

Stéphane BONNEAUD, PhD

COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE, COGNITIVE SCIENCE
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PROFESSIONAL PREPARATION

Université Pierre et Marie Curie, Paris VI, France	COMPUTER SCIENCE	B.Sc., 2002
Université Pierre et Marie Curie, Paris VI, France	ARTIFICIAL INTELLIGENCE	M.Sc, 2003
Université Orsay, Paris Sud XI, France	COGNITIVE SCIENCE	M.Sc, 2004
Université Bretagne Occidentale, France	ARTIFICIAL INTELLIGENCE	Ph.D., 2008

Thesis : Multi-agent modeling of complex ecological/economical systems in dynamical environments

ENTREPRENEURSHIP

Head of development and 3D modeling, co-founder of Artificial Cube

 VIRTUAL REALITY, 2013

Wireless VR headset system for distributed multi-user simulations with motion reconstruction.

Co-inventor US patent #14526,404 & Int. #PCTUS2014062668, *Virtual Reality Methods and Systems*, Brown University, USA.

Presented at the IITSEC Conference 2014 in collaboration with Qualisys Motion Capture.

Head of development and design, co-founder of Big Hatch Inc.

 EDUCATION + TECHNOLOGY, 2014

K-5 educational content and technologies, frontend + backend development.

\$150K seed investment.

APPOINTMENTS

Head of development and design, Creative Smarts Inc.

 2014 – 2016

Educational content design + development.

<http://gregtangmath.com>, created in 2012, exponential growth from 2014 to 2016 with 33M pages views now.

Selected games : How Many, Coin Bubble, Kakooma, Num Tanga, Ten Frame Mania, Math Limbo, Minus Mania.

Published online multi-player game with >100K registered users in <6 months.

NODEJS, HTML/CSS/PHP, JS, PYTHON, IOS/SWIFT, ANDROID

Postdoctoral research associate, Serre Laboratory

 2012 – 2013

Dept. of Cognitive, Linguistic and Psychological Sciences, Brown University, USA

Towards a biologically-inspired vision system for the control of navigation in complex environments.

Worked with ROS on robots Atlas, Boston Dynamics, and turtlebots.

DEEP LEARNING, VISUAL PERCEPTION, 3D SHAPE+MOTION PROCESSING, VIRTUAL REALITY.

Postdoctoral research associate, Virtual Environment and Navigation Laboratory

 2009 – 2012

Dept. of Cognitive, Linguistic and Psychological Sciences, Brown University, USA

Modeling of collective behavior in crowd locomotor dynamics and of action selection in an ecological model of locomotion

C++/PYTHON, MATLAB, EXPERIMENTAL SCIENCE, PERCEPTION AND ACTION, VISUAL CONTROL OF LOCOMOTION, VIRTUAL REALITY.

Postdoctoral research associate, LISyC-CERV-ENIB

 Nov 2008 – Apr 2009

Biodiversity project ANR-IFB 2005, European Center for Virtual Reality, France

C++/PYTHON, COMPLEX SYSTEMS, VIRTUAL REALITY.

INTERNSHIPS

Natural language modeling, Paris XI Orsay, with J.P. Sansonnet

 Apr – Sep 2004

Modeling and extraction of action patterns in linguistic interactions.

Multiagent simulation , Paris VI / Kyoto University, Japan, with A. Drogoul and Ishida Multiagent simulator for crisis scenarios, Q language with CORMAS + SWARM	Apr – Nov 2003
Multiagent simulation , Paris VI and IRD, Dakar, Sénégal, with C. Cambier Distributed multiagent biological population simulator.	Sep 2002
Data analysis development , Stanford Linear Accelerator Center, CA, USA, with P. Kunz	Summer 2000
UI development , Stanford Linear Accelerator Center, CA, USA, with T. Glanzman	Summer 1998

SELECTED COURSES UNDERTAKEN (M.SC. LEVEL)

(Cognitive science) Neurobiology of Cognitive Functions, Cognitive Psychology, Mental Images and Representations (M.Sc Psychology, Paris V), Learning and Memory (M.Sc Neurosciences, Paris VII), Cognitive Sciences and Intelligent Agents Design.

(Artificial intelligence) Multiagent Systems, Natural and Artificial Adaptive Behaviors, Learning and Evolutionist Methods, Neural Networks, Expert Systems and Heuristics, AI and DB, Problem Resolution in AI and Operational Research, Software Intelligence.

