

Junhao WEN

PhD

@ junhao.wen89@gmail.com

Personal page: junhaowen.com

Google Scholar: <https://scholar.google.com/citations?user=4WqFukAAAAJhl=en>

GitHub: <https://github.com/anbai106>



My research lies on the application of machine learning, neuroimaging and genetics in brain aging and disorders. Specifically, using machine learning, neuroimaging and genomics, I aim to dissect disease heterogeneity in various brain disorders. Furthermore, my research aims to bridge the knowledge in imaging and genetics, in order to better understand the underlying biological processes. Through my career, I have been a practitioner for open neuroscience.

EDUCATION

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|-----------|---|
| 2015-2019 | PhD in Computer Science
<i>Sorbonne University, Paris, France</i> |
| 2012-2015 | Master in Electronic Engineering
<i>Beihang University, Beijing, China</i> |
| 2008-2012 | Bachelor in Electronic Engineering
<i>Beihang University, Beijing, China</i> |

RESEARCH SKILLS

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| Programming languages | Python, R, Bash, Matlab |
| Software and frameworks | Machine learning (Scikit-learn, TensorFlow, Pytorch), Neuroimaging (Nipype, FreeSurfer, FSL, ANTs, SPM), Genome (Plink, PRSice, GCTA, LDSC) |
| Scientific writing | Microsoft Word, L ^A T _E X, Overleaf, Inkscape |
| Development tools | PyCharm, RStudio, GitHub |
| Others | HTML, CSS |

RESEARCH EXPERIENCE

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|----------------------------|---|
| August 2019
August 2021 | Postdoctoral fellow
CBICA lab, University of Pennsylvania, USA <ul style="list-style-type: none">> Postdoctoral research working with Christos Davatzikos> Focus on dissecting heterogeneity of brain diseases and data-driven dimensionality reduction techniques <div>Neuroimaging Machine learning</div> |
| October 2015
June 2019 | PhD
ARAMIS lab, Sorbonne University, INRIA, CNRS, INSERM, Paris, France <ul style="list-style-type: none">> Four-year PhD training under the supervision of Olivier Colliot and Anne Bertrand> Software developer for Clinica> PhD dissertation : Structural and microstructural neuroimaging for diagnosis and tracking of neurodegenerative diseases <div>Neurodegenerative disease Neuroimaging Machine learning</div> |
| July 2017
October 2017 | Visiting scholar
CMIC lab, University College London (UCL), London, UK <ul style="list-style-type: none">> Collaboration with Daniel Alexander and Hui Zhang> Collaboration on a NODDI paper : Neurite density is reduced in the presymptomatic phase of C9orf72 disease <div>FTLD Clinical study Neuroimaging</div> |

