility data.

Project 5: Study on the Current Status of Child Abuse Response and the Impact of Educational Interventions for Firefighters, Hospital Paramedics, and Paramedic Students

- **Role:** Co-Investigator (Questionnaire Design, Data analysis)
- **Collaborating Institutions:** Tokyo Medical University (Lead)

Project 6 (Planned). Wearable Biosignal Analytics for Stress Index Estimation

- **Role:** Data Analysis Lead: preprocessing, statistical analysis, figures/tables, result presenting
- **Data:** Multi-device physiological signals (ECG/EEG/facial EMG).
- **Methods:** Feature extraction and modeling to estimate and visualize stress indicators.
- **Translation:** Early risk detection and intervention design for occupational health (e.g., preventing burnout among clinicians/industrial workforce).

Research Grants & Funding

Innovative Strategies for Child Abuse Prevention: A Collaborative Study Integrating Dentistry, Machine Learning, and Child Guidance Services

- **Period:** Apr 2025 – Mar 2027
- **Funding Agency:** JST Support for Pioneering Research Initiated by the Next Generation (SPRING), Grant Number JPMJSP2110

Quantification and Visualization of the Relationship Between Oral Health Status and Abuse Classification in Children Under Temporary Protection at Child Guidance Centers

- **Period:** Jun 2025 – Mar 2026
- **Funding Agency:** The 8020 Promotion Foundation, FY2025 Open Research Grant

Awards / Scholarships

Awards

November 2021

Nara Women's University Sahokai Scholarship

- Recognized by Saho-kai as an exceptionally outstanding student.

Scholarships

April 2018 – March 2019

Monbukagakusho Honors Scholarship for Privately-Financed International Students.

October 2020

(Special additional) **Monbukagakusho Honors Scholarship** for Privately-Financed International Students.

April 2021 – March 2022

Rotary Yoneyama Memorial Undergraduate Course Scholarship

Apr 2025 – Mar 2027

JST Support for Pioneering Research

Innovative Strategies for Child Abuse Prevention: A Collaborative Study Integrating Dentistry, Machine Learning, and Child Guidance Services

- **Funding Agency:** JST Support for Pioneering Research Initiated by the Next Generation (SPRING), Grant Number JPMJSP2110

Working Experience

Nov 2018 – Dec 2020

Cram School Teacher (Part-time), Jounan Kobbetsu (Daianji Classroom), Nara, Japan

- Taught mathematics and English to primary, junior high, and senior high school students.
- Designed and delivered targeted preparation for the EIKEN English proficiency test; achieved a **100% pass rate** among assigned students.

Apr 2021 – Mar 2022

Tutor (International Student Support), Nara Women's University, Nara, Japan

- Provided one-on-one support for an international student's transition to life in Japan.
- Assisted with academic guidance and daily-life problem solving (administrative procedures, campus resources, and study planning).

Apr 2022 – Sep 2022

Tutor (International Student Support), Kyoto University, Kyoto, Japan

- Supported two international students in adapting to academic and daily life in Japan.
- Offered ongoing consultation on coursework, university procedures, and living arrangements.

Apr 2022 – Mar 2023

Office Assistant, Kyoto University, Kyoto, Japan

- Managed and maintained information equipment and related administrative processes.
- Supported routine operations for equipment inventory, lending/return, and troubleshooting coordination.

Sep 2022 – Feb 2023

Research Assistant, Kyoto University, Kyoto, Japan

- Contributed to a research project: A longitudinal study on the effects of leisure activities on brain structure and function in the elderly.
- Assisted laboratory operations in biochemistry/MRI settings, including sample collection (urine, saliva) and cortisol-related procedures.

Apr 2023 – Mar 2024

Research Assistant, Kyoto University, Kyoto, Japan

- Conducted mathematical analysis of infectious disease dynamics.
- Supported data processing and modeling workflows for epidemiological research.

Apr 2024 – Mar 2025

Research Assistant, Kyoto University, Kyoto, Japan

- Developed data-driven infectious disease models using nonparametric, nonlinear time series methods.
- Estimated interactions among infectious diseases (e.g., interference, co-epidemics) from time-series data.
- Applied EDM-based causal inference approaches to identify directional links in complex dynamical systems.

Volunteer Activities

29-31 March 2019

Global communication Kyoto in Spring (Glocal Camp 2019)

- **Role**: Tutor to support Japanese high school students' interviews with foreign travellers about Kyoto and prepare an English presentations (won the first place in the presentation contest).
- Communicate with Japanese high school students, introduce different cultures and prepare themselves for future challenges.

Skills

Programming / Data Science

- GitHub link: https://github.com/yiningsxu
- Data analysis, machine learning, and web application development using **Python / R / JavaScript**
- **Python:** statistical analysis and predictive modeling with pandas / NumPy / scikit-learn / statsmodels; **automated generation of publication-ready tables and figures**
- **R:** classical statistics (GLM, regression, hypothesis testing) or applied analytics (EDA, visualization, reporting automation), including time-series / causal exploration with packages such as rEDM / rUIC.
- **Java:** object-oriented programming including **class design and inheritance**
- **C**: understand grammar and can handle basic tasks.
- **Web:** HTML/CSS/JavaScript for **mobile-friendly, offline-capable** small products (CSV export, multilingual UI)
- **Tooling:** Git/GitHub, GitHub Pages (Jekyll), YAML, VS Code / Antigravity (modular design and documentation)

Language

- Chinese: Native
- English: Business Level (IELTS 7.0; TOEIC 855)
- Japanese: near-Native (JLPT: N1)

Academic Skills

- **Study Design**: Observational study design (cross-sectional, time-series, regional comparisons); operationalization of exposures/outcomes
- **Statistical Analysis**: Descriptive statistics, group comparisons, regression modeling (e.g., logistic), multivariable analysis; interpretation of effect sizes and CIs
- **Machine Learning**: Classification modeling (e.g., Random Forest), feature engineering, cross-validation, model interpretability (e.g., SHAP), LLM
- **Time-Series & Spatial/Regional Analysis**: Quantifying temporal trends and regional heterogeneity; accounting for seasonality and long-term trends
- **Data Management**: Cleaning and preprocessing administrative/clinical datasets; missing data/outlier handling; reproducible analysis pipelines
- **Research Ethics & Governance**: Handling sensitive data; familiarity with IRB/ethics processes and data-sharing governance
- **Scholarly Communication**: Conference presentations; manuscript writing; figure/table preparation; responding to peer review
- **Interdisciplinary Collaboration**: Stakeholder coordination across dentistry, public health, and child welfare; advancing collaborative projects