

Dr. Julien Vitay

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Researcher in Artificial Intelligence - Machine Learning Engineer - Python Programmer

Education

🎓 Chemnitz University of Technology

HABILITATION - COMPUTER SCIENCE

Chemnitz, Germany

2011 - 2017

→ Thesis: On the role of dopamine in motivated behavior: a neuro-computational approach.

🎓 University Henri Poincaré Nancy-I

PH.D - COMPUTER SCIENCE

Nancy, France

2002 - 2006

→ Thesis: Emergence of sensorimotor functions on a numerical distributed neural substrate.

🎓 École Supérieure d'Électricité - Supélec

ENGINEER IN MICROELECTRONICS AND SIGNAL PROCESSING

Rennes, France

1999 - 2002

Professional Experience

🏢 Assistant Professor - Artificial Intelligence

CHEMNITZ UNIVERSITY OF TECHNOLOGY

Chemnitz, Germany

2011 - Present

→ Creation and teaching of complete modules: Machine Learning, Computer Vision, Deep Reinforcement Learning.

→ Supervision of 100+ bachelor's/master's theses, most of them industrial: deep learning, computer vision, data science, automotive software, time series processing, etc.

→ Research in computational neuroscience, reinforcement learning and decision-making.

→ Research in machine learning: reservoir computing, deep reinforcement learning, cyber security, anomaly detection, geometric deep learning, emotion recognition.

🎓 Postdoctoral fellow

UNIVERSITY OF MÜNSTER, INSTITUTE OF PSYCHOLOGY.

Münster, Germany

2006 - 2011

→ Computational neuroscience research on reinforcement learning, dopamine and basal ganglia.

🏢 Research assistant - Mirrorbot EU project

INRIA LORRAINE (LORIA), TEAM CORTEX.

Nancy, France

2002 - 2006

Selected Projects

ANNarchy (Artificial Neural Networks architect)

🔄 ANNARCHY/ANNARCHY

Main developer

2008 - Present

→ Bio-inspired neural network simulator in Python, based on high-performance C++ code generation (OpenMP, CUDA).

Smart Airsense - Interactive health assistant based on human-in-the-loop ML

IN COLLABORATION WITH AIR-Q GMBH

BMBF project - Supervisor

2022 - 2024

→ Development of self-supervised methods (RNN and Transformer) for anomaly detection in IoT time series.

WAIKIKI - Knowledge-based anomaly detection using AI in critical infrastructures

IN COOPERATION WITH TU COTTBUS, LEAG, RWE AG, STEAG GMBH, ASCORI GMBH, MIGOSENS GMBH, ZEDAS GMBH

BMBF project - Supervisor

2020 - 2023

→ Anomaly detection in log data using compact transformers.

ML@KaroProd - Prediction of process parameters in automotive body production

🔄 HAMKERLAB/ML-KAROPROD-MESH PREDICTOR. IN COOPERATION WITH FRAUNHOFER IWU DRESDEN AND SCALE GMBH.

BMBF project - Supervisor

2018 - 2022

→ Framework for accelerating the search for functional parameters in FEM simulations using implicit neural representations.

Deep Reinforcement Learning book

📖 JULIEN-VITAY.NET/DEEPRL

Author

2018 - Present

→ Online book on the state-of-the-art in deep reinforcement learning.

Skills

Languages French (native) | English | German

Programming Python | C++ | C | Java | Matlab | Julia

Machine learning pytorch | tensorflow | scikit-learn | XGBoost | rllib | tianshou | mlflow | wandb

Technical stack linux | git | docker | gcp | vscode