Romain BILLY

Munkegata 66E
7011 TRONDHEIM
Norway

romain.g.billy@gmail.com
+47 486 70 532

PhD Candidate (graduating Dec. 2022)
with management consulting and research experience

My research interests and experience are about improving the environmental performance of the metallurgical industry. I have developed methods to analyse the metabolism of industrial plants to uncover potentials for improving energy and resource efficiency, limit emissions, and quantify the benefits of new technologies and processes.

WORK EXPERIENCE

Since Aug 2017

Norwegian University of Science and Technology (NTNU), Trondheim, Norway
PhD Candidate, Industrial Ecology and SFI metal production
Main topic: Carbon footprint of Aluminium production *(SFI metal production, RD5 Metals and Society).*
Participated in the BATMAN (Li-ion BATteries - Norwegian opportunities within sustainable end-of-life MANagement, reuse and new material streams) and MinFuture (Global material flows and demand-supply forecasting for mineral strategies) projects
- Authored/co-authored **4 peer-reviewed articles in recognised international journals**.
- Participated in the writing of **5 European funding proposals**
- Presented my research in 5 international conferences
- **Co-supervised 8 master theses/projects in collaboration with industrial partners** from the metallurgical industry (Hydro, Elkem, Umicore, Nickel Institute)
- Animated 3 workshops with industrial, governmental and research stakeholders
- Teaching Assistant for the courses *TEP4285 Material Flow Analysis* and *TEP4290 Modeling of Built Environment Systems*. Developed new teaching material and exams, presented tutorials, gave lectures.

2013-2017 (4,5 years)

Sia Partners (Management consulting), Paris, France
Senior Consultant, Energy, Environment and Data Science
- Conducted Business Intelligence missions with **complex databases** for major utilities companies.
- Assisted with the **creation of a Data Science team:** prospected new customers, hired and trained junior consultants, improved knowledge on data science algorithms and computer languages.
- Undertook a **scientific and regulatory watch** on metal stocks, recycling and resource use.
- **Wrote studies and articles** for the company's blog **on metal recycling, critical materials and climate change mitigation.**
- Designed and delivered an **internal training on circular economy and waste management**
- Organised an article writing contest for students, on the theme of the European energy mix.

2011 - 2012 (10 months)

Norwegian University of Science and Technology (NTNU), Trondheim, Norway
Student Assistant for the courses Material Flow Analysis and Industrial Ecology

2011 (3 months)

Xyntéo (Sustainable development consulting), Oslo, Norway
Part-Time Analyst, conducted short surveys on environmental impacts of infrastructure development in Asia.

2010 (3 months)

Mairie de Paris (Townhall of Paris), France, Division of Environment and Green spaces
Traineeship in the office of the Scientific and Technical Advisor
- Assessed the environmental performance of mechanical equipment for **ISO 14001** auditing.
- Realised a **VBA based software** to perform evaluations and stored them in an **Access database**.

EDUCATION

2017-2022 **PhD in Engineering**, Norwegian Institute of Science and Technology (**NTNU**), Trondheim, Norway
(ongoing) *SFI Metal Production and Industrial Ecology Program. Main supervisor: Prof. Daniel B. Müller*
Topic: Monitoring and simulating material cycles and emissions at multiple scales – Case studies for aluminium

2010-2012 **M.Sc. in Industrial Ecology**, Norwegian Institute of Science and Technology (**NTNU**), Trondheim, Norway
TIME (Top Industrial Managers for Europe) double degree between ECN and NTNU
Major in **Environmental Systems Analysis** (Life Cycle Analysis, Corporate Social Responsibility, Material Flow Analysis, Environmentally-Extended Input-Output, Environmental Management, Climate Change).

Master Thesis supervised by Prof. Daniel B. Müller in collaboration with **Norsk Hydro ASA**
*Subject***:** *Material Flow Analysis of extruded aluminium in French buildings*
- Built an **MFA model of extruded aluminium** of the French building sector
- Forecasted future supply of aluminium scrap from French buildings, using **stock dynamics and economic scenarios** to model future demand, scrap quality and profitability.
- Discussed the **logistics of a reverse supply chain** to recycle aluminium profiles scrap.

2008-2010 **M.Sc. in Engineering, Ecole Centrale de Nantes**, Nantes, France
A top 10 French engineering school, Equivalent to a M.Sc. Major in **New Energy Systems.**

2006-2008 Student in Classes Préparatoires at **Lycée Saint-Louis, Paris**: a 2-year high level course in **mathematics, physics and chemistry**, preparing for the national competitive entry examinations for Engineering Schools.

OTHER SKILLS

TECHNICAL SKILLS
Programming: working experience of Python, SQL, Matlab/Simulink, Git
Data visualization: Tableau (expert level), Power BI
Data capture and management: Oracle, SQL Server, Google Analytics
Software: Advanced knowledge of MS Office (including Access, Project, Visio and VBA), Photo and Video editing (Gimp, Adobe CS)

LANGUAGE SKILLS
French: Native Speaker
English: Fluent (**TOEIC 990/990** in 2009)
Norwegian: B2/C1 level (60 ECTS credits at NTNU, 45 needed for Bergenstesten)

Full, clean driving license

LIST OF SCIENTIFIC PUBLICATIONS

- **Systemic Approaches for Emission Reduction in Industrial Plants Based on Physical Accounting: Example for an Aluminum Smelter,** Romain G. Billy, Louis Monnier, Even Nybakke, Morten Isaksen, and Daniel B. Müller. *Environmental Science & Technology* 2022 56 (3), 1973-1982 DOI: 10.1021/acs.est.1c05681
- **A general framework for stock dynamics of populations and built and natural environments,** Dirk Lauinger, Romain G. Billy, Felipe Vásquez, and Daniel B. Müller. *Journal of Industrial Ecology* 2021; 25: 1136– 1146 DOI: 10.1111/jiec.13117
- **Pathways toward a carbon-neutral Swiss residential building stock**, Marta Roca-Puigròs, Romain G. Billy, Andreas Gerber, Patrick Wäger, and Daniel B. Müller. *Buildings and Cities* 2020 1(1):579–93. DOI: 10.5334/bc.61
- **A product-component framework for modelling stock dynamics and its application for electric vehicles and lithium-ion batteries,** Fernando Aguilar Lopez, Romain G. Billy, and Daniel B. Müller. *Journal of Industrial Ecology 2022;* 26: 1605– 1615. DOI: /10.1111/jiec.13316