



Jim M. Smit

PHD CANDIDATE · CAUSAL INFERENCE · INTENSIVE CARE MEDICINE

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Education

Erasmus University Medical Center

PHD. IN MACHINE LEARNING FOR INTENSIVE CARE MEDICINE

- Focusing on the prediction of individualized causal effects, to further personalize ICU treatments.

Rotterdam, Netherlands

Sept. 2021 - Present

KTH Royal institute of Technology

SEMESTER ABROAD

- Spend the Spring Semester as an exchange student at the faculty of Computer Science

Stockholm, Sweden

Jan. 2019 - June 2019

Delft University of Technology

MSC. IN BIOMEDICAL ENGINEERING

- Thesis: Prediction models for adverse outcomes in COVID-19 patients. [Link to thesis]
- GPA: 8.2 / 10

Delft, Netherlands

Sept. 2018 - July 2021

Delft University of Technology

BSC. IN CLINICAL TECHNOLOGY

- GPA: 7.7 / 10

Delft, Netherlands

Sept. 2015 - July 2018

Publications

PUBLISHED

- 2025 **Smit JM, van der Zee P, Stoof SCM, et al.**, Predicting benefit from adjuvant therapy with corticosteroids in community-acquired pneumonia: a data-driven analysis of randomised trials *The Lancet Respiratory Medicine*
- 2023 **Smit JM, Krijthe JH, Kant WMR, et al.**, Causal inference using observational intensive care unit data: a scoping review and recommendations for future practice. *npj Digital Medicine*
- 2023 **Smit JM, Krijthe JH, van Bommel J.**, The future of artificial intelligence in intensive care: moving from predictive to actionable AI. *Intensive Care Medicine*
- 2022 **Smit JM, Krijthe JH, Tintu AN, et al.**, Development and validation of an early warning model for hospitalized COVID-19 patients: a multi-center retrospective cohort study. *Intensive Care Medicine Experimental*
- 2022 **Smit JM, Krijthe JH, Endeman H, et al.**, Dynamic prediction of mortality in COVID-19 patients in the intensive care unit: A retrospective multi-center cohort study. *Intelligence-Based Medicine*
- 2021 **Smit JM, van Genderen ME, Reinders MJT, et al.**, Demystifying machine learning for mortality prediction. *Critical Care*

PRE-PRINTS

- 2025 **Smit JM, Krijthe JH, van Bommel J, et al.**, The Heterogeneous Effect of High PEEP strategies on Survival in Acute Respiratory Distress Syndrome: a data-driven analysis of randomized trials. medRxiv
- 2025 **Smit JM, van Bommel J, Gommers D, et al.**, Switching from Controlled to Assisted Mechanical Ventilation: a Multi-center Retrospective study (SWITCH), medRxiv

Presentations

ORAL PRESENTATIONS / INVITED TALKS

- 2024 **The Predictive Analytics and Comparative Effectiveness Center (PACE) Center Symposium**, Case study: Predicting Individualized Effects of corticosteroids in pneumonia: Risk vs Effect modelling *Boston, MA, USA*
- 2024 **PLUG Physiology Symposium**, Switching from controlled to assisted mechanical ventilation: an international, multicenter, retrospective study *Boston, MA, USA*
- 2023 **Pneumo Trieste**, Demystifying Artificial Intelligence for outcome prediction in pneumonia *Trieste, Italy*
- 2022 **TOPICS in ICU**, AI in the ICU: from prediction to causal inference *Utrecht, NL*

CONFERENCE POSTERS

- 2023 **European Society of Intensive Care Medicine (ESICM) LIVES**, JM Smit, PA Van Der Zee, SCM Stoof, et al. Predicting individualized treatment effects of corticosteroids in community-acquired-pneumonia *Milan, Italy*
- 2022 **European Society of Intensive Care Medicine (ESICM) LIVES**, Smit, JM, Krijthe, JH, van Bommel, J et al. Causal inference using observational intensive care unit data. *Paris, France*

Teaching Activity

MSc Thesis: Reliable Offline Policy Evaluation for Individualized Mechanical Ventilation *Computer Science, TU Delft*
DAILY SUPERVISOR *Mei 2023 - June 2024*

- In this Thesis, the student explored Reinforcement Learning for ICU mechanical ventilation optimization, using Offline Policy Evaluation to evaluate policies using observational data.
- [Link to Thesis](#)

BSc Thesis project: Predicting Individualized effects of high PEEP ventilation *Computer Science, TU Delft*
(Co-) DAILY SUPERVISOR *April 2024 - July 2024*

- Five students explored individualized effect estimation to personalize the PEEP setting in the mechanical ventilation, using different techniques, and performed an external validation in real-world randomized trial datasets.

BSc Project: Systematic Literature Review *Medicine, Erasmus MC*
SUPERVISOR *Oct 2021 - Dec 2021, Oct 2022 - Dec 2022*

- 2021: Proposed and supervised a review the performance of machine learning models presented in the literature to predict the extubation-readiness in mechanical ventilation.
- 2022: Proposed and supervised a review about the effectiveness of corticosteroids in community-acquired-pneumonia.

Experience

Operation AIR *Delft, NL*
SUPPLY-CHAIN MANAGER (VOLUNTARY WORK) *March 2020 - May 2020*

- Operation AIR was a project to manufacture emergency mechanical ventilators for the Dutch healthcare authority.
- My role was to develop a forecasting model for ICU capacity in the Netherlands, and managing the supply chain of the production process.
- [Link to website](#)

Clinical Chemistry, Erasmus Medical Center *Rotterdam, NL*
PART-TIME RESEARCH INTERN *March 2020 - May 2020*

- Explored reference intervals for laboratory test results of specific patient groups using large datasets of laboratory test results.

Momo Medical B.V. *Delft, NL*
FULL-TIME R&D INTERN *Sept. 2019 - Dec. 2019*

- Explored Deep learning-based posture change detection algorithms to improve the performance of Momo's first product (BedSense).