



MICKAËL CANOUIL, Ph.D.

BIostatistician · Quarto & R Developer · Open-source Contributor

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I build tools that make reproducible research easier for data scientists and researchers. With a Ph.D. in biostatistics and deep expertise in the Quarto and R ecosystems, I bridge the gap between statistical rigour and practical usability. 50 peer-reviewed papers; 30+ Quarto extensions; creator of the Quarto Extensions Directory and Quarto Wizard. Lifelong learner, passionate about sharing knowledge through workshops, open source, and community engagement.

PROFESSIONAL EXPERIENCE

Senior Biostatistician

Nov. 2022 – present

Astek – IT&M Stats / Alsinova CRO · Remote

Client 1

Production-grade R packages and end-to-end statistical pipelines for multi-omics data (microbiome, proteomics, lipidomics) and large-scale cohort studies. **Fully integrated GitHub / Google Cloud infrastructure:** GitHub Actions for CI/CD triggering, Cloud Build for GCP-side execution, Cloud Workstation as the reproducible development environment, and BigQuery for petabyte-scale data storage and querying. Nov. 2022 – Mar. 2026

Client 2

All-in-one R package for methylation sequencing: end-to-end pipeline orchestrated with targets (import, quality control, filtering, statistical analysis), **interactive shiny interface** enabling researchers to import, QC, filter, analyse, and browse methylation data, and **automated Quarto CLI reports** generating QC and statistical reports with contextual interpretation guidelines. Nov. 2025 – present

Consulting & Training

Statistical consulting, R and Quarto training, and workshop delivery for academic and industry clients. Nov. 2022 – present

Biostatistician, then Head of Biostatistics

Sep. 2012 – Oct. 2022

CNRS UMR 8199 / Inserm U1283 – EGID · Lille, France

Led multi-omics research in type 2 diabetes genetics: genome-wide and epigenome-wide association studies on international cohorts, eQTL mapping in human pancreatic islets, and joint modelling of longitudinal and survival data. 8 first/co-first/co-last author papers across Nature Communications, Diabetes Care, Diabetes, Bioinformatics, and more. Managed a biostatistics team and coordinated with international consortia: CKDgen, CHARGE, IMIDIA, DIRECT, RHAPSODY.

Head of Biostatistics – Institut Pasteur de Lille

Oct. 2017 – Oct. 2022

Biostatistician – CNRS

Sep. 2012 – Sep. 2017

TECHNICAL SKILLS

STATISTICS & METHODS

GWAS, multi-omics (proteomics, metabolomics, transcriptomics, epigenomics), mixed & joint models, survival analysis, meta-analysis

INFRASTRUCTURE

GitHub (Actions, Pages), Docker, Dev Containers, Google Cloud (Workstation, BigQuery, Cloud Build), VSCode/Positron extensions

DEV LANGUAGES

R, Lua, Typst, Python, TypeScript, JavaScript, Bash, SQL

R ECOSYSTEM

Tidyverse (ggplot2, shiny, ...), devtools (testthat, roxygen2, ...), Bioconductor (limma, DESeq2, ...), renv, targets

AUTHORING & PUBLISHING

Quarto, Typst, LaTeX, Reveal.js, Pandoc, R Markdown, HTML/(S)CSS

OPEN SOURCE

QUARTO & TYPST

Quarto Extensions Directory
Quarto Wizard – VSCode & Positron
30+ extensions: Lua filters/shortcodes, Typst/HTML/Reveal.js formats, etc.

R PACKAGES

NACHO, insane, MiSTr, snpEnrichment, ggpacman and more – spanning genomics QC, statistical testing, and data visualisation.

EDUCATION

Ph.D. in Biostatistics

Oct. 2014
– Sep. 2017

University of Lille · Lille, France

Thesis: “Joint Modelling of Longitudinal and Survival Data Applied to Genetic Association Studies.”

