

Arthur BRUGIÈRE

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Studies

Ph.D: Dynamic coupling and scaling of complex socio-environmental models

SORBONNE UNIVERSITY (FRANCE)

Graduate school: EDITE
Research unit: UMMISCO

2021 - 2025

Master Information and Communication Technology - Data for IoT

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI (USTH)

Hanoi, Vietnam

2018-19

Master ICONE - Computer Science with Software Architect Specialization

UNIVERSITY OF LA ROCHELLE

La Rochelle, France

2017-19

Bachelor of Science, Technology, Health - Major in Computer Science

UNIVERSITY OF LA ROCHELLE

La Rochelle, France

2016-17

Digital Responsible Certification

CLUB GREEN IT

La Rochelle, France

2016

DUT Multimedia et Métiers de l'Internet (MMI)

IUT GRENOBLE 1

Grenoble, France

2014-16

Baccalauréat S-Science de l'Ingénieur (S-SI) - Computer Science Specialty

JULES FIL HIGH SCHOOL

Carcassonne, France

2014

Professional Experience

Responsable du développement technique

EU Project : STAR FARM

INSTITUT DE RECHERCHE POUR LE DÉVELOPPEMENT (IRD) VIETNAM

Hanoi, Vietnam

Mai 1, 2025 - 2027

Technological Development Officer

EuropeAid Project : Sustainability Issues Metaverse for building Participatory Learning Environments (SIMPLE)

INSTITUT DE RECHERCHE POUR LE DÉVELOPPEMENT (IRD) VIETNAM

Hanoi, Vietnam

April 1, 2023 - December 2027

Local Engineer in Data Analytics and Computer Modeling

Project ANRS COV23 COMOKIT : COVID-19 Modeling Kit (COMOKIT)

INSTITUT DE RECHERCHE POUR LE DÉVELOPPEMENT (IRD) VIETNAM

Hanoi, Vietnam

October 1, 2020 - August 31, 2021

Local Engineer in Data Analytics and Computer Modeling

Project ANR-16-CE39-0011 : Exploring by Simulation Cities Awareness on Population Evacuation (ESCAPE)

INSTITUT DE RECHERCHE POUR LE DÉVELOPPEMENT (IRD) VIETNAM

Hanoi, Vietnam

October 1, 2019 - September 30, 2020

Research Projects

Sustainability Issues Metaverse for building Participatory Learning Environments (SIMPLE)

PROJECT CO-FUNDED BY THE EUROPEAN UNION AS PART OF THE "GREEN PARTNERSHIPS WITH ASEAN".

Membre

General Monetary and Multisectoral Macrodynamics for the Ecological Shift (GEMMES)

FUNDED BY THE AGENCE FRANÇAISE DE DÉVELOPPEMENT (AFD)

Membre

COvid19 MOdeling KIT (COMOKIT)

FUNDED BY THE FRENCH NATIONAL AGENCY FOR RESEARCH ON AIDS AND VIRAL HEPATITIS (ANRS)

Membre

ANRS COV15 COMOKIT

Published Papers

COMOKIT v2: A multi-scale approach to modeling and simulating epidemic control policies

PATRICK TAILLANDIER, KEVIN CHAPUIS, BENOIT GAUDOU, **ARTHUR BRUGIÈRE** & ALEXIS DROGOU

Plos One

doi: 10.1371/journal.pone.0299626

Handling multiple levels in agent-based models of complex socio-environmental systems: a comprehensive review

ARTHUR BRUGIÈRE, DOANH NGUYEN-NGOC & ALEXIS DROGOU

Front. Appl. Math. Stat. - Sec. Mathematics of Computation and Data Science

doi: 10.3389/fams.2022.1020353

Exploring multi-modal evacuation strategies for a landlocked population using large-scale agent-based simulations

KEVIN CHAPUIS, PHAM MINH-DUC, **ARTHUR BRUGIÈRE**, JEAN-DANIEL ZUCKER, ALEXIS DROGOU, PIERRICK TRANOUZ, ÉRIC DAUDÉ & PATRICK TAILLANDIER

Journal of Geographical Information Science

doi: 10.1080/13658816.2022.2069774

LUCAS-GEMMES: Integrated dynamics of adaptation strategies in the Vietnamese Mekong Delta

