

PUTI WEN 温菩提

Neuroimaging Scientist | Research Infrastructure | Multiple Sclerosis | Clinical Imaging Tools

Abu Dhabi, United Arab Emirates | pw1246@nyu.edu | [LinkedIn](#) | [Interactive Portfolio](#)

Neuroscientist who builds the infrastructure, processing pipelines, quality-control systems, and practical software needed to move brain-imaging projects forward. Current work centers on XNAT/HPC operations, large-scale MRI processing, multiple-sclerosis research tools, and clinician-facing neuroimaging support. Ph.D. research examined the cortical processing of 3D motion using fMRI, psychophysics, and multivariate analysis.

Primary focus: imaging infrastructure and research support | MS biomarkers and longitudinal imaging | reproducible neuroimaging workflows

Current scale: an integrated XNAT/HPC pipeline suite | 9,000+ public-dataset subjects processed | technical support and training for 10+ researchers

EDUCATION

Ph.D., Cognition and Perception | New York University

2019 - 2024

New York, USA and Abu Dhabi, UAE

- Dissertation: Neural pathways of 3D motion in humans.
- Co-advisors: Bas Rokers and Michael S. Landy; degree completed September 2024.
- Research focus: visual neuroscience, 3D motion perception, fMRI, psychophysics, cortical-surface analysis, and multivariate pattern analysis.

M.Phil., Social/Personality Psychology | New York University

2023

New York, USA

- Awarded en route to the Ph.D.

B.S., Psychology; Minor in Mathematics | Belmont University

2015 - 2018

Nashville, Tennessee, USA

- Undergraduate research in audiovisual timing, behavioral neuroscience, psychometrics, learning, and memory.

Computational Neuroscience: Vision Workshop | Cold Spring Harbor Laboratory

2022

Cold Spring Harbor, New York, USA

PROFESSIONAL AND RESEARCH EXPERIENCE

Postdoctoral Fellow | NYU Abu Dhabi, Center for Brain and Health

Sep 2024 - Present

Abu Dhabi, United Arab Emirates

Imaging infrastructure and research support

- Maintain the NYUAD XNAT imaging platform and its integration with Slurm-based high-performance computing; serve as the documented contact for MRI data and pipeline questions.
- Integrated, containerized, and deployed leading open-source neuroimaging tools (fMRIPrep, MRIQC, TractoFlow, HCP, dcm2bids, and a deep-learning V1/V2/V3 visual-area segmenter) as XNAT Container Service pipelines with full Jubail HPC integration (environment, SLURM/Singularity, data transfer, parallel execution), making them available for Center researchers to run on their own data directly on the platform; built two in-house: a BIDS-to-HCP converter and the ARI BIDS-validation pipeline with a daily status dashboard.
- Developed automated validation, backup, and quality-assurance workflows, including a daily GitHub Actions verification dashboard and edge-case handling for field maps and mixed functional/diffusion datasets.
- Authored and maintained extensive technical documentation for XNAT access, BIDS conversion, API workflows, pipeline execution, parallel processing, system configuration, and troubleshooting; triaged more than 25 user-reported issues.
- Validated and processed large imaging datasets with FreeSurfer, fMRIPrep, TractoFlow, and MRIQC; processed 9,000+ HCP and ADNI subjects for an age- and sex-referenced normative brain dashboard.
- Supported the ASPIRE Research Institute (ARI) brain-health biobank, pairing multimodal imaging with genomic and biological sampling, through BIDS curation, validation, preprocessing workflow selection, and technical troubleshooting; co-authored the 2026 Scientific Data descriptor.
- Provided engineering support, analysis assistance, and hands-on training to more than 10 researchers and external collaborators across fMRI, diffusion MRI, MEG/fMRI-EEG pilots, vision, MS, biobank, and genetics projects.
- Co-author on an ongoing Engineering EEG-fMRI project and in-progress manuscript, provisionally titled "Longitudinal Motor Imagery Training for a Supernumerary Thumb Induces Distinct and Durable Cortical Plasticity"; provide BIDS/HPC processing and pre/post-training fMRI analysis support.

