

# HANG YUAN

Pronouns: he/him - Email: [hang.yuan@keble.ox.ac.uk](mailto:hang.yuan@keble.ox.ac.uk) – Homepage: [hangyuan.xyz](http://hangyuan.xyz)

## 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, School of Computer Science, **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 (Facebook)** Summer 2022

- AI Creative for 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 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. ACM Conference on Fairness, Accountability, and Transparency.

- 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 NPJ 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., Jirotko, 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., Kohlhasse, M., Rabe, F., and **Yuan, H.** "Mixing surface languages for OMDoc."

### Work in progress papers

- 2023 **Yuan, H.**, Plekhanova, T., Walmsley, R., Reynold, A., Maddison, K., Bucanc, M., Gehrman, P., Rowlands, A., Ray, D., Bennett, D., McVeigh, J., Straker, L., Eastwood, P., Kyle, S., Doherty, A. "Self-supervised learning of accelerometer data provides new insights for sleep and its association with mortality".
- 2023 **Yuan, H.**, Hill, L., Kype K, S., and Doherty, A. "How accurate is wrist-worn accelerometry in measuring sleep stages? - a systematic review".

### 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 TensorLayer. Publishing House of Electronics Industry, Beijing.

### Open Source Software

- 2023 Author: [github.com/OxWearables/asleep](https://github.com/OxWearables/asleep)  
 - 5 Stars | 0 Forks  
 - A sleep classification package for wearable sensor data using machine learning.
- 2022 Author: [github.com/OxWearables/ssl-wearables](https://github.com/OxWearables/ssl-wearables)  
 - 28 Stars | 7 Forks  
 - **The first open source large-scale foundation model for wearable devices.**
- 2020 Contributor: [github.com/OxWearables/biobankAccelerometerAnalysis](https://github.com/OxWearables/biobankAccelerometerAnalysis)  
 - 120 Stars | 54 Forks  
 - An analytics package for data cleaning, processing and summarising accelerometer data.

### TALKS

---

#### Invited talks

- 2023 Third Richard Doll Prospective Cohort Studies Symposium, University of Oxford: *Device measured sleep and all-cause mortality.*
- 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 Oxford Centre for Human Brain Activity Analysis Group, Wellcome Centre for Integrative Neuroimaging, University of Oxford: *Machine learning for time series using mobile sensing data.*
- 2022 Colby College, Virtual: *Self-supervised learning for wearables.*
- 2021 ML4Health, NeurIPS, virtual: junior chair for round table in machine learning for population health.
- 2019 Executive International, Lausanne, Switzerland: *Artificial intelligence demystified: basic ingredients, challenges and impact on tomorrow's education.*

### **Contributed talks**

- 2023 World Sleep Congress, Rio de Janeiro, Brazil: *Self-supervised learning yields insights into sleep and all-cause mortality.*
- 2023 5th MobiUK Research Symposium, Lancaster University: *Self-supervised learning for human activity recognition using 700,000 person-days of wearable data.*
- 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.*

### **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, 1,900 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 15,000 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 & SUPERVISION**

---

#### **University of Oxford**

- 2023 Intern supervisor, UNIQ+ Research Program for Paul Lucaci
- 2020-2023 Lecturer & Tutor, CDT for Health Data Science: Wearables, Self-supervised Learning, and Data Challenge
- 2023 Lecturer & Tutor, Reproducible Machine Learning of Wearables in Health Data Science Short Course: Machine Learning and Sleep Measurement

2021 Tutor, Department of Computer Science, Machine Learning

2020 Tutor, Department of Computer Science, Artificial Intelligence

### **Jacobs University Bremen**

2017 Teaching assistant, Formal Language and Logic

2016 Teaching assistant, Statistical Inference and Data Analysis

### **Miscellaneous**

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

2019 Tutor, Cybersecurity Weekend, Google Zurich

2018-2019 Lecturer, Cybersecurity Camp, International School of Geneva

## **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: Oxford Medical Statistics Network (OxStat)

### **Diversity, equity, and inclusion (DE & I)**

2020-2023 Mentor for Queer in AI, Women in AI, and Jacobs University Bremen Alumni Mentorship Program

2022 Program committee member: Queer in AI Workshop, NeurIPS

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