PAPERS IN PEER REVIEWED JOURNALS

- Wen, J., Cynthia HY Fu, Duygu Tosun, Yogasudha Veturi, Zhijian Yang, Ahmed Abdulkadir, Elizabeth Mamourian et al., Characterizing Heterogeneity in Neuroimaging, Cognition, Clinical Symptomatology, and Genetics Among Patients With Late-Life Depression. 2022, *JAMA Psychiatry*, doi:10.1001/jamapsychiatry.2022.0020  Preprint
- Bertrand, A., Wen, J. (Co-first author), Rinaldi, D., Houot, M., Sayah, S., Camuzat, A., Fournier, C., Fontanella, S., Routier, A., Couratier, P. and Pasquier, F., Habert, M., Hannequin, D., Martinaud, O., Caroppo, P., Levy, R., Dubois, B., Brice, A., Durrleman, S. and Colliot, O., Le Ber, I. 2018. Early Cognitive, Structural, and Microstructural Changes in Presymptomatic C9orf72 Carriers Younger Than 40 Years. *JAMA Neurology*, 75(2), pp.236-245.
- Wen, J., Thibeu-Sutre, E., Diaz-Melo, M., Samper-González, J., Routier, A., Bottani, S., Dormont, D., Durrleman, S., Burgos, N., Colliot, O. and Alzheimer's Disease Neuroimaging Initiative, 2020. Convolutional neural networks for classification of Alzheimer's disease : Overview and reproducible evaluation. *Medical image analysis*, 63, p.101694.
- Yang, Z., Nasrallah, I.M., Shou, H., Wen, J. et al., A deep learning framework identifies dimensional representations of Alzheimer's Disease from brain structure. *Nature Communication* 12, 7065 (2021). <https://doi.org/10.1038/s41467-021-26703-z>  Preprint
- Wen, J., Zhang, H., Alexander, D.C., Durrleman, S., Routier, A., Rinaldi, D., Houot, M., Couratier, P., Hannequin, D., Pasquier, F. and Zhang, J., Colliot, O., Le Ber, I. and Bertrand, A. 2018. Neurite Density is Reduced in the Presymptomatic Phase of C9orf72 Disease. *J Neurol Neurosurg Psychiatry*, pp.jnnp-2018.
- Wen, J., Varol, E., Sotiras, A., Yang, Z., Chand, G.B., Erus, G., Shou, H., Hwang, G. and Davatzikos, C., 2021. Multi-scale semi-supervised clustering of brain images : deriving disease subtypes. *Medical image analysis*, 63, p.101694.
- Wen, J., Samper-González, J., Bottani, S., Routier, A., Burgos, N., Jacquemont, T., Fontanella, S., Durrleman, S., Epelbaum, S., Bertrand, A. and Colliot, O., 2021. Reproducible evaluation of diffusion MRI features for automatic classification of patients with Alzheimer's disease. *Neuroinformatics*, 19(1), pp.57-78.
- Samper-González, J., Burgos, N., Bottani, S., Fontanella, S., Lu, P., Marcoux, A., Routier, A., Guillon, J., Bacci, M., Wen, J. and Bertrand, A., Bertin, H., Habert, M., Durrleman, S., Evgeniou, T. and Colliot, O. 2018. Reproducible evaluation of classification methods in Alzheimer's disease : framework and application to MRI and PET data. *Neuroimage*, 2018.
- Marcoux, A., Burgos, N., Bertrand, A., Teichmann, M., Routier, A., Wen, J., Samper-Gonzalez J., Bottani, S., Durrleman, S., Habert, M. and Colliot, O. 2018. An Automated Pipeline for the Analysis of PET Data on the Cortical Surface. *Frontiers in Neuroinformatics*, 2018.
- Ansart, M., Epelbaum, S., Bassignana, G., Bône, A., Bottani, S., Cattai, T., Couronne, R., Faouzi, J., Koval, I., Louis, M. and Thibeu-Sutre, E., Wen, J., 2020. Predicting the progression of mild cognitive impairment using machine learning : a systematic, quantitative and critical review. *Medical image analysis*, p.101848.
- Routier A, Burgos N, Díaz M, Bacci M, Bottani S, El-Rifai O, Fontanella S, Gori P, Guillon J, Guyot A, Hassanaly R, Jacquemont T, Lu P, Marcoux A, Moreau T, Samper-González J, Teichmann M, Thibeu-Sutre E, Vaillant G, Wen, J., Wild A, Habert M-O, Durrleman S and Colliot O (2021) Clinica : An Open-Source Software Platform for Reproducible Clinical Neuroscience Studies. *Front. Neuroinform.* 15:689675. doi : 10.3389/fninf.2021.689675
- Yue, L., Hu, D., Zhang, H., Wen, J., Wu, Y., Li, W., Sun, L., Li, X., Wang, J., Li, G. and Wang, T., 2021. Prediction of 7-year's conversion from subjective cognitive decline to mild cognitive impairment. *Human brain mapping*, 42(1), pp.192-203.
- Chand, G. B., Singhal, P., Dwyer, D. B., Wen, J. et al., 2022. Two schizophrenia imaging signatures and their associations with cognition, psychopathology, and genetics in the general population. *American Journal of Psychiatry*

PAPERS IN CONFERENCE PROCEEDINGS

- Wen, J., Varol, E., Chand, G., Sotiras, A. and Davatzikos, C., 2020, October. MAGIC : Multi-scale Heterogeneity Analysis and Clustering for Brain Diseases. *International Conference on Medical Image Computing and Computer-Assisted Intervention* (pp. 678-687). Springer, Cham.
- Yang, Z., Wen, J., and Davatzikos, C., 2021. Surreal-GAN:Semi-Supervised Representation Learning via GAN for uncovering heterogeneous disease-related imaging patterns. *International Conference on Learning Representations*

BOOK CHAPTERS

- Wen, J., Varol, E., Yang, Z., Hwang, G., Dwyer, D., Kazerooni, A., Lalouis, P., and Davatzikos, C., 2022, January. Subtyping brain diseases from imaging data. *Machine Learning for Brain Disorders* Springer.

PAPERS IN PREPARATION

- Wen, J. et al., A multi-scale lifespan atlas of the human brain. **In preparation.**
- Lalouis et al., Neurobiologically Based Stratification of Recent Onset Depression and Psychosis : Identification of Two Distinct Transdiagnostic Phenotypes. **Under review**
- Hwang, G., Sotardi, S., Brodtkin, E., Chand, G., Dwyer, D., Wen, J., Three Distinct Neuroanatomical Dimensions of Autism Spectrum Disorder, Revealed via Machine Learning, and Their Similarities with Dimensions of Schizophrenia. **In preparation**
- Abdulkadir et al., iSTAGING : A framework for dimensional analysis of brain structure and function in aging and neurodegeneration. **In preparation**

LANGUAGES

Chinese	●	●	●	●	●
French	●	●	●	●	○
English	●	●	●	●	○
Spanish	●	●	●	○	○

INTERESTS

- > Music
- > Extreme sports
- > Travel

REFERENCES

Christos Davatzikos

Postdoc Supervisor, University of Pennsylvania

@ christos.davatzikos@pennmedicine.upenn.edu

☎ +1 215-746-4067

Olivier Colliot

Ph.D. Supervisor, Sorbonne Université

@ olivier.colliot@sorbonne-universite.fr

☎ +33 157274365