M.Sc. in Biostatistics, Bioinformatics & Genomics

Sep. 2009
– Jul. 2011

University Claude Bernard Lyon 1 · Lyon, France

Specialised in Biostatistics.

B.Sc. in Biology

Sep. 2006
– Jul. 2009

University Claude Bernard Lyon 1 · Lyon, France

Specialised in Biostatistics.

TALKS

Introduction to Development Containers,
Oct. 2025

A Gentle Introduction to Quarto, Oct.
2023

My Journey to Transparency and
Reproducibility, Apr. 2021

A Statistical Seminar Applied on Type 2
Diabetes, Jan. 2019

WORKSHOPS

Mastering Quarto CLI, Feb. 2026

R Advanced, 2020, 2021

Shiny: First Steps, 2019, 2021

R Packages, Feb. 2020

Languages: French (native) · English (fluent)

SELECTED PUBLICATIONS

Burrows K., ..., **Canouil M.**[†], Warrington N.M. “A Framework for Conducting GWAS Using Repeated Measures Data with an Application to Childhood BMI.” *Nature Communications*, 2024. (†co-last) [doi:10.1038/s41467-024-53687-3](https://doi.org/10.1038/s41467-024-53687-3)

Canouil M., Khamis A., *et al.* “Epigenome-Wide Association Study Reveals Methylation Loci Associated With Offspring Gestational Diabetes Mellitus Exposure and Maternal Methylome.” *Diabetes Care*, 2021. [doi:10.2337/dc20-2960](https://doi.org/10.2337/dc20-2960)

Canouil M., Bouland G.A., Bonnefond A., Froguel P., ‘t Hart L.M., Sliker R.C. “NACHO: An R Package for Quality Control of NanoString nCounter Data.” *Bioinformatics*, 2020. [doi:10.1093/bioinformatics/btz647](https://doi.org/10.1093/bioinformatics/btz647)

Khamis A., **Canouil M.**[†], *et al.* “Laser Capture Microdissection of Human Pancreatic Islets Reveals Novel eQTLs Associated with Type 2 Diabetes.” *Molecular Metabolism*, 2019. (†co-first) [doi:10.1016/j.molmet.2019.03.004](https://doi.org/10.1016/j.molmet.2019.03.004)

Canouil M., Balkau B., Roussel R., Froguel P., Rocheleau G. “Jointly Modelling Single Nucleotide Polymorphisms With Longitudinal and Time-to-Event Trait: An Application to Type 2 Diabetes and Fasting Plasma Glucose.” *Frontiers in Genetics*, 2018. [doi:10.3389/fgene.2018.00210](https://doi.org/10.3389/fgene.2018.00210)

Abderrahmani A., ..., **Canouil M.**[†], *et al.* “Increased Hepatic PDGF-AA Signaling Mediates Liver Insulin Resistance in Obesity-Associated Type 2 Diabetes.” *Diabetes*, 2018. (†co-first) [doi:10.2337/db17-1539](https://doi.org/10.2337/db17-1539)

Verbanck M., **Canouil M.**[†], *et al.* “Low-Dose Exposure to Bisphenols A, F and S of Human Primary Adipocyte Impacts Coding and Non-Coding RNA Profiles.” *PLOS ONE*, 2017. (†co-first) [doi:10.1371/journal.pone.0179583](https://doi.org/10.1371/journal.pone.0179583)

Ndiaye F.K., ..., **Canouil M.**[†], *et al.* “Expression and Functional Assessment of Candidate Type 2 Diabetes Susceptibility Genes Identify Four New Genes Contributing to Human Insulin Secretion.” *Molecular Metabolism*, 2017. (†co-first) [doi:10.1016/j.molmet.2017.03.011](https://doi.org/10.1016/j.molmet.2017.03.011)

50 peer-reviewed papers in total, including publications in *Nature*, *Nature Genetics*, and *Diabetes*.

INTERESTS



Cinephile

4,000 films,
half on the big screen.



Board games

From strategy to party,
no genre refused.



Saga ♂

Black Labrador and
walking companion.

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