Thibaut **Dubernet**

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French | Born 5 Dec. 1988 | C Permit

Experience

May 2017 – Now

Post-Doctoral Researcher

Zurich, CH

Swiss Federal Institute of Technology (ETHZ)
Institute for Transport Planning and Systems (IVT)

- Management of projects related to MATSim open-source software (Java, see `http://www.matsim.org`)
- Member of "MATSim Committee", responsible for strategic software decisions
- Analysis of social mobility behavior using smartphone tracking and survey data
- Large scale GPS-tracking survey
- Lecturer for classes on *Introduction to Java* and *Agent Based Modeling*
- Setting up of an Open Source Software Foundation (OSSF) for MATSim (in progress)
- Design of a Massive Open Online Course (MOOC) teaching the use of agent based models, from raw data to policy analysis (in progress)

Sept 2011 – May 2017

Research Assistant

Zurich, CH

Swiss Federal Institute of Technology (ETHZ)
Institute for Transport Planning and Systems (IVT)

- Member of "MATSim Committee"
- Maintenance and refactoring of MATSim codebase, leading to more robust and usable framework
- Analysis of mobility behavior using statistical approaches
- Extension of the simulation framework to simulate joint travel
- Implemented a novel approach to generate large-scale social networks, running in few hours for several millions of agents through the use of heuristics and efficient data structures (VP tree)

Feb 2011 – June 2011

Intern

Zurich, CH

Swiss Federal Institute of Technology (ETHZ)
Institute for Transport Planning and Systems (IVT)

- Implemented a MATSim module for household simulation, using genetic algorithms

Sept 2009 – Dec 2009

Intern

Lyon, FR

Transport Technologie Konsult Karlsruhe (TTK)

- Consulting in transport planning

Education

Apr 2012 – May 2017

Doctoral Studies

Zurich, CH

Swiss Federal Institute of Technology (ETHZ)
Institute for Transport Planning and Systems (IVT)

- Dissertation title: Explicitly Correlating Agent's Daily Plans in a Multi-Agent Transport Simulation: Towards the Consideration of Social Relationships

Sept 2010 – Dec 2010

Exchange Semester

Lausanne, CH

École Polytechnique Fédérale de Lausanne (EPFL)

- Mathematics curriculum
- Project: Simulation of residential location choice (Python)

Sept 2009
June 2011

MSc. Urban System Engineering

Compiegne, FR

University of Technology of Compiegne (UTC)

- Emphasis on simulation
- Project: Ray-tracing application for estimation of solar radiation in urban environment (Octave/Matlab)

Sept 2006
June 2009

Fundamental Engineering Studies

Compiegne, FR

University of Technology of Compiegne (UTC)

- General scientific curriculum

Skills

Programming Java (Guice, Spring Boot, Apache commons, JUnit, Maven, Gradle…), Python (Pandas, Numpy, Matplotlib, Seaborn, Scikitlearn…), R, (ggplot2, data.table…), Scala, Kotlin, Bash, Matlab/Octave, LaTeX, Haskell

Computing Linux, Git, SVN, Platform LSF, Make, Docker

Languages French (native), English, German, Spanish (fluent)

Additional Coursework

2017

Project Management for Research

Zurich, CH

Swiss Federal Institute of Technology (ETHZ)

2-days workshop

2017

Machine Learning

Stanford University on Coursera

Ongoing

Functional Programming in Scala

École Polytechnique Fédérale de Lausanne (EPFL) on Coursera

- 5-courses specialization
- 3 courses completed

Publications

2019

Hörl, S., F. Becker, T. Dubernet and K. Axhausen (2019) Induzierter Verkehr durch autonome Fahrzeuge: Eine Abschätzung, Forschungsprojekt SVI 2016/001, *Schriftenreihe*, **1650**, Bern.

Hackl, J. and T. Dubernet (2019) Epidemic spreading in urban areas using agent-based transportation models, *Future Internet*, **11** (4).

Dubernet, T. and K. W. Axhausen (2019) Using passively collected data to investigate social travel, presentation, 8rd Symposium of the European Association for Research in Transportation (hEART 2019), Budapest, September 2019.

