

Lidan Liu

PhD Candidate in Health Informatics | Health AI, Digital Biomarkers and Longitudinal Health Data

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Health AI researcher and PhD candidate at King's College London, with thesis submission scheduled for 30 September 2026. Research spans multilingual speech modelling for depression screening, digital biomarkers, diagnostic-accuracy evidence synthesis, linked NHS longitudinal data, epidemiology and mobile health software. Develops models in Python/PyTorch, analyses complex healthcare data in R and SQL, and translates methods into clinically interpretable outputs and a working Swift/iOS prototype. First-author publications in JAMIA and IEEE, experience leading independent analytical work packages, and sustained collaboration across clinical, academic and data teams.

EDUCATION

PhD Candidate, Health Informatics | Supervisor: Prof. Yanzhong Wang | King's College London, Department of Population Health Sciences | Oct 2022 - Present

- Expected thesis submission: 30 September 2026. Research areas: health AI, machine learning for healthcare, multilingual speech modelling, digital biomarkers, precision mental health, longitudinal health data, epidemiology and medical statistics.
- Doctoral programme integrates systematic review and meta-analysis, diagnostic-accuracy assessment, multilingual deep learning with PyTorch, and implementation of a Swift/iOS application for automatic speech-based depression screening.

MSc Advanced Computing | King's College London, Department of Informatics | Sep 2019 - Sep 2020

BEng Software Engineering | Jilin University, Department of Software Engineering | Sep 2015 - Jul 2019

RESEARCH EXPERIENCE

Research Assistant, eLIXIR-BiSL | Supervisor: Prof. Lucilla Poston | National Health Service, South London Trusts / King's College London | 2025 - Present

- Independently lead the eLIXIR Health Visitor child growth trajectory work package, coordinating data cleaning, linkage, harmonisation, modelling and delivery across academic, NHS and data teams.
- Built analysis-ready workflows for anonymised linked maternity, delivery, neonatal and repeated Health Visitor records; derived time-indexed variables, aligned clinical and sociodemographic covariates, and investigated missingness and implausible values.
- Applied longitudinal and linear mixed-effects models in R, including interaction analyses, complete-case sensitivity analyses, coefficient plots and predicted trajectories for clinically interpretable inference.
- Analysed 30,334 repeated observations from 18,446 infants and translated complex real-world health data into interpretable risk patterns, reusable datasets and publication-ready outputs.
- Documented analytical decisions, data-quality controls and variable derivations, coordinated multidisciplinary feedback and delivered milestones across an NHS-academic collaboration.

Doctoral Researcher, Multilingual Speech AI for Depression Screening | Supervisor: Prof. Yanzhong Wang | King's College London | 2022 - Present

- Led a systematic review and meta-analysis evaluating the diagnostic performance and clinical feasibility of deep-learning algorithms using speech for depression screening.
- Developed and evaluated multilingual deep-learning models in Python and PyTorch using English and Chinese clinical speech data; assessed predictive performance, cross-language and cross-dataset generalisability, and reproducibility.
- Designed and built a Swift/iOS application integrating speech capture with automated depression-screening output, translating a research model into a usable digital mental-health prototype.
- Integrated evidence synthesis, algorithm development, diagnostic-accuracy evaluation, model validation, clinical interpretation and privacy-aware digital-health design within an interdisciplinary research programme.

SELECTED PUBLICATIONS

- **Liu L**, Tydeman F, Xie W, Wang Y. Development of an AI-based Mobile App for Automatic Depression Screening Using Speech in English and Chinese. IEEE EMBC, 2025. Conference paper.
- **Liu L**, Liu L, Wafa HA, Tydeman F, Xie W, Wang Y. Diagnostic accuracy of deep learning using speech samples in depression: a systematic review and meta-analysis. Journal of the American Medical Informatics Association, 2024; ocae189.
- **Liu L**, Tydeman F, Xie W, Wang Y. Multilingual Depression Detection Based on Speech Signals and Deep Learning. IEEE BigDataService, 2024. Conference paper.
- **Liu L**, Marshall IJ, Li X, Bhalla A, Liu L, Pei R, Wolfe CDA, O'Connell MDL, Wang Y. Long-term outcomes of depression up to 10-years after stroke in the South London Stroke Register: a population-based study. Lancet Regional Health - Europe, 2025.
- **Wang S**, Cheng M, Li C, Lin Y, Zhou Q, Zhang B, Liu L, Liu L, Kan H, Wang Y, Xie W. Global Burden of Polycystic Ovary Syndrome: Socioeconomic Disparities, Reproductive Impacts, and Projections to 2050. Tropical Medicine & International Health, 2026.

CONFERENCE PRESENTATIONS

- Early Career Researcher Travel Award, Accepted Poster, European DOHaD Society Conference, Munich, Germany, Sep 2026.
- Accepted Poster, 26th World Congress of Psychiatry, Stockholm, Sweden, Sep 2026.
- Poster Presentation, 18th European Public Health Conference, Helsinki, Finland, Nov 2025.
- Poster Presentation, 47th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Copenhagen, Denmark, Jul 2025.
- Poster Presentation, IEEE BigDataService, Shanghai, China, Jul 2024.
- Oral Presentation, 12th Conference of the International Society for Affective Disorders, Milan, Italy, Dec 2023.

TEACHING AND PROFESSIONAL EXPERIENCE

Teaching Assistant, Medical Statistics | King's College London | 2023 - 2025

- Supported Medical Statistics teaching, explained quantitative methods to health-science learners and provided practical guidance on interpreting statistical results.

Data Analyst, Risk Advisory | Deloitte Consulting, Shanghai | 2021 - 2022

- Delivered data-governance and digital-transformation projects involving multiple operational systems, stakeholder requirements, quality rules, documentation and time-critical outputs.
- Mapped source-system tables and business fields, extracted and transformed multi-system data with SQL, and documented data lineage, ownership, privacy and quality-control rules.
- Translated operational requirements into reusable reporting datasets and accessible Tableau dashboards for technical and non-technical stakeholders.

Data Analyst, Data Research and Development Centre | Bank of Jilin | 2021

- Developed and implemented enterprise data-governance frameworks to improve data quality, ownership and compliance.

Data Analysis Intern | Hunan Happy Sunshine Interactive Entertainment Media / Mango TV | 2020

- Used SQL and Python to extract and analyse user behaviour and campaign-performance data; monitored IPTV/OTT traffic and revenue indicators.

TECHNICAL SKILLS

- **Programming and software:** Python, PyTorch, R, SQL, Swift/iOS development, Tableau and AWS.
- **Machine learning and statistics:** deep learning, multilingual speech modelling, predictive modelling, diagnostic-accuracy evaluation, model comparison, cross-dataset generalisability, mixed-effects and longitudinal modelling, epidemiology, sensitivity analysis and data visualisation.
- **Health data and digital biomarkers:** clinical speech signals, anonymised linked NHS records, longitudinal health data, healthcare data pipelines, database querying and integration, digital biomarkers and mobile health applications.
- **Research practice:** systematic review and meta-analysis, reproducible analysis, data-quality assurance, privacy-aware research, interdisciplinary collaboration, peer-reviewed writing and international conference presentation.

AWARDS

- China Scholarship Council Award, 2022 - 2026.
- KCL Postgraduate Researcher's Activity Fund Award, 2025.
- KCL Oral Presentation, School of Life Course and Population Sciences PGR Awards and Symposium, 2024.
- KCL Health Science DTC Research Symposium Prize for Public Vote Poster Presentation, 2023.
- Outstanding Graduate, Jilin University, 2019.