Yijun BIAN

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Date of the CV: 7 February 2026

Employment

Marie Skłodowska-Curie Actions (MSCA) Postdoctoral Fellowship, University of Copenhagen — 1 Aug 2024 to present
Research fellow, National University of Singapore, Singapore — 24 Mar 2023 – 31 Jul 2024
Algorithm engineer, Shanghai Institute of Microsystem & Information Technology, P.R. China — 2 Dec 2020 – 22 Mar 2023

Education

Ph.D. in Computer Science & Technology, University of Science and Technology of China — 2 Sept 2014 – 20 Nov 2020
Awarded on 7 Dec 2020, locality and country: Hefei, Anhui, P.R. China
Integrated master's and doctoral programme (first two years as a master's student)
Bachelor of Sciences, Northwest A&F University (NWAFU), P.R. China — 2 Sept 2010 – 1 Jul 2014

Experience

Visiting scholar, Texas A&M University, United States — 1 Nov 2018 – 30 Apr 2019
Teaching assistant, University of Science and Technology of China (USTC), P.R. China — 1 Mar 2016 – 31 Jul 2016
Graduate research assistant, USTC, P.R. China — 2 Sept 2014 – 20 Nov 2020

Research Funding and Grants

Grant awardee, Horizon Europe call in 2022 for MSCA Postdoctoral Fellowships — European Commission, Nov 2023
Amount € 214 934.40, one of the 1291 out of 7044 proposals (success rate: 18.3%)
Start and end dates of funding: 1 Aug 2024 – 31 Jul 2026 (FairML project, CORDIS)
Seal of Excellence, Horizon Europe call in 2022 for MSCA Postdoctoral Fellowships — European Commission, Apr 2023

Research Output (Google Scholar)

Research area: machine learning, ensemble methods, algorithmic fairness
6 published, 2 accepted; 4 peer-reviewed non-archival workshop posters, 3 under review, 3 in revision — 295 citations (cit.)
6 open-source GitHub repositories maintained for implementing the methods from my first-author research articles
Works listed as first *author*, equal contribution (†), and corresponding author (*)

Peer-reviewed articles

[1] Lei You*, *Yijun Bian*, and Lele Cao. **Joint distribution-informed Shapley values for sparse counterfactual explanations**, *International Conference on Learning Representations (ICLR 2026)*, accepted.

[2] Lin Zhu†, *Yijun Bian*†, and Lei You*. **FairSHAP: Preprocessing for fairness through attribution-based data augmentation**, *International Conference on Artificial Intelligence and Statistics (AISTATS 2026)*, accepted.

[3] Jinghan Huang†, Qiufeng Chen†, Pengli Zhu, *Yijun Bian*, Nanguang Chen, Moo K. Chung, Anqi Qiu*. **HL-HGAT: Heterogeneous graph attention network via Hodge-Laplacian operator**, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 47, no. 12, pp. 11022–11039, Dec 2025, doi: 10.1109/TPAMI.2025.3594226.

[4] Ming Chen, *Yijun Bian*, Nanguang Chen, and Anqi Qiu*. **Orthogonal mixed-effects modeling for high-dimensional longitudinal data: An unsupervised learning approach**, *IEEE Transactions on Medical Imaging*, vol. 44, no. 1, pp. 207–220, Jan 2025, doi: 10.1109/TMI.2024.3435855.

[5] Abhijith Sharma, *Yijun Bian*, Vatsal Nanda, Phil Munz, and Apurva Narayan*. **Vulnerability of CNNs against multi-patch attacks**, *Proceedings of the 2023 ACM Workshop on Secure and Trustworthy Cyber-Physical Systems (SaT-CPS'23)*, pp. 23–32, Apr 2023, doi: 10.1145/3579988.3585054.

[6] *Yijun Bian*, Qingquan Song, Mengnan Du, Jun Yao, Huanhuan Chen*, and Xia Hu. **Subarchitecture ensemble pruning in neural architecture search**, *IEEE Transactions on Neural Networks and Learning Systems*, vol. 33, no. 12, pp. 7928–7936, Dec 2022, doi: 10.1109/TNNLS.2021.3085299.

