Junhao WEN
PhD

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My research lies on the application of machine learning, neuroimaging and genetics in brain aging and disorders. Specifically, using machine learning and neuroimaging, I aim to dissect neuroanatomical heterogeneity in various brain disorders. Furthermore, my research aims to bridge the knowledge in imaging and genetics, in order to better understand their underlying interactions and associations.

EDUCATION

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

RESEARCH SKILLS

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, LaTeX, Overleaf, Inkscape
Development tools	PyCharm, RStudio, GitHub
Others	HTML, CSS

RESEARCH EXPERIENCE

August 2019 – August 2021

Postdoctoral fellow
CBICA lab, University of Pennsylvania, USA
> Postdoctoral research working with **Christos Davatzikos**
> Focus on dissecting heterogeneity of brain diseases and data-driven dimensionality reduction techniques

[Neuroimaging] [Machine learning]

October 2015 – June 2019

PhD
ARAMIS lab, Sorbonne University, INRIA, CNRS, INSERM, Paris, France
> 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

[Neurodegenerative disease] [Neuroimaging] [Machine learning]

July 2017 – October 2017

Visiting scholar
CMIC lab, University College London (UCL), London, UK
> Collaboration with **Daniel Alexander** and **Hui Zhang**
> Collaboration on a NODDI paper : Neurite density is reduced in the presymptomatic phase of C9orf72 disease

[FTLD] [Clinical study] [Neuroimaging]

PUBLICATIONS

Papers in Peer reviewed Journals

> **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.**, Thibeau-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.

> 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.**, 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.**, 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.

> Yang, Z., Nasrallah, I.M., Shou, H., **Wen, J.**, Doshi, J., Habes, M., Erus, G., Abdulkadir, A., Resnick, S.M., Wolk, D. and Davatzikos, C., 2021. A deep learning framework identifies dimensional representations of Alzheimer's Disease from brain structure. arXiv preprint arXiv:2102.12582. Nature Communication. ⬈ Preprint

> 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., Bertrand.,Teichmann., 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 Thibeau-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, Thibeau-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.
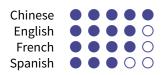
Papers in conference proceedings

> **Wen, J.**, Varol, E., Chand, G., Sotiras, A. and Davatzikos, C., 2020, October. MAGIC : Multi-scale Heterogeneity Analysis and Clustering for Brain Diseases. In International Conference on Medical Image Computing and Computer-Assisted Intervention (pp. 678-687). Springer, Cham.

Papers in preparation

> **Wen, J.** et al., Multidimensional representations in late-life depression : convergence in neuroimaging, cognition, clinical symptomatology and genetics. Under review ⬈ Preprint

> **Wen, J.** et al., MIST : a data-driven, multi-sacle atlas of the lifespan of human brain for imaging genetic studies in a population of 32440 people. In preparation.

> Chand, G., Singhal, P., Dwyer, D., **Wen, J.**, et al., Schizophrenia imaging signatures and their associations with cognition, psychopathology, and genetics in the general population. Under review

> Lalousis et al., Neurobiologically Based Stratification of Recent Onset Depression and Psychosis : Identification of Two Distinct Transdiagnostic Phenotypes. Under review

> Hwang, G., Sotardi, S., Brodkin, 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., iISTAGING : A framework for dimensional analysis of brain structure and function in aging and neurodegeneration. In preparation

LANGUAGES

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

INTERESTS

> Music
> Extreme sports
> Travel

66 References

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