CHI QUANG TRUONG, ALEXIS DROGOU, BENOIT GAUDOU, PATRICK TAILLANDIER, NGHI HUYNH QUANG, **ARTHUR BRUGIÈRE**, HA THI THU NGUYEN, PHILIP MINDERHOUD & ETIENNE ESPAGNE

The Mekong Delta Emergency, Climate and Environmental Adaptation Strategies to 2050-Final Report GEMMES Viet Nam project

hal: hal-03844924

COMOKIT: a modeling kit to understand, analyze and compare the impacts of mitigation policies against the COVID-19 epidemic at the scale of a city

BENOIT GAUDOU, QUANG NGHI HUYNH, DAMIEN PHILIPPON, **ARTHUR BRUGIÈRE**, KEVIN CHAPUIS, PATRICK TAILLANDIER, PIERRE LARMANDE & ALEXIS DROGOU

Frontiers in Public Health

doi: 10.3389/fpubh.2020.563247

Experimenting the impact of pedestrianisation on urban pollution using tangible agent-based simulations

ARTHUR BRUGIÈRE, MINH DUC PHAM, KEVIN CHAPUIS, ALEXIS DROGOU, BENOIT GAUDOU, ARNAUD GRIGNARD, NICOLAS MARILLEAU & NGUYEN-HUU TRI

Special issue in CoSMoS 2019 Publication of Science Volume, Springer-Nature

doi: 10.1007/978-981-16-2629-6

An agent-based co-modelling approach to simulate the evacuation of a population in the context of a realistic flooding event

KEVIN CHAPUIS, TAHA AMINE ELWAQOUDI, **ARTHUR BRUGIÈRE**, ERIC DAUDÉ, ALEXIS DROGOU, BENOIT GAUDOU, DOANH NGUYEN-NGOC, HUYNH QUANG NGHI & JEAN-DANIEL ZUCKER

Special issue in CoSMoS 2019 Publication of Science Volume, Springer-Nature

doi: 10.1007/978-981-16-2629-6

Position papers

LUCAS-GEMMES: Integrated dynamics of adaptation strategies in the Vietnamese Mekong Delta

CHI QUANG TRUONG, ALEXIS DROGOU, BENOIT GAUDOU, PATRICK TAILLANDIER, NGHI HUYNH QUANG, **ARTHUR BRUGIÈRE**, HA THI THU NGUYEN, PHILIP MINDERHOUD & ETIENNE ESPAGNE

The Mekong Delta Emergency, Climate and Environmental Adaptation Strategies to 2050. Final Report GEMMES Viet Nam project.

11/2022

Understanding the current COVID-19 epidemic: one question, one model

CoVPREHENSION COLLECTIVE

Review of Artificial Societies and Social Simulation (ROFASSS)
rofasss.org/2020/04/30/covprehension

Designing social simulation to (seriously) support decision-making: COMOKIT, an agent-based modelling toolkit to analyse and compare the impacts of public health interventions against COVID-19

ALEXIS DROGOU, PATRICK TAILLANDIER, BENOIT GAUDOU, MARC CHOISY, KEVIN CHAPUIS, QUANG NGHI HUYNH, NGOC DOANH NGUYEN, DAMIEN PHILIPPON, **ARTHUR BRUGIÈRE** & PIERRE LARMANDE

Review of Artificial Societies and Social Simulation (ROFASSS)

rofasss.org/2020/04/27/comokit

Conference with Published Acts

Coupling Agent-Based Simulations and VR universes: the case of GAMA and Unity

ALEXIS DROGOU, PATRICK TAILLANDIER, **ARTHUR BRUGIÈRE**, LOUIS MARTINEZ, LÉON SILLANO, BAPTISTE LESQUOY & HUYNH QUANG NGHI

Proceedings of the 14th International Conference - SIMULTECH

[doi: 10.5220/0012757600003758](https://doi.org/10.5220/0012757600003758)

Investigating Coding Preferences for Coupling Multi-Level Models in the GAMA Platform

ARTHUR BRUGIÈRE & DOANH NGUYEN-NGOC

GAMA Days 2024

hal: hal-04892313

SIMPLE Toolchain: Coupling GAMA simulation with VR universe

PATRICK TAILLANDIER, **ARTHUR BRUGIÈRE** & ALEXIS DROGOU

GAMA Days 2024

hal: ird-04889169

Behind the scenes: an overview of the GAMA platform's environment and development practices

