Xuelong An

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Synopsis

Dedicated researcher born in China and raised in Ecuador with a strong academic record throughout UK's top universities in cognitive and computer science according to the Research Excellence Framework of 2021. Inspired by leading advocate of digital medicine Dr. Eric Topol's assertion that *"AI is here to assist, not replace, doctors so they can reconnect with patients,"* I'm interested and skilled in multimodal and affordable deep learning for clinical translation.

Education

2023 – 2024   🔖 **University College London - Master of Science with <u>Distinction</u>** in Artificial Intelligence for Biomedicine and Healthcare.

• **Thesis**: *Unveiling Colon Cancer Therapy Resistance through Multiple-Instance Learning in Histopathology Images*, supervised by Dr. Petru Manescu, Dr. Pan Shi and Dr. Maria Secrier (Grade: 80%). We're currently writing a manuscript for publication.

• **AI for Biomedicine and Healthcare**: *Concept-bottleneck modelling for interpretable melanoma classification*. We address the 'black-box' nature of deep learning predictions through predicting clinical concepts.

• **Applied AI**: *Schizophrenia classification from brain anatomical data through Bayesian optimization*. I earned 3rd place in terms of classification performance in a competition among my peers (≈ 40 participants) organized by NeuroSpin and DATAIA.

• **Advanced Computational Biology**: *Vectorized MCMC parameter estimation for the multispecies coalescent model for two species*. My implementation manages to achieve posterior estimates for ≈ 14000 loci in under 1 minute.

2019 – 2023   🔖 **University of Edinburgh - Master of Arts with Honors with <u>2:1 Class Division</u>** in Cognitive Science.

• **Thesis**: *Charting the Landscape of Neuro-Symbolic Reasoners*, with Dr. Antonio Vergari (Grade: 78%). I earned 3rd place for quality of poster presentation of my thesis among my peers.

• **Machine Learning Practical:** group project on *Assessing the Robustness of Neuro-Symbolic Modelling in the CLEVR-Hans3 Dataset* (Grade: 76%)

• **STEM Ambassador**: tutor at the Sudanese Hayes Community and volunteer at the 2023 Edinburgh Science Festival's MENACE event.

2013 – 2019   🔖 **American School of Guayaquil - International Baccalaureate Diploma 38/45**

• "Best Student" award for obtaining highest grade (9.86/10) in the Class of 2019

Experience

2023 – ⋯ ▐ **Participant of Biomedical AI Hackathons**
• **BioxML Hackathon (Enveda Biosciences):** Developed siamese networks for molecular similarity prediction with startup Novogaia. Our project is showcased in Evolved Technology.
• **SenNet + HOA 2024:** Segmentation of renal blood vessels with transfer learning, where we achieve competitive DICE (top 10 postcompetition). We presented our results in UCL's Nexus Lab

2022 – ⋯ ▐ **AI for Latin American Youth**
• **Class Notes**: Film Spanish tutorials on programming posted on my YouTube channel *Class Notes*, with transcripts and code found at my GitHub website.
• **CIAP**: Gave a discussion introducing neurosymbolic AI to an informatics club from my hometown's ESPOL university.
• **aithos**: Growing a Discord server on disseminating AI for social good, alignment and education.

2021 – ⋯ ▐ **Junior Researcher: AI for Healthcare**
• **Text-to-SQL App**: Developed a cross-platform (IOS/Android) medical query system with Dart, inspired by my participation in the UCL-FHIR Hackathon.
• **Collaborative visual question answering**: Developed an affordable framework for deploying multiple, role-playing language models to simulate the cooperative nature of medical diagnostics
• **Notes:RE**: Maintaining a personal blog on the applications, philosophy and education of AI.

2018 – 2019 ▐ **Robert Allan Reed Center**
• **Volunteer teacher**: Taught adults ranging from 18 - 50+ years old every Saturday in the subjects of math, literature and natural science.

Skills

Languages ▐ Professional proficiency in Spanish, English and fluent in Chinese.
Programming ▐ Python, Unix, R, Java, LaTeX, Dart, Jekyll, HTML, SQL, Haskell
ML/DL ▐ PyTorch Lightning, high-performance computing (SLURM/Sun Grid Engine), probabilistic programming, Bayesian optimization

Hobbies

Books ▐ *Deep Medicine*, *The Patient Will See You Now*, *Homo Deus*, *Consilience: The Unity of Knowledge*, *The Master Algorithm*, *The Forty Rules of Love*, among others
Activity ▐ Rowing, biking, ping-pong, chess, anime