[7] *Yijun Bian* and Huanhuan Chen*. **When does diversity help generalization in classification ensembles?** *IEEE Transactions on Cybernetics*, vol. 52, no. 9, pp. 9059–9075, Sept 2022, doi: 10.1109/TCYB.2021.3053165. (cit.: 114)

[8] *Yijun Bian*, Yijun Wang, Yaqiang Yao, and Huanhuan Chen*. **Ensemble pruning based on objection maximization with a general distributed framework**, *IEEE Transactions on Neural Networks and Learning Systems*, vol. 31, no. 9, pp. 3766–3774, Sept 2020, doi: 10.1109/TNNLS.2019.2945116. (cit.: 69)

Manuscripts under review

[1] *Yijun Bian*†*, Yujie Luo†*, and Ping Xu. **Approximating discrimination within models when faced with several non-binary sensitive attributes**, *arXiv preprint arXiv:2408.06099*, 2024.
[2] *Yijun Bian*†* and Yujie Luo†. **Does machine bring in extra bias in learning? Approximating fairness in models promptly**, *arXiv preprint arXiv:2405.09251*, 2024.
[3] *Yijun Bian** and Kun Zhang. **Increasing fairness via combination with learning guarantees**, *arXiv preprint arXiv:2301.10813*, 2023.

Manuscripts in revision & Preprints

[1] *Yijun Bian**, Lei You, Yuya Sasaki, Haruka Maeda, and Akira Igarashi. **Algorithmic fairness: Not a purely technical but socio-technical property**, *arXiv preprint arXiv:2506.12556*, 2025.
[2] Alina Basharat, *Yijun Bian*, Ping Xu*, and Zhi Tian. **Towards trustworthy federated learning**, *arXiv preprint arXiv:2503.03684*, 2025.
[3] Abhijith Sharma†, *Yijun Bian*†*, Phil Munz, and Apurva Narayan. **Adversarial patch attacks and defences in vision-based tasks: A survey**, *arXiv preprint arXiv:2206.08304*, 2022. (cit. 47)

Peer-reviewed non-archival posters

[1] *Yijun Bian**, Lei You, Yuya Sasaki. **Do existing fairness measures suffice? Assessing discrimination in algorithmic decision-making**, in the *4th Deployable AI Workshop (DAI) at AAAI 2026*, Jan 2026.
[2] Lin Zhu†, *Yijun Bian*†, and Lei You*. **FairSHAP: Preprocessing for fairness through attribution-based data augmentation**, in the *20th Women in Machine Learning Workshop (WiML) at NeurIPS 2025*, Dec 2025.
[3] *Yijun Bian** and Kun Zhang. **Increasing fairness via combination with learning guarantees**, in *NeurIPS 2024 Workshop on Mathematics of Modern Machine Learning (M3L)*, Dec 2024.
[4] *Yijun Bian*†*, Yujie Luo†, and Ping Xu. **Does machine bring in extra bias in learning? Approximating discrimination within models quickly**, in *NeurIPS 2024 Workshop on M3L*, Dec 2024.

Research Supervision & Leadership Experience

Co-supervision to 3 MSc students for their thesis projects, University of Copenhagen (UCPH) — Dec 2025 to present
Supervision to 2 MSc students for their thesis projects, UCPH — Oct 2025 to present
Supervision to 2 MSc students, as part of the "Project Outside the Course Scope" programme, UCPH — May 2025 – Dec 2025
Supervision to 2 BSc student for their thesis projects, UCPH — Jan 2025 – Aug 2025
Co-supervision to 1 MSc student, in collaboration with Prof. You in Denmark — Oct 2024 – Aug 2025
Co-supervision to 2 MEng students, in collaboration with Prof. Qiu in Singapore — Jul 2023 – Jul 2024
Co-supervision to 1 MSc student, in online collaboration with Prof. Narayan in Canada — Mar 2022 – Feb 2023

Teaching Merits

Guest lecture in the DTU course 62533/62T22 "Applied Machine Learning and Big Data" (Lecturer Dr. Lei You), titled "Fairness evaluation in ML. Why would we care?" — May 2025
Teaching assistant for the course "Mathematical Analysis (B2)", BSc course in the School of Mathematical Sciences, grading and taking exercise classes, at USTC — Mar 2016 – Jul 2016

