Filip (Persson) Ljung | Research Scientist

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Education

PhD (Teknologie Doktor) Faculty of Engineering **Lund University**
Biophysical Chemistry, *2012–2018*

Master of Science in Engineering Faculty of Engineering **Lund University**
Biotechnology, *2008–2012*

Experience

Statens Serum Institut **Copenhagen**
Data Scientist *Since 2023*

Early life disease biomarker discovery using untargeted metabolomics (LC-MS) profiling of biobanked blood samples.

- Identified potential biomarkers for pediatric brain neoplasms.
- Developed software tools for enhanced quality control of metabolomics data.
- Optimized data processing pipelines for high-throughput metabolomics data.

HØIBERG European Patent Attorneys **Copenhagen**
Patent Attorney *2021–2022*

Drafted and prosecuted patent applications in the Life Science sector, including peptides, antibodies and biosensors.

Lund University **Lund**
Post Doc *2018–2021*

Investigated the role of shape in protein function through de novo design of self-assembling proteins for targeted drug delivery.

- Developed computational pipelines for rapid 3D pattern-matching and molecular surface computation.
- Implemented machine learning techniques for 3D superposition of molecular shape data.

Lund University **Lund**
PhD Student *2012–2018*

Conducted molecular dynamics (MD) simulations to study protein-water interactions.

- Developed software for computing static and dynamic protein/water properties.
- Tested and validated models interpreting spectroscopic data from Nuclear Magnetic Resonance (NMR).
- Co-teacher in courses in thermodynamics, molecular driving forces, and biophysical chemistry.

Publications

7 first author: H-index=7.

Publication list

[1] Bertil Halle and Filip Persson. Analysis of protein dynamics simulations by a stochastic point process approach. *Journal of Chemical Theory and Computation*, 9(6):2838–2848, 2013.

[2] Filip Ljung and Ingemar André. Zeal: Protein structure alignment based on shape similarity. *Bioinformatics*, 37(18):2874–2881, 2021.

[3] Filip Persson. *Protein-water interactions studied by molecular dynamics simulations*. Doctoral thesis (compilation), Biophysical Chemistry, 2018.

[4] Filip Persson and Bertil Halle. Transient access to the protein interior: Simulation versus nmr. *Journal of the American Chemical Society*, 135(23):8735–8748, 2013.

[5] Filip Persson and Bertil Halle. How amide hydrogens exchange in native proteins. *Proceedings of the National Academy of Sciences*, 112(33):10383–10388, 2015.

[6] Filip Persson and Bertil Halle. Compressibility of the protein-water interface. *The Journal of Chemical Physics*, 148(21), 2018.

[7] Filip Persson, Pär Söderhjelm, and Bertil Halle. The geometry of protein hydration. *The Journal of Chemical Physics*, 148(21), 2018.

[8] Filip Persson, Pär Söderhjelm, and Bertil Halle. How proteins modify water dynamics. *The Journal of chemical physics*, 148(21), 2018.

[9] Filip Persson, Pär Söderhjelm, and Bertil Halle. The spatial range of protein hydration. *The Journal of Chemical Physics*, 148(21), 2018.