- Prepared Germany CIMA.X–NYUAD Prisma cross-scanner QC using MRIQC, SNR, tSNR, CNR, global-signal, and diffusion metrics, producing a comparison report that supported the scanner-upgrade decision; also compared NYUAD/ARI data with UAEU acquisitions and am conducting pre/post-upgrade QC between the Prisma and newly installed on-site CIMA.X.

Multiple-sclerosis research and clinician tools

- Co-led tract-based quantitative MRI analyses across 27 white-matter pathways to test whether lesion location, tissue composition, and tract integrity improve prediction of clinical disability beyond total lesion load.
- Built LesionView for longitudinal review of new and enlarging MS lesions, first as a MATLAB App Designer tool and later as a browser-based application with HTML/PDF reporting, multi-session review, adjustable contrast, shortcuts, and color-coded masks.
- Built CvsView for central vein sign and paramagnetic rim lesion review; corrected SWI-FLAIR alignment failures, relabeled training data, developed a LightGBM classification workflow, containerized the service, and tested it with clinical MRI.
- Built a brain atrophy analysis pipeline used internally for research review and reporting with Yas Clinic clinicians and prepared technical reports from its outputs; also ran FLAIR* central-vein-sign processing for Harley Street Medical Centre and Cleveland Clinic Abu Dhabi.
- Produced figures, reports, and analyses for MS research manuscripts, conference presentations, a National Multiple Sclerosis Society UAE interim report, and clinician presentations; consulted regularly with neurologists on requested software features.

Other clinician-facing neuroimaging support

- Processed epilepsy MRI at Cleveland Clinic Abu Dhabi using MELD and an in-house MAP18/VBM workflow; converted DICOM data, built a 1,618-subject reference model, prepared technical reports, and participated in an epilepsy multidisciplinary meeting.
- Supported task-based fMRI language mapping for presurgical planning in an arteriovenous-malformation case: assisted with acquisition, processed and analyzed the data, prepared a technical report, and reviewed results with the clinical team.

Ph.D. Researcher | New York University

Aug 2019 - Sep 2024

Department of Psychology and Center for Neural Science | New York, USA and Abu Dhabi, UAE

- Investigated neural pathways for 3D motion perception in the human visual cortex using stereoscopic stimuli, psychophysics, functional MRI, cortical-surface analysis, and multivoxel pattern analysis.
- Developed single-trial decoding methods to separate neural sensitivity to stereoscopic and perspective motion cues across V1 and the human MT complex.
- Published three first-author full-length papers from the doctoral program in NeuroImage, Imaging Neuroscience, and Journal of Neuroscience; served as corresponding author on the NeuroImage paper.
- Built motion-localizer stimuli, preprocessing workflows, ROI-drawing procedures, and analysis code reused within the lab; released code and data through GitHub and OpenNeuro.
- Presented at the Vision Sciences Society in 2022, 2023, and 2024 and taught visual neuroscience and brain-imaging methods.

Research Assistant | Vanderbilt University, Randolph Blake Laboratory

2016 - 2018

Nashville, Tennessee, USA

- Designed and conducted experiments on temporal judgments of audiovisual event onsets and offsets, contributing to a first-author publication in Vision (2020).
- Supported participant recruitment, behavioral data collection, psychophysical analysis, and manuscript preparation.

SELECTED RESEARCH SOFTWARE AND INFRASTRUCTURE

NYUAD XNAT and HPC pipeline platform | [repository](#)

2024 - Present

- Containerized workflows for fMRIPrep, FreeSurfer, TractoFlow (Nextflow-based), MRIQC, HCP-style preprocessing, cortical segmentation, and ARI/BIDS validation; parallel execution and output management on the Jubail HPC cluster; the ARI validator and BIDS-to-HCP converter were built in-house.
- Public documentation and workflow references maintained in the xnat-docs and pipelines repositories.

LesionView - longitudinal MS lesion review and reporting | [repository](#)

2024 - Present

- Tracks new and enlarging lesions across MRI timepoints and generates structured clinician-facing reports; developed iteratively with Yas Clinic neurologists for internal research/support use.
- Migrated the original MATLAB application to a browser-based React Native/Expo implementation and contributed to quality-management training, pitch materials, and an NYU innovation disclosure.

