PhD student at ILL with Keele university

Experience:

- Nov 2020-Nov 2023: PhD at the Institute Laue Langevin (Grenoble, France) with the Keele university (Keele, UK) expected graduation about March

  Structural studies of a complex of membrane proteins part of a conjugation system used by antibiotic resistant bacteria. The project involves recombinant protein co-expression of up to four different genes in *E. coli*. The proteins are purified using detergents or SMA, aiming for electron microscopy. Biophysical techniques such as mass spectrometry and mass photometry were used to control the sample quality. Aside, the truncation of another soluble protein of the system was characterized using ATPase assays, X-ray crystallography and cryo-EM. I also developed python algorithms to make graphics from data. I tried to predict the structure of complexes with ColabFold seen with ChimeraX and Pymol. The project involves a collaboration with the ESRF and platforms shared with the EPN campus.

- Nov 2019-Oct2020: lab technician at LMGP (Grenoble) and Eveon (Montbonnot, France)

  Collaboration between the LMGP university lab and the eveon company for the characterisation of insulin aggregation in micropumps. I was in charge of estimating insulin aggregation induced by the interactions protein-surface, protein-silicon oil during pump utilisation using ThT assays. Automation of mechanical data treatment.

- Mar 2019- Sep 2019: mater thesis at Vienna biocenter (Vienna, Austria)

  Structural studies of muscle Z-disk proteins. The project aimed to get a complex between an actinin construct with a partially disordered protein. The proteins purified separately using refolding for the disordered one were mixed and used for X-ray crystallography.

Education:

- Sep 2017-Sep 2019: nanobiophysics master at UGA (Grenoble) with second year at TU Dresden (Germany, ERASMUS)

  Course centered on physics at the nanometer scale applied to biology. Manipulate maths and physics tools in biology such as optical tweezers, interface physics, polymers.

- Sep 2014-Jun 2017: health biotechnologies bachelor at UGA (Grenoble)

  Course focused on interface between biology and pharmacy. Drug production pathways drugs through bioengineering and organic chemistry. Part of the course was dedicated to diseases, physiopathology of cancers, virology.

Languages:

- French mother tongue
- English B2-C1
- German A2
- Spanish A2
- Italian A1

Publication:

1. Bouillet, A., Girois, L. & Weidenhaupt, M. ENHANCING PROTEIN PRESERVATIONDURING BIOLOGICAL DRUG PREPARATION AND DELIVERY. *On Drug Delivery* (2020).