

FIRAT KARA, PhD

Research Scientist | Assistant Professor of Radiology | Mayo Clinic, Rochester, MN

kara.firat@mayo.edu | ffiretkara@gmail.com | +1 (507) 350-2011 | linkedin.com/in/firat-kara-945669b | firatkara.nl

Citizenship: Dutch | Work authorization: EU/EFTA (Swiss employment eligible) | DOB: 05 July 1977 | ORCID: 0000-0003-4679-8110



PROFESSIONAL SUMMARY

Clinical and translational research scientist with 15+ years of experience applying advanced MRI, MRS, diffusion imaging, and PET to study Alzheimer's disease, multiple sclerosis, and women's brain health. Proven expertise in large-scale clinical dataset analysis, longitudinal modelling, and biomarker development in multicenter trials. Skilled in R (statistical programming, Quarto/R Markdown, data visualization) and reproducible research workflows. Experienced in translating complex neuroimaging findings into actionable clinical insights and publications in high-impact journals.

CORE COMPETENCIES

<ul style="list-style-type: none">• Neuroimaging biomarkers (MRI, MRS, PET, DTI/NODDI)• Longitudinal & clinical data analysis• Biomarker discovery & validation• Multi-site data harmonization	<ul style="list-style-type: none">• Statistical programming in R• Scientific writing & manuscript development• Cross-functional team collaboration• Research project planning & execution
---	--

DATA ANALYSIS EXPERIENCE

Hands-on experience across the full analytical workflow in clinical neuroimaging research:

- **Data harmonization:** ComBat for multi-site neuroimaging data; batch-effect correction across scanners and acquisition protocols
- **Regression modelling:** linear regression, linear mixed-effects models (longitudinal data, repeated measures), logistic regression; model selection and diagnostics
- **Dimensionality reduction:** principal component analysis (PCA) for multivariate neuroimaging and biomarker data
- **Mediation analysis:** path models to decompose direct and indirect effects between imaging, biofluid, and cognitive outcomes
- **Biomarker classification:** ROC curve analysis, AUC computation, DeLong and permutation-based comparison of classifiers
- **Hypothesis testing:** ANOVA, independent and paired t-tests, Spearman and Pearson correlations, non-parametric equivalents
- **Descriptive statistics & reporting:** Table 1 construction, effect sizes, confidence intervals
- All analyses implemented in R using tidyverse, lme4, lavaan, pROC, ggplot2, and Quarto/R Markdown for fully reproducible, publication-ready reporting

PROFESSIONAL EXPERIENCE

Mayo Clinic — Division of Neuroradiology, Rochester, MN

Research Scientist

Oct 2025 – Present

Research Associate

Sep 2019 – Sep 2025

- Contributed to hypothesis generation and project design across multiple investigator-initiated studies, including the KEEPS randomized clinical trial and KEEPS Continuation Study on menopausal hormone therapy and brain aging
- Formulated research questions and defined analysis plans with senior investigators, biostatisticians, and clinical co-investigators; interpreted findings within clinical and mechanistic context
- Authored and revised 29 peer-reviewed publications (10 as first author, 19 as co-author), including responses to peer-review statistical queries
- Engaged in interdisciplinary study team meetings, connecting imaging, clinical, and biofluid data streams into a coherent research programme
- Presented research findings at international conferences (ISMRM, AAIC, Menopause Society)

Postdoctoral Researcher | University of Antwerp, Bio-Imaging Lab, Belgium

Jan 2014 – Jun 2018

- Designed and conducted in vivo 1H-MRS, resting-state fMRI, and diffusion MRI studies in preclinical mouse models of AD and MS (9.4T)
- Collaborated with immunologists, neurobiologists, and biostatisticians on multi-investigator projects; contributed to analysis plans

- Secured and managed a competitive 3-year FWO postdoctoral fellowship; mentored 3 MSc students through thesis completion

EDUCATION

Graduate Certificate, Clinical & Translational Science | Mayo Clinic College of Medicine Sep 2019 – May 2021

Biostatistics, epidemiology, regulatory affairs, research ethics, clinical trial methodology

PhD, Biophysical Chemistry | Leiden University, The Netherlands Sep 2008 – Dec 2013

Dissertation: In vivo neuroimaging of Alzheimer's disease in transgenic mouse models using ultra-high-field (17.6T) MRI/MRS

MSc, Biotechnology | Middle East Technical University, Ankara, Turkey Sep 2001 – Dec 2004

BSc, Biological Sciences | Middle East Technical University, Ankara, Turkey Sep 1996 – Aug 2001

SELECTED PUBLICATIONS (29 PEER-REVIEWED ARTICLES; FULL LIST ON GOOGLE SCHOLAR)

Kara F et al. 1H-MR spectroscopy biomarkers associated with plasma biomarkers of amyloid-beta and tau in early AD continuum. *Neurobiology of Aging*. 2026;158:18-27. doi:10.1016/j.neurobiolaging.2025.11.003

Kara F et al. Decoding Thalamic Glial Interplay in Multiple Sclerosis Through Proton MRS and PET. *Int J Mol Sci*. 2025;26(17):8656. doi:10.3390/ijms26178656

Kara F et al. Associations of blood pressure with white matter hyperintensities; influence of menopausal hormone therapy. *Menopause*. 2025;32(1):12-22. doi:10.1097/GME.0000000000002481

Kara F, et al. Association of raloxifene and tamoxifen therapy with cognitive performance, odds of mild cognitive impairment, and brain MRI markers of neurodegeneration. *Cancer Med*. 2023;12(3):2805-2817. doi:10.1002/cam4.5175

ADDITIONAL

Peer review: Alzheimer's & Dementia; NeuroImage; Neurobiology of Aging; Menopause; Maturitas; Magnetic Resonance in Medicine; PLOS ONE; eLife; Brain Research (2015–Present)

Professional memberships: ISMRM (2009–), ISTAART (2019–), The Menopause Society (2019–)

Languages: English (fluent), Dutch (Intermediate), Turkish (native)

Certifications: Article 9 certification to perform small animal experiments (Netherlands); Good Clinical Practice (GCP) certification, Mayo Clinic (USA)