CvsView - central vein sign review | [repository](#)

2025 - Present

- Supports review of central-vein-sign candidates in MS lesions, with registered SWI/FLAIR visualization, automated feature extraction, and clinician-oriented lesion reporting.
- Presented through MENACTRIMS, Innovations in Neuroimaging Methods, and the 2026 Total Radiology Conference program.

afqView - browser-based tractography quality control

2026

- Built a BIDS-aware Node.js/Express and Three.js/Vite application so a collaborator could review and flag tractography across 116 subjects without opening files individually.
- Implemented automatic subject/tract discovery, color-coded availability indicators, side-by-side pre/post-cleaning comparison, configurable thresholds, subject navigation, and interactive 3D rendering.

Normative brain dashboard

2024 - 2025

- Processed 9,000+ public HCP and ADNI datasets and extracted age- and sex-referenced structural metrics, including cortical thickness and regional volumes.
- Built an upload-and-compare web interface that lets researchers place local datasets against normative curves.

MRI stimulus-computer infrastructure

2025

- Configured Apple Silicon hardware and resolved Psychtoolbox compatibility through Rosetta 2 and Intel MATLAB environments.
- Built and validated experiment templates integrating EyeLink eye tracking, VPixx response hardware, and ProPixx display profiles for laboratory investigators.

MyPhysio - independent physiotherapy application

2026

- Co-built a React Native/Next.js application with administrative and patient portals, exercise prescription, and pain and range-of-motion tracking.
- Used Supabase, Docker, GitHub Actions, and hosted deployment workflows while learning full-stack development through project-based work.

PEER-REVIEWED JOURNAL ARTICLES

Five peer-reviewed journal articles; four first-author. Puti Wen is bolded. * Equal contribution.

Mohamed, A. Z., Qadi, A., Dogar, A., Salah, A., Hamkari, A., Alkalali, D., Begum, G., Paterson, H. J., Morjane, I., Hassanin, O., **Wen, P.**, Benour, R., Mohanty, S., Valles, Y., Ljubisavljevic, M., Idaghdour, Y., Abdullah, O., Sreenivasan, K. K., & Rokers, B. (2026). The ASPIRE Research Institute Dataset: Building a Foundation for Brain Health Research in the United Arab Emirates. *Scientific Data*, 13, 186. [doi:10.1038/s41597-025-06498-0](https://doi.org/10.1038/s41597-025-06498-0)

Wen, P., Thompson, L. W., Rosenberg, A., Landy, M. S., & Rokers, B. (2025). Single-Trial fMRI Decoding of 3D Motion with Stereoscopic and Perspective Cues. *Journal of Neuroscience*, 45(22), e0044252025. [doi:10.1523/JNEUROSCI.0044-25.2025](https://doi.org/10.1523/JNEUROSCI.0044-25.2025)

Wen, P., Ezzo, R., Thompson, L. W., Rosenberg, A., Landy, M. S., & Rokers, B. (2025). Functional Localization of Visual Motion Area FST in Humans. *Imaging Neuroscience*, 3, *imag_a_00578*. [doi:10.1162/imag_a_00578](https://doi.org/10.1162/imag_a_00578)

Wen, P., Landy, M. S., & Rokers, B. (2023). Identifying Cortical Areas That Underlie the Transformation from 2D Retinal to 3D Head-Centric Motion Signals. *NeuroImage*, 270, 119909. [doi:10.1016/j.neuroimage.2023.119909](https://doi.org/10.1016/j.neuroimage.2023.119909)

Wen, P., Opoku-Baah, C., Park, M., & Blake, R. (2020). Judging Relative Onsets and Offsets of Audiovisual Events. *Vision*, 4(1), 17. [doi:10.3390/vision4010017](https://doi.org/10.3390/vision4010017)

PREPRINTS

Abdullah, O.*, **Wen, P.***, Abdelrazeq, A. W.*, Matrosova, M.*, Brylev, L., Ahmad, A., Bryukhov, V., Melcher, D., & Rokers, B. (2025). Tract-Based Quantitative MRI for Resolving the Clinico-Radiological Paradox in Multiple Sclerosis. *medRxiv*. [doi:10.1101/2025.09.17.25335756](https://doi.org/10.1101/2025.09.17.25335756) Revised preprint; not peer reviewed.

