HANG YUAN

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EDUCATION

DPhil in Machine Learning for Health, **University of Oxford**   2019-2023

- Advisors: Prof. Aiden Doherty and Prof. Simon Kyle
- Thesis: "Using Machine Learning for Wearables to Understand the Association of Sleep with Future Morbidity"
- EPSRC Centre for Doctoral Training in Health Data Science
- Fully funded by Novo Nordisk

MPhil in Computational Neuroscience, **École Polytechnique Fédérale de Lausanne (EPFL)** 2017-2019

- Advisors: Dr. Mathieu Salzmann and Prof. François Fleuret
- Thesis: "A Primer on the Delayed Adversarial Attack in Using Recurrent Neural Networks for Reinforcement Learning"

B.S. in Computer Science, **Jacobs University Bremen**   2014-2017

- Advisors: Prof. Herbert Jaeger and Prof. Ben Godde
- Thesis: "Resting State EEG Classification for Motor Learning Skills Using Echo State Networks"

Exchange Semester, **Carnegie Mellon University**   Fall, 2016

RESEARCH EXPERIENCE

Visual Geometry Group, University of Oxford   Summer 2020
Advisors: Prof. Andrew Zisserman and Dr. Timor Kadir

G lab, EPFL   2017-2018
Advisor: Prof. Grégoire Courtine

Empirical Inference Group, Max Planck Institute for Intelligent Systems, Tübingen Summer 2017
Advisor: Prof. Moritz Grosse-Wentrup

Data Science Institute, Imperial College London   Summer 2016
Advisors: Dr. David Birch and Prof. Yike Guo

KWARC Research Group, Jacobs University Bremen   2015-2016
Advisor: Prof. Michael Kohlhase

INDUSTRY EXPERIENCE

Machine learning intern, **Meta**   Summer 2022
- AI Creative for generic product image segmentation.

Software engineering intern, **Bloomberg L.P.**   Summer 2018
- Trading simulation for fixed-income transactions.
- Selected as one of the high performance interns (3/40+) featured in a public relations campaign.

PUBLICATIONS

2023 **Yuan, H.**, Hill, L., Kype K, S., and Doherty, A. "How accurate is wrist-worn accelerometry in measuring sleep stages? - a systematic review". Work in progress.

2023 **Yuan, H.**, Plekhanova, T., Walmsley, R., Reynold, A., Maddison, K., Bucanc, M., Gehrman, P., Rowlands, A., Straker, L., Eastwood, P. , Kyle, S., Aiden, A.. "Development and validation of a self-supervised deep network for sleep stage prediction using wearables: a population-based multi-centre study". Work in progress.

2023 Ovalle, A., Subramonian, A., Singh, A., Voelcker, C., Sutherland, D.J., Locatelli, D., Breznik, E., Klubička, F., **Yuan, H.**, Zhang, H. and Shriram, J.,et al. 2023. Queer In AI: A Case Study in Community-Led Participatory AI. arXiv preprint arXiv:2303.16972.

2022 **Yuan, H.**, Chan, S., Creagh, A. P., Tong, C., Clifton, D. A., and Doherty, A. "Self-supervised Learning for Human Activity Recognition Using 700,000 Person-days of Wearable Data". arXiv preprint arXiv:2206.02909.

2022 Creagh, A.P., Hamy, V., **Yuan, H.**, Mertes, G., Tomlinson, R., Chen, W.H., Williams, R., Llop, C., Yee, C., Duh, M.S. and Doherty, A., Garcia-Gancedo L., and Clifton, D. A.. "Digital health technologies and machine learning augment patient reported outcomes to remotely characterise rheumatoid arthritis". medRxiv. Under review by Nature Digital Medicine

2020 **Yuan H.**, Vanea C., Lucivero F. and Hallowell N. "Training Ethically Responsible AI Researchers: a Case Study". in navigating the broader impacts of AI research workshop at NeurIPS.

2020 Lucivero, F., Samuel, G., Blair, G., Darby, S.J., Fawcett, T., Hazas, M., Ten Holter, C., Jirotka, M., Parker, M., Webb, H. and **Yuan, H.** "Data-driven unsustainability? An interdisciplinary perspective on governing the environmental impacts of a data-driven society.