BAPTISTE LESQUOY, PATRICK TAILLANDIER, BENOIT GAUDOU, KEVIN CHAPUIS, ARNAUD GRIGNARD, NGHI QUANG HUYNH, **ARTHUR BRUGIÈRE**, LUCAS GROSJEAN & ALEXIS DROGOU

GAMA Days 2024

hal: ird-04890142

Exploring VR Interaction Possibilities: Prototyping the flood simulation in Dong Hoi, Quang Binh Province with SIMPLE's Coupling Tool in Unity and GAMA

THANH DO NGUYEN, PATRICK TAILLANDIER, **ARTHUR BRUGIÈRE**, ALEXIS DROGOU, THANH LOI DANG, QUANG NGUYEN DANG, GIA PHONG PHAM, ROMAIN BECKER, ELISA GRANGER & TUAN TRUONG

GAMA Days 2024

hal: ird-04890257

Handling multiple non-hierarchical levels in agent-based systems

ARTHUR BRUGIÈRE

International Conference on Discrete Mathematics and Computer Science 2022

01/12/2022

Handling multi-level agent-based models with GAMA

ARTHUR BRUGIÈRE, DOANH NGUYEN-NGOC & ALEXIS DROGOU

GAMA Days 2022

24/06/2022

Coupling GAMA with OpenMole to easily explore agent-based models in HPC environment

ROMAIN REUILLON & **ARTHUR BRUGIÈRE**

GAMA Days 2021

23/06/2021

ESCAPE: a city-scale evacuation agent-based simulation framework

ARTHUR BRUGIÈRE, CLÉMENT CARON, ÉRIC DAUDÉ, GÉRALDINE DEL MONDO, OLIVIER GILLET, SÉBASTIEN REY-COYREHOURCQ, ARNAUD SAVAL, PATRICK TAILLANDIER & PIERRICK TRANOUEZ

GAMA Days 2021

23/06/2021

comokit4py: a python package to ease GAMA model's simulation integration into a high performance computing workflow

ARTHUR BRUGIÈRE & KEVIN CHAPUIS

GAMA Days 2021

23/06/2021

COMOKIT: a brief synthesis of the Gama supported agent-based framework to study NPI against Covid-19

KEVIN CHAPUIS, PATRICK TAILLANDIER, BENOIT GAUDOU, NGHI HUYNH QUANG, **ARTHUR BRUGIÈRE** & ALEXIS DROGOU

GAMA Days 2021

23/06/2021

COMOKIT-Albatross: An agent-based, activity-based model on COVID-19 simulation

SEHEON KIM, SOORA RASOULI, KEVIN CHAPUIS, SRIRAMA BHAMIDIPATI & **ARTHUR BRUGIÈRE**

GAMA Days 2021

23/06/2021

Using the COMOKIT model to study the impact of the morpho-functional organization of cities on the spread of COVID-19.

KEVIN CHAPUIS, PATRICK TAILLANDIER, BENOIT GAUDOU, **ARTHUR BRUGIÈRE**, ALEXIS DROGOU, ALESSANDRO ARALDI & GIOVANNI FUSCO

ABMUS2021: The 6th International Workshop on Agent-Based Modelling of Urban Systems

04/05/2021

COMOKIT : un environnement générique et modulaire pour analyser les impacts des politiques d'intervention contre l'épidémie de COVID-19

KEVIN CHAPUIS, PATRICK TAILLANDIER, BENOIT GAUDOU, **ARTHUR BRUGIÈRE** & ALEXIS DROGOU

Journées Francophones sur les Systèmes Multi-Agents 2021

05/03/2021

CityScope Hanoi: interactive simulation for water management in the Bac Hung Hai irrigation system

ARNAUD GRIGNARD, TRI NGUYEN-HUU, BENOIT GAUDOU, DOANH NGUYEN-NGOC, **ARTHUR BRUGIÈRE**, TU H. DANG, NGHI QUANG HUYNH, KHANH NGUYEN TRONG & KENT LARSON

IEEE Knowledge and Systems Engineering (KSE 2020)

12-14/11/2020

Articles soumis

Coupling Agent-Based Simulations and VR universes: the case of GAMA and Unity

ALEXIS DROGOU, PATRICK TAILLANDIER, **ARTHUR BRUGIÈRE**, LOUIS MARTINEZ, LÉON SILLANO, BAPTISTE LESQUOY & HUYNH QUANG NGHI