Wen, P., Ezzo, R., Thompson, L. W., Rosenberg, A., Landy, M. S., & Rokers, B. (2024). Functional Localization of Visual Motion Area FST in Humans. *bioRxiv*. [doi:10.1101/2024.09.19.614014](https://doi.org/10.1101/2024.09.19.614014) Preprint version of article published in *Imaging Neuroscience* (2025).

Wen, P., Landy, M. S., & Rokers, B. (2022). Identifying Cortical Areas That Underlie the Transformation from Retinal to World Motion Signals. *bioRxiv*. [doi:10.1101/2022.06.14.496150](https://doi.org/10.1101/2022.06.14.496150) Preprint version of article published in *NeuroImage* (2023).

DOCTORAL DISSERTATION

Wen, P. (2024). Neural Pathways of 3D Motion in Humans. *Doctoral dissertation, New York University. ProQuest Dissertations & Theses Global*.

PUBLISHED CONFERENCE ABSTRACTS

Paterson, H. J., Mohanty, S., **Wen, P.**, Abdullah, O., & Rokers, B. (2025). Assessing MP2RAGE and Contrast-Enhanced MPRAGE MRI Protocols for Consistent Brain Measurements in Multiple Sclerosis Patients. *Proceedings of the International Society for Magnetic Resonance in Medicine*, Abstract 3251. [doi:10.58530/2025/3251](https://doi.org/10.58530/2025/3251)

Wen, P., Abdullah, O., Brylev, L., Bryukhov, V., Alkalali, D., Matrosova, M., & Rokers, B. (2024). Quantitative Evaluation of Lesion Load in Multiple Sclerosis Using Multimodal MR. *Multiple Sclerosis and Related Disorders*, 92, 105987. [doi:10.1016/j.msard.2024.105987](https://doi.org/10.1016/j.msard.2024.105987)

- Wen, P., Ezzo, R., Landy, M. S., & Rokers, B. (2024).** Identifying Functional Subdivisions of the Human MT Complex. *Journal of Vision*, 24(10), 888. doi:10.1167/jov.24.10.888
- Wen, P., Landy, M. S., & Rokers, B. (2023).** Single-Trial fMRI Decoding of 3D Motion Based on Stereoscopic and Perspective Cues. *Journal of Vision*, 23(9), 5740. doi:10.1167/jov.23.9.5740
- Wen, P., Landy, M. S., & Rokers, B. (2022).** Decoding of Binocular Motion Extends the Hierarchy of Motion Processing in the Human Brain. *Journal of Vision*, 22(14), 3502. doi:10.1167/jov.22.14.3502

INVITED TALKS, PANELS, AND RESEARCH BRIEFINGS

- Feb 2026.** *From Lesion Burden to Biomarkers: AI-Powered Detection of New Lesions and Central Vein Sign in Multiple Sclerosis.* WHX Dubai Total Radiology Conference, Dubai Exhibition Centre (invited talk).
- Feb 2026.** *What to Expect from AI Support in the Near Future of Neuroradiology.* WHX Dubai Total Radiology Conference (panelist).
- Feb 2026.** *Multiple-Sclerosis Imaging Tools and MP2RAGE Pilot Results.* Research briefing for a visiting Siemens Healthineers delegation, NYU Abu Dhabi.
- Jan 2026.** *Beyond Lesion Load: Integrating Lesion Location and Composition to Predict Disability in Multiple Sclerosis.* NYUAD Division of Science Annual Research Conference (talk).
- Apr 2025.** *Functional MRI: Lecture and Hands-On Tutorial.* Third Annual Center for Brain and Health Brain Health Workshop, NYU Abu Dhabi (invited lecturer).
- Jan 2025.** *Mapping Lesion Location and Composition to Predict Disability in Multiple Sclerosis: Insights from Multimodal MRI Analysis.* Center for Brain and Health Winter Symposium, Abu Dhabi (invited talk).
- 2024.** *Advanced MRI Methods in Multiple Sclerosis.* Multiple Sclerosis Workshop, NYU Abu Dhabi (invited talk).
- 2023.** *Introduction to Functional MRI.* Brain Imaging Workshop, NYU Abu Dhabi (lecturer).
- 2022.** *Identifying Cortical Areas That Underlie the Transformation from Retinal to World Motion Signals.* Vision Journal Club, New York University (invited talk).

