



ERCIM "ALAIN BENSOUSSAN"  
FELLOWSHIP PROGRAMME



## Scientific Report

First name / Family name

Sehail MAZID

Nationality

Moroccan

Name of the *Host Organisation*

NTNU

First Name / family name  
of the *Scientific Coordinator*

Espen R. / Jakobsen

Period of the fellowship

01/12/2019 to 30/11/2020

## I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

- **Research topic:**  
-Deep learning for solving partial differential equations.
- **Aim:**  
-Using deep learning for solving nonlocal and nonlinear partial differential equations.
- **Research areas:**  
- Artificial intelligence -Deep learning- Nonlinear partial differential equations- Nonlocal partial differential equations- Simulation.

## II – PUBLICATION(S) DURING YOUR FELLOWSHIP

### Published:

[1] Brahim EL ASRI and Sehail MAZID.

Stochastic impulse control Problem with state and time dependent cost functions.  
Mathematical Control And Related Fields (2020).

**In preparation:**

[1] E. R. Jakobsen and S. Mazid.

Deep neural net based simulation methods for nonlocal and nonlinear partial differential equations.

### **III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES**

Talk at the Workshop” Young researchers between geometry and stochastic analysis”. February 2020. Bergen university, Norway.

### **IV – RESEARCH EXCHANGE PROGRAMME (REP)**

N/A.