Virtual Reality - Springer Nature

01/07/2025

International Research Networks

ASSESS

AGENT-BASED SIMULATION FOR SUSTAINABLE SOCIO-ENVIRONMENTAL SYSTEMS

Membre

<https://miat.inrae.fr/assess>

COMOKIT

THEMATIC NETWORK FOR MULTI-AGENT MODELING APPLIED TO PUBLIC POLICIES IN THE EVENT OF AN EPIDEMIC

Membre

<https://github.com/COMOKIT>

CoVprehension

INTERNATIONAL MULTIDISCIPLINARY COLLECTIVE WORKING TO UNDERSTAND AND POPULARIZE THE COVID-19 EPIDEMIC

Membre

<https://covprehension.org>

Teachings

Master's Degree in Computer Science - Agent Based Modeling

CAMBODIA ACADEMY OF DIGITAL TECHNOLOGY (CADT)

Phnom Penh, Cambodia

May 19 - 23, 2025

Master's Degree in Computer Science - Agent-Based Modelling using the GAMA Platform

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI (USTH)

Hanoi, Vietnam

December 2 - 14, 2024

Training Workshop on Modeling Using Geographic Information Systems (GIS) and Agent Based Modeling Applications (GAMA)

OXFORD UNIVERSITY CLINICAL RESEARCH UNIT (OUCRU)

Ho Chi Minh City, Vietnam

June 3 - 7, 2024

Master's Degree in Computer Science - Agent-Based Modelling using the GAMA Platform

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI (USTH)

Hanoi, Vietnam

January 15 - 26, 2024

Training Workshop on Agent Based Modeling Applications with the GAMA Platform

UMMISCO IRD

VinUniversity, Hanoi, Vietnam

December 5 - 7, 2023

Training Workshop on Modeling Using Geographic Information Systems (GIS) and Agent Based Modeling Applications (GAMA)

THAMMASAT UNIVERSITY

Bangkok, Thailand

August 14 - 18, 2023

Master's Degree in Computer Science - Agent-Based Modelling using the GAMA Platform

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI (USTH)

Hanoi, Vietnam

December 5 - 9, 2022

Online Training-Workshop on Modeling for Higher Education Institutions (HEIs)

THE SOUTHEAST ASIAN REGIONAL CENTER FOR GRADUATE STUDY AND RESEARCH IN AGRICULTURE (SEARCA)

Video conferencing, Vietnam

March 22 – 26, 2021

Workshop 2: Modeling and Simulation of Water Basin Integrated Management

WANASEA - ASEAN WATER PLATFORM 2021

Video conferencing, Vietnam

March 1 – 5, 2021

Agent-Based Modelling using the GAMA Platform to Urban Crisis Management

UNIVERSITY OF THE PHILIPPINES CEBU

Cebu, Philippines

February 17 – 21, 2020

Training Workshop on Modeling Using Geographic Information Systems (GIS) and Agent Based Modeling Applications (GAMA)

THE SOUTHEAST ASIAN REGIONAL CENTER FOR GRADUATE STUDY AND RESEARCH IN AGRICULTURE (SEARCA)

Los Baños, Philippines

February 10 - 14, 2020

GAMA-Platform : Introduction and Training Session

THUY LOI UNIVERSITY

Hanoi, Vietnam

October 16 – 23, 2019

Skills

Software programming

Java, Python, R, ...

Modeling of complex systems

GAMA-Platform & GAML

Fullstack-Web programming

Front-End (HTML, CSS, JS), Back-End (PHP, NodeJS, TypeScript), Apache, Nginx, ...

Data base

SQL, PostgreSQL, Apache Hadoop, Apache Cassandra, ...

Systems administration

Linux, System-D, Docker, Networking, Mesh networking, ...

DevOps

Git, Github, Continuous Integration (CI/CD, Github Actions), Software integration, ...

Participatory presentation

Trainer, Public exhibition of participatory model (HoanKiemAir)

Artificial intelligence

Neural networks, Finite state automata, ...

Soft-skills

Epidemiology, LaTeX, IoT, ...

Languages

French Native

German Threshold level (B1)

English Proficient level (C2)

Vietnamese Elementary level (A2)