CONFERENCE PRESENTATIONS

- Oct 2026.** *Associations Between Mental Imagery Sensitivity to Musical Reward.* Mental Imagery and Aphantasia: Bridging Philosophy and Neuroscience, Paris Brain Institute, Paris (forthcoming; co-author; presenter: Noha Abdelrahman).
- Feb 2026.** *Beyond Lesion Load: Integrating Lesion Location and Composition to Predict Disability in Multiple Sclerosis.* Innovations in Neuroimaging Methods Conference, NYU Abu Dhabi (poster).
- Feb 2026.** *CvsView: Automated Identification of the Central Vein Sign to Aid Multiple-Sclerosis Diagnosis.* Innovations in Neuroimaging Methods Conference, NYU Abu Dhabi (poster).
- Dec 2025.** *Tract-Based Quantitative MRI for Resolving the Clinico-Radiological Paradox in Multiple Sclerosis.* Tenth MENACTRIMS Congress, Dubai (poster).
- Dec 2025.** *CvsView: A Preliminary AI Tool for Automated Identification of the Central Vein Sign to Aid Multiple-Sclerosis Diagnosis.* Tenth MENACTRIMS Congress, Dubai (poster).
- Dec 2025.** *LAMINATE: Longitudinal AI-Based MS Lesion and Atrophy Segmentation Tool for Heterogeneous MRI Datasets.* Tenth MENACTRIMS Congress, Dubai (co-author, oral presentation; Best Presentation Award).
- Jun 2025.** *MP2RAGE Ventricle-Distance Profiling Improves Classification of Multiple-Sclerosis Subtypes.* Organization for Human Brain Mapping Annual Meeting, Brisbane (poster).
- May 2025.** *Assessing MP2RAGE and Contrast-Enhanced MPRAGE MRI Protocols for Consistent Brain Measurements in Multiple-Sclerosis Patients.* International Society for Magnetic Resonance in Medicine Annual Meeting, Honolulu (co-author, digital poster).
- Nov 2024.** *Multimodal and Quantitative Evaluation of Multiple-Sclerosis Patients Using Advanced MRI Techniques.* MENACTRIMS Congress, Jeddah (poster).
- May 2024.** *Identifying Functional Subdivisions of the Human MT Complex.* Vision Sciences Society Annual Meeting (poster).
- May 2023.** *Single-Trial fMRI Decoding of 3D Motion Based on Stereoscopic and Perspective Cues.* Vision Sciences Society Annual Meeting, St. Pete Beach (poster).
- May 2022.** *Decoding of Binocular Motion Extends the Hierarchy of Motion Processing in the Human Brain.* Vision Sciences Society Annual Meeting, St. Pete Beach (talk).
- Mar 2018.** *Effects of Environmental Enrichment on Frustrative Nonreward and Subsequent Anxiety-Like Behavior.* Eastern Psychological Association Annual Meeting, Philadelphia (co-author, poster).
- Mar 2018.** *A Validation Study of the Obedience to Authority Scale.* Eastern Psychological Association Annual Meeting, Philadelphia (co-author, poster).

Undergraduate research presentations

- Apr 2018.** *Effects of Highlighters on Memory: A Comparison Between the Effects of Yellow and Non-Yellow Color Highlighters on Short-Term Information Retention.* Belmont Undergraduate Research Symposium, Belmont University, Nashville (co-author, talk).
- Apr 2018.** *Interaction Between Type A/Type B Personality, Encouragement, and a Cornhole Task.* Belmont Undergraduate Research Symposium, Belmont University, Nashville (co-author, talk).
- Apr 2017.** *Effects of Environmental Enrichment on Frustrative Nonreward and Subsequent Anxiety-Like Behavior.* Science Undergraduate Research Symposium, Belmont University, Nashville (co-author, poster).
- Apr 2017.** *A Validation Study of the Obedience to Authority Scale (OTAS).* Science Undergraduate Research Symposium, Belmont University, Nashville (co-author, poster).
- Apr 2016.** *Effects of Aerobic Fitness on Stress Management.* Belmont Undergraduate Research Symposium, Belmont University, Nashville (co-author, talk).

