



Marios Georgiadis

Postdoctoral Research Fellow, Radiology

Bio

BIO

Marios is a post-doctoral researcher in Michael Zeineh's group, where he studies brain microstructure alterations in Alzheimer's disease, primarily using X-ray scattering and (diffusion) MRI.

He is a mechanical engineer by training (School of Mechanical Engineering, National Technical University of Athens, Greece). His thesis "Closed-loop force control of a haptic surgical simulator", was performed in the Control Systems Lab of Prof. Evangelos Papadopoulos.

In 2011 he obtained his MSc in Biomedical Engineering from ETH Zurich (Swiss Federal Institute of Technology). He performed his thesis in IBM Research on "Advanced pathology using the Microfluidic Probe", under Emmanuel Delamarche and Govind Kaigala, and was awarded the ETH medal for this work.

He completed his PhD in Bone Biomechanics in the lab of Prof. Ralph Muller in ETH Zurich, where he developed X-ray scattering-based methods to investigate bone microstructure in 3D, research that earned him the 2nd Student Award from the European Society for Biomechanics in 2015.

In 2016 he started using imaging methods to study brain microstructure, in the lab of Prof. Markus Rudin, in the Institute for Biomedical Engineering of ETH Zurich. There, he combined X-ray scattering with DTI, histology and CLARITY for studying rodent brain.

In 2017 he joined the MRI Biophysics group of Profs. Els Fieremans and Dmitry Novikov in New York University School of Medicine, to study human and mouse brain microstructure using X-ray scattering and diffusion MRI.

His research concerning brain imaging using X-ray scattering has been and is being supported by the Swiss National Science Foundation.

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Eidgenossische Technische Hochschule (ETH Zurich) (2016)
- Master of Science, Eidgenossische Technische Hochschule (ETH Zurich) (2011)
- Diploma, National Technical University of Athens (2010)

STANFORD ADVISORS

- Michael Zeineh, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Retrieving neuronal orientations using 3D scanning SAXS and comparison with diffusion MRI.** *NeuroImage*
Georgiadis, M., Schroeter, A., Gao, Z., Guizar-Sicairos, M., Novikov, D., Fieremans, E., Rudin, M.
2019; 116214
- **High-speed tensor tomography: iterative reconstruction tensor tomography (IRTT) algorithm** *ACTA CRYSTALLOGRAPHICA A-FOUNDATION AND ADVANCES*
Gao, Z., Guizar-Sicairos, M., Lutz-Bueno, V., Schroter, A., Liebi, M., Rudin, M., Georgiadis, M.
2019; 75: 223–38
- **Small-angle X-ray scattering tensor tomography: model of the three-dimensional reciprocal-space map, reconstruction algorithm and angular sampling requirements** *ACTA CRYSTALLOGRAPHICA A-FOUNDATION AND ADVANCES*
Liebi, M., Georgiadis, M., Kohlbrecher, J., Holler, M., Raabe, J., Usov, I., Menzel, A., Schneider, P., Bunk, O., Guizar-Sicairos, M.
2018; 74: 12–24
- **Ultrastructure Organization of Human Trabeculae Assessed by 3D sSAXS and Relation to Bone Microarchitecture** *PLOS ONE*
Georgiadis, M., Guizar-Sicairos, M., Gschwend, O., Hangartner, P., Bunk, O., Mueller, R., Schneider, P.
2016; 11 (8): e0159838
- **Techniques to assess bone ultrastructure organization: orientation and arrangement of mineralized collagen fibrils** *JOURNAL OF THE ROYAL SOCIETY INTERFACE*
Georgiadis, M., Mueller, R., Schneider, P.
2016; 13 (119)
- **Nanostructure surveys of macroscopic specimens by small-angle scattering tensor tomography** *NATURE*
Liebi, M., Georgiadis, M., Menzel, A., Schneider, P., Kohlbrecher, J., Bunk, O., Guizar-Sicairos, M.
2015; 527 (7578): 349–+
- **3D scanning SAXS: A novel method for the assessment of bone ultrastructure orientation** *BONE*
Georgiadis, M., Guizar-Sicairos, M., Zwahlen, A., Trussel, A. J., Bunk, O., Muller, R., Schneider, P.
2015; 71: 42–52
- **Advanced glycation end-products diminish tendon collagen fiber sliding** *MATRIX BIOLOGY*
Li, Y., Fessel, G., Georgiadis, M., Snedeker, J. G.
2013; 32 (3-4): 169–77
- **Micro-immunohistochemistry using a microfluidic probe** *LAB ON A CHIP*
Lovchik, R. D., Kaigala, G. V., Georgiadis, M., Delamarque, E.
2012; 12 (6): 1040–43