Selected Honours and Awards

GDC (the Global Digital Creations Holdings Limited) technology scholarship — USTC, Oct 2019
International exchange funding for excellent students — USTC, Apr 2018
Second-class academic scholarship, for PhD students, three times — USTC, Sept 2016 – Sept 2018
First-class academic scholarship, for MSc students — USTC, Sept 2015
Second-class academic scholarship, for MSc students — USTC, Sept 2014
Outstanding undergraduate graduation thesis (design) — NWAFU, Jun 2014
President scholarship — NWAFU, Dec 2013
Excellence award of the undergraduate innovation forum and finding presentation — NWAFU, Jan 2013
Merit student, for three consecutive years — NWAFU, Dec 2011 – Dec 2013
First prize speciality scholarship, four times in a row — NWAFU, Mar 2011, Oct 2011 – Oct 2013

Other Key Academic Merits

- **Journal reviewer**
  - IEEE Journal of Biomedical and Health Informatics (JBHI) — Aug 2025 to present
  - IEEE Transactions on Artificial Intelligence (TAI) — Aug 2025 to present
  - IEEE Transactions on Image Processing (TIP) — Mar 2025 to present

Information Sciences May 2024 to present
IEEE Transactions on Knowledge and Data Engineering (TKDE) Jan 2024 to present
Scientific Reports Jun 2023 to present
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) May 2023 to present
Journal of Supercomputing Mar 2023 to present
IEEE Transactions on Emerging Topics in Computational Intelligence (TETCI) Sept 2021 to present
Neural Networks Aug 2020 to present
IEEE Transactions on Neural Networks and Learning Systems (TNNLS) Aug 2016 to present

- **Conference and workshop reviewer**

ACM Conference on Fairness, Accountability, and Transparency (FAccT) 2026 Jan 2026 to present
International Conference on Artificial Intelligence and Statistics (AISTATS) 2026 Oct 2025 – Nov 2025
AAAI/ACM Conference on AI, Ethics, and Society (AIES) 2025 Jun 2025 – Jul 2025
NeurIPS Workshop on Mathematics of Modern Machine Learning (M3L) 2024 Oct 2024 – Oct 2024
AAAI Workshop on Privacy-Preserving Artificial Intelligence (PPAI) 2024 Nov 2023 – Dec 2023

- **Invited talks**

"Why we need new fairness metrics and how to use them," OR seminar, Tepper School of Business, CMU Dec 2025
"Why we need new fairness metrics and how to use them," research visit, Georgia Tech Nov 2025
"Why we need new fairness metrics and how to use them," TOC4Fairness seminar Nov 2025
"Do existing fairness measures suffice? Assessing discrimination in algorithmic decision-making," Long talk at D3A (Danish Digitalization, Data Science and AI) workshop on machine learning theory Aug 2025
"Study of FAIR ML models from a theoretical perspective," MIA (Medical Image Analysis) seminar, DIKU Dec 2024
"Sub-architecture ensemble pruning in neural architecture search," SustainML reading group, DIKU Nov 2024
"Increasing fairness via combination with learning guarantees," Fall 2023 LeT-All mentorship workshop (Session 2, Practice talk) Oct 2023

Scientific and Societal Impact

Maintaining **6 open-source GitHub repositories** that implement the methods from my first-author research articles

- **Open-source code & official implementation for research papers**

AssessBias (URL: https://github.com/eustomaqua/AssessBias). Jul 2025 – Aug 2025
PyFairness (URL: https://github.com/eustomaqua/PyFairness). Feb 2025 – Jul 2025
This is an open-source library for fairness measures and ensemble methods, to facilitate the reproduction of our work.
ApproxBias (URL: https://github.com/eustomaqua/ApproxBias). Jan 2024 – Sept 2024
SAEP (URL: https://github.com/eustomaqua/SAEP). Aug 2022 – Sept 2022
EPFD (URL: https://github.com/eustomaqua/EPFD). Apr 2020 – Sept 2021
PyEnsemble (URL: https://github.com/eustomaqua/PyEnsemble). Jul 2019 – Apr 2020
This is an open-source library for ensemble learning methods, diversity measures, and ensemble pruning methods.

- **Open source contributor**

FairGBM, Dockerfile solution provided for the incompatibility problem on non-Ubuntu platforms Sept 2023
Arctic Code Vault Contributor in the 2020 GitHub Archive Program 2020
AdaNet (Google's open-source project), merged pull request Oct 2019
OpenNE, merged pull request Aug 2019
AutoKeras, merged pull requests a and b in the blocks branch Jun 2019

- **Utilising research output (own and that of others)**

Breaking the Wall of "Invisible inequality in machine learning research," selected participant in Falling Walls Lab Denmark (a pitch competition) Sept 2025