2018

Dubernet, I., T. Dubernet and K. W. Axhausen (2018) Estimating values of time with a multiplicative logit model: An application to German data, paper presented at the *15th International Conference on Travel Behaviour Research (IATBR)*, Santa Barbara, July 2018.

Dubernet, I., T. Dubernet and K. W. Axhausen (2017) Comparing short- and long-term values of travel time savings derived from a joint modelling framework, paper presented at the *97th Annual Meeting of the Transportation Research Board*, Washington, D.C., January 2017.

Dubernet, T. (2017b) Using a synthetic social network to improve leisure destination choice simulation, paper presented at the *97th Annual Meeting of the Transportation Research Board*, Washington, D.C., January 2017.

2017

Dubernet, T. (2017a) Explicitly correlating agent's daily plans in a multiagent transport simulation: Towards the consideration of social relationships, Ph.D. Thesis, ETH Zurich, Zurich.

2016

Dubernet, T. and K. W. Axhausen (2016) Using a joint destination-mode choice model for developing accessibility measures, paper presented at the *16th Swiss Transport Research Conference*, Ascona, April 2016.

Dubernet, T. (2016) Joint decisions, in A. Horni, K. Nagel and K. W. Axhausen (eds.) *The Multi-Agent Transport Simulation MATSim*, 175–181, Ubiquity, London.

Serras, J., M. Bosredon, V. Zachariadis, C. Vargas-Ruiz, T. Dubernet and M. Batty (2016) London, in A. Horni, K. Nagel and K. W. Axhausen (eds.) *The Multi-Agent Transport Simulation MATSim*, 447–450, Ubiquity, London.

2015

Dubernet, T. and K. W. Axhausen (2015b) Simulating the influence of social contacts spatial distribution on mobility behavior, paper presented at the *15th Swiss Transport Research Conference*, Ascona, April 2015.

Picornell, M., T. Ruíz, M. Lenormand, J. J. Ramasco, T. Dubernet and E. Frías-Martínez (2015) Exploring the potential of phone call data to characterize the relationship between social network and travel behavior, *Transportation*, **42** (4) 647–668.

Dubernet, T. and K. W. Axhausen (2015a) Implementing a household joint activity-travel multi-agent simulation tool: First results, *Transportation*, **42** (5) 753–769.

2014

Dubernet, T. and K. W. Axhausen (2014a) A multiagent simulation framework for evaluating bike redistribution systems in bike sharing schemes, *Arbeitsberichte Verkehrs- und Raumplanung*, **1010**, IVT, ETH Zurich, Zurich.

Dubernet, T. and K. W. Axhausen (2014b) Solution Concepts for the Simulation of Household-Level Joint Decision Making in Multi-Agent Travel Simulation Tools, paper presented at the *14th Swiss Transport Research Conference*, Ascona, May 2014.

2013

Dubernet, T., N. Rieser-Schüssler and K. W. Axhausen (2013) Using a multi-agent simulation tool to estimate the car-pooling potential, paper presented at the *92nd Annual Meeting of the Transportation Research Board*, Washington, D.C., January 2013.

Dubernet, T. and K. W. Axhausen (2013a) A Framework to Represent Joint Decisions in a Multi-Agent Transport Simulation, paper presented at the *13th Swiss Transport Research Conference*, Ascona, April 2013.

Dubernet, T. and K. W. Axhausen (2013b) Including joint decision mechanisms in a multiagent transport simulation, *Transportation Letters*, **5** (4) 175–183.

2012

Dubernet, T. and K. W. Axhausen (2012a) Including joint trips in a multi-agent transport simulation, paper presented at the *12th Swiss Transport Research Conference*, Ascona, May 2012.

Dubernet, T. and K. W. Axhausen (2012b) Including joint trips in a multi-agent transport simulation, paper presented at the *13th International Conference on Travel Behaviour Research (IATBR)*, Toronto, July 2012.

2011

Dubernet, T. (2011) Introducing joint trips in a multi-agent transport simulation: From agents to clique replanning, Master Thesis, Université de Technologie de Compiègne and IVT, ETH Zurich, Compiègne and Zurich.