# Emery Neufeld | Curriculum Vitae

✉ emery.a.neufeld@gmail.com

## Education

**Technical University of Vienna** **Vienna, Austria**
*Doctor Scientiae Technicorum* *2018–2023*
Completed the dissertation "Norm Compliance for Reinforcement Learning Agents" in the Doctoral College of Resilient Embedded Systems in the Faculty of Informatics. Advisors: Ezio Bartocci and Agata Ciabattoni

**University of Waterloo** **Waterloo, Canada**
*Master of Mathematics* *2015–2016*
Completed coursework in a mixture of pure and applied mathematics courses, and a research project on Minimal Pairs of Kolmogorov-degrees, a topic in algorithmic information theory.

**University of British Columbia** **Vancouver, Canada**
*Bachelor of Arts* *2012–2014*
Major in Mathematics, and minor in Philosophy. Degree included independent studies on applications of differential geometry to medical imaging, and philosophy of free will with respect to moral responsibility.

**University of the Fraser Valley** **Abbotsford, Canada**
*Bachelor of Science (incomplete)* *2010–2012*
Admitted to general undergraduate science studies. Later moved to the Faculty of Arts, and transfered to the University of British Columbia after two years.

## Academic Experience

**Technical University of Vienna** **Vienna, Austria**
*Project Assistant* *2023–present*
Conducting research on the project TAIGER: Training and Guiding AI Agents with Ethical Rules. Exploring logics for temporal normative reasoning and integrating them with reinforcement learning agents.

**Technical University of Vienna** **Vienna, Austria**
*Project Assistant* *2022–2023*
Conducting research on the project BRISE: Building Regulations Information for Submission Envolvement. Worked on translated generic representations of building regulations into defeasible deontic logic.

**Technical University of Vienna** **Vienna, Austria**
*University Assistant* *2018–2022*
Conducting research on integrating normative reasoning with reinforcement learning agents and completing my dissertation "Norm Compliance for Reinforcement Learning Agents".

**University of Waterloo** **Waterloo, Canada**
*Teaching Assistant* *2015–2016*
Taught labs and tutorials, individually tutored students, and marked assignments and exams.

**BC Online School** ***remote*, Canada**
*Data Manager/Curriculum Developer* *2012–2014*
Wrote mathematics and physics problems for online courses between grade 8 and 12, including practice problems for the AP Calculus exam. Entered said questions and thorough solutions into an online database.

## Industry Experience

**Provincial Health Services Authority** — **Vancouver, Canada**
*Business Intelligence Developer* — *2017–2018*

**Semios BIO** — **Vancouver, Canada**
*Data Scientist* — *2016–2017*

**ZE Power Group** — **Richmond, Canada**
*Data Analyst* — *2014–2015*

## Primary Research Interests

My research interests lie in hybrid agents that combine reinforcement learning and logic. Of specific interest is approaches focused on normative reasoning and deontic logic.

## Publications

**On Normative Reinforcement Learning via Safe Reinforcement Learning**
*PRIMA 2022* — *2022*
Authors: Emery Neufeld, Agata Ciabattoni, Ezio Bartocci

**Enforcing Ethical Goals over Reinforcement Learning Policies**
*Journal of Ethics in Information Technology* — *2022*
Authors: Emery Neufeld, Ezio Bartocci, Agata Ciabattoni, Guido Governatori

**Reinforcement Learning Guided by Provable Normative Compliance**
*ICAART 2022* — *2022*
Authors: Emery Neufeld

**A Normative Supervisor for Reinforcement Learning Agents**
*CADE 2021* — *2021*
Authors: Emery Neufeld, Ezio Bartocci, Agata Ciabattoni, Guido Governatori

## Presentations

**On Normative Reinforcement Learning via Safe Reinforcement Learning**
*PRIMA 2022* — *2022*
Talk presenting paper on the challenges of using LTL-based constrained learning techniques for normative reinforcement learning.

**Safety vs Compliance**
*TICAMORE Workshop* — *2022*
Short talk on the suitability of LTL for representing norms.

**Reinforcement Learning Guided by Provable Normative Compliance**
*ICAART 2022* — *2022*
Talk presenting paper introducing the technique "Norm Guided Reinforcement Learning".

**A Normative Supervisor for Reinforcement Learning Agents**
*CADE 2021* — *2022*
Talk presenting paper introducing the "normative supervisor" tool.

**Artificial Citizens: Friendly AI and Ethics for Machines**
*Meeting by City of Reykjavik and Space Iceland* — *2020*
Talk on the challenges of designing and implementing AI that is sensitive to human values and ethics.

**Guest Lecture**
*University of the Fraser Valley* *2015*
A guest lecture for a fourth year History of Mathematics course on 20th Century Mathematical Cryptography.

## Awards

**Christiania Hörbiger Preis**
*Technical University of Vienna* *2018*
A mobility prize to promote international co-operation between researchers.

**Math Faculty Graduate Award**
*University of Waterloo* *2015-2016*
An award to fund graduate studies within the University of Waterloo's Faculty of Mathematics

**Undergraduate Research Award**
*University of the Fraser Valley* *2012*
Awarded for work on the philosophical implications of Gödel's Incompleteness Theorems on formal reasoning.