TEACHING, TRAINING, AND MENTORING

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- Technical Trainer and Research Mentor | NYU Abu Dhabi, Center for Brain and Health** 2024 - Present
- Trained 10+ researchers in BIDS organization, dcm2bids configuration, fMRIPrep, FreeSurfer, TractoFlow, XNAT, HPC job execution, and troubleshooting.
 - Delivered standardized data-validation training for ASPIRE Research Institute research assistants and maintained onboarding and workflow documentation.
 - Advised investigators on experimental design, preprocessing strategy, data organization, analysis scripts, figure preparation, and scalable dataset management.
- fMRI Curriculum Designer and Lecturer | Third Annual Brain Health Workshop, NYU Abu Dhabi** 2025
- Designed and delivered lecture and hands-on fMRI materials for approximately 15-20 participants.
- Teaching Assistant | NYU Abu Dhabi** 2022
- PSYCH-UH 3617EQ, Lab in Visual Neuroscience.
- Private Tutor | Varsity Tutors** 2019
- Calculus, statistics, and linear algebra.
- Math and Science Center Tutor | Belmont University** 2017 - 2018
- General mathematics and psychology.

INTELLECTUAL PROPERTY

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- Co-inventor on one provisional patent application; named on NYU innovation disclosures for LesionView (ABD01-03) and LAMINATE (ABD01-04), submitted through NYU Technology Opportunities & Ventures in May 2026.

HONORS AND AWARDS

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- Team member, ARIAH-AI; second place, Abu Dhabi Department of Health Innovation Health Challenge, November 2024.
 - First Place Poster, NYU Abu Dhabi Division of Science Annual Research Conference, for Multimodal MRI for Predicting Disability in Multiple Sclerosis, January 2025.
 - Team member, LAMINATE MS; runner-up (Local Institute Category), Abu Dhabi Global Health Week Innovation Awards, 2025.
 - Co-author, LAMINATE oral presentation; Best Presentation Award, Tenth MENACTRIMS Congress, December 2025.

RESEARCH SERVICE, COMMUNICATION, AND OUTREACH

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- Maintained the NYUAD XNAT user documentation and issue tracker, producing more than 350 documentation commits during the 2025-2026 academic year and resolving data-validation, BIDS-conversion, and pipeline-execution issues.
 - Designed the Center for Brain and Health Research Institute Day poster and produced a one-minute overview film; also supported the Open MS Research Day and contributed visualizations to clinical, funding, and research presentations.
 - Represented the Imaging Tech Hub startup at GITEX YouthX and Hub71 events and contributed to scientific/clinical product demonstrations and pitch materials.
 - Produced science communication videos through the [N.A.R. Things](#) YouTube channel on perception, health, biology, and practical topics.
 - Created eight multi-material 3D printed brain models from MRI-derived FreeSurfer segmentations using Blender post-processing for anatomical visualization and MS education.

TECHNICAL SKILLS

Neuroimaging and analysis: fMRIPrep, FreeSurfer, TractoFlow (Nextflow), MRIQC, BIDS, dcm2bids, DICOM, ANTs, SPM12, MELD, MAP18/VBM, AFQ, FSL, qMRLab, DSI Studio, cortical-surface analysis, MVPA.

Platforms and infrastructure: XNAT, Slurm/Jubail HPC, Docker, Singularity/Apptainer, GitHub Actions, Box API, automated validation and backup workflows.

Programming and applications: MATLAB, Python, TypeScript/JavaScript, React Native, Expo, Next.js, Node.js/Express, Three.js, Vite, Supabase.

MRI and experimental systems: Siemens MRI scanners, task-based and resting-state fMRI, diffusion MRI, MP2RAGE, FLAIR/SWI, phantom and cross-site QC, Psychtoolbox, EyeLink, VPixx/ProPixx.

Visualization and design: Blender, Adobe Illustrator, scientific figures, 3D printing, interactive 3D visualization, Godot.

Research practice: reproducible pipelines, data curation, documentation, clinical collaboration, training, and scientific writing.

Languages: English, Chinese; basic Turkish. **Creative:** scientific illustration, apparel design, 3D modeling, visualization, and game development.