2016 Iancu, M., Kohlhase, M., Rabe, F., and **Yuan, H.**. "Mixing surface languages for OMDoc."

Book chapters

2020 Ding, Z., Huang, Y., **Yuan, H.**, and Dong, H. "Introduction to reinforcement learning". In Deep reinforcement learning (pp. 47-123). Springer, Singapore.
- **Top 1 best-selling AI textbook** on JD.com, February, 2021.
- Sold over **28,000** copies in mainland China.

2018 Dong, H., Zhang, J., **Yuan, H.**. "Introduction to Deep Learning". In Deep Learning using Tensor-Layer. Publishing House of Electronics Industry, Beijing.

Open Source Software

2020-2022 Contributor: github.com/OxWearables/biobankAccelerometerAnalysis
- 120 Stars | 51 Forks

2022 Author: github.com/OxWearables/ssl-wearables
- 27 Stars | 3 Forks
- **The first open source large-scale foundation model for wearable devices**.

TALKS

2023 Oxford Sleep and Light Initiative , St. Hilda College, University of Oxford: "Towards population inference for light and sleep in large health datasets: a wearable perspective."

2023 Phenome Seminar, Big Data Institute, University of Oxford: "Time-series machine learning of wearable sleep datasets."

2023 Third Richard Doll Prospective Cohort Studies Symposium, University of Oxford: "Device measured sleep and all-cause mortality."

2022 Colby College, virtual: "Self-supervised Learning for Wearables."

2021 ML4Health, NeurIPS, virtual: junior chair for round table in machine learning for population health.

2021 OXSTATS: "Machine Learning for Population Health - a wearable perspective"

2021 CDT Symposium, Trinity College, University of Oxford : "Understanding Sleep's Association with Cardiovascular Diseases Using Machine Learning for Wearables."

2021 European Insomnia Network, virtual: "Predicting Polysomnography from Accelerometry Using Machine Learning."

2019 Executive International, Lausanne, Switzerland: "Artificial Intelligence demystified: basic ingredients, challenges and impact on tomorrow's education."

AWARDS

2021 Best poster award, EPSRC Centre for Doctoral Training in Health Data Science symposium | University of Oxford

2017 Finalist top 6/300+ (2%) and Artificial Intelligence Track Winner | Hack Junction, the largest Hackathon in Europe, Helsinki, Finland.

2017 Prix Du Public Hackathon by Vaudoise | Lausanne, Switzerland

2016 Second Place 2/20+ (10%) @ OpenBank Hackathon | Google London Campus

2016 Wiki Data Prize @ HPI Machine Learning and Data Analytics Hackathon | Berlin, Germany

2016 Promos Scholar, 1900 euros awarded to study at Carnegie Mellon University | Bremen, Germany

2016 Erasmus traineeship for summer research at Imperial College | Bremen, Germany

2015 Top 10/130+ (8%) @ Global Jacobs Startup Competition | Bremen, Germany

2014 Jacobs University Entrance Scholarship 15000 Euros | Bremen, Germany

2014 STEM Scholar, top 2/20+ for FRC Robotics Team 4415 | California, USA

2014 Daniel Award for International Student Leadership (1/100+) | California, USA

TEACHING

2020-2023 **CDT for Health Data Science, University of Oxford** Wearable Module tutor, Self-supervised Learning Lecturer, and Data Challenge Tutor

2021 **Department of Computer Science, University of Oxford** Tutor for Machine Learning

2020 **Department of Computer Science, University of Oxford** Tutor and grader for Artificial Intelligence

2019 **TechX Academy, Shanghai, China** Tutor for Robotics Camp

2019 **Google Zurich** Tutor for Cybersecurity Weekend

2018, 2019 **International School of Geneva** Lecturer for Cybersecurity Camp

2017 **Jacobs University** Tutor for Formal Language and Logic

PROFESSIONAL SERVICES

Academic service

2020-2022 Reviewer: Machine Learning for Health Workshop, NeurIPS

2022 Reviewer: Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)

2022 Reviewer: Machine Learning Time Series for Health Workshop, NeurIPS

2022 Reviewer: Journal of Open Source Software

2021-2023 Program committee member: OXSTATS

Diversity, equity, and inclusion (DE & I)

2022 Program committee member: Queer in AI Workshop, NeurIPS

2021-2022 Program committee member: DE & I CDT for Health Data Science

2020-2022 Mentor for Queer in AI, Women in AI, and Jacobs University Bremen Alumni Mentorship Program