(Computer science) Virtual Reality, Distributed Systems, Image Processing Tools and Methods, Graphical Algorithmic, Logical Programming and Deductive DB, OO Modeling, Systems and Networks, Mathematics for Computer Science.

SYNERGISTIC ACTIVITIES

Selected works

(2012-2013) Coupling VENLab's multiagent simulator with Serre's Lab's neural network vision system. Brown University, USA.

(2012-2013) Virtual reality simulator with CryEngine + Rockwell Collins SR-80 HMD + Qualisys motion capture, Brown University, USA.

(2009-2013) Multiagent simulator for crowd modeling and simulation, VENLab, Brown University, USA.

(2004-2008) Multiagent simulator to study the impact of global warming and fishing activities, European Center for Virtual Reality, France.

(Dec 2003) Part of the thinktank "Participatory design of agent oriented simulations", french multiagent systems community, France.

(2002-2003) Installation and administration of a server giving access to all (free of rights) French literature using AI, Paris VI.

(2000) Porting application "HippoDraw" (GLAST project, collaboration DOE and NASA) from C to C++, SLAC, Stanford.

(1998) UI development for the "BABAR" project (int. collaboration, particular physics). Published in an int. congress of physics, Chicago.

Teaching activities

(2005-2008) UML, C, Algorithmic, OO programming, Java, Python, Shell. National School of Engineering of Brest, France.

(2004-2005) Artificial intelligence. Saint Cyr special military school, France.

Supervision activities

(2012-2013) Co-supervising undergraduate students. SERRE'S LAB, Brown University, USA.

(2012-2013) Supervising artificial image datasets creation for training a visual recognition model. SERRE'S LAB, Brown University, USA.

(2011-2013) Supervising the team of developers. VENLAB, Brown University, USA.

(2010) Supervising the coupling of a multiagent simulator with Vizard-WorldViz Virtual Reality platform. VENLAB, Brown University, USA.

(2007) Supervising a master student on modeling of agent populations. Computer Science Laboratory for Complex Systems, France.

COLLABORATORS & OTHER AFFILIATIONS

Collaborators

(2014-2016) G. Tang, *K-5 math professional developer, author of the NYT best-seller children's book "The Grapes of Math"*.

(2012-2013) Pr. W. H. Warren, *Primary Investigator of the Virtual Environment and Navigation Laboratory, Brown University, USA.*

(2010-2013) Pr. P. Chevaillier, *head of European Center for Virtual Reality, Computer Science Laboratory for Complex Systems, France.*

Postdoctoral and Graduate Advisors

Pr. Thomas Serre, Brown University, USA ; Pr. William H. Warren, Brown University, USA ; Pr. Pierre Chevallier (thesis advisor), National School of Engineering of Brest, France, Head of the European Center for Virtual Reality, France ; Dr. Pascal Redou (thesis co-advisor), National School of Engineering of Brest, France ; Pr. Jacques Tisseau, Head of the National School of Engineering of Brest, France.
Postdoc sponsor : ONR N000141110743 ; Postdoc sponsor : NIH R01 EY010923 ; Postdoc sponsor : ANR (Nationally agency for research, France) ; Ph.D. sponsor : National School of Engineering of Brest, France ; Ph.D. sponsor : région Bretagne, France.

PUBLICATIONS

- (2013) Adam W. Kiefer, Stéphane Bonneaud, Kevin Rio, and William H. Warren. *Quantifying the Coherence of Pedestrian Groups*. 35th Annual Conference of the Cognitive Science Society (IN PRESS).
- (2012) Kevin Rio, Stéphane Bonneaud and William H. Warren. *Speed coordination in pedestrian groups : Linking individual locomotion with crowd behavior*. Journal of Vision 12(9).
- (2012) Stéphane Bonneaud and William H. Warren. *A behavioral dynamics approach to modeling realistic pedestrian behavior*. In the Proceedings of the PED'2012, Int. Conference on Pedestrian and Evacuation Dynamics, Switzerland, 2012.
- (2012) Stéphane Bonneaud, Pierre Chevallier and William H. Warren. *Modélisation multi-agents de la locomotion collective de groupes de piétons*. In the Proceedings of the JFSMA'2012, France, 2012.
- (2011) Stéphane Bonneaud, Kevin Rio, Pierre Chevallier and William H. Warren. *Accounting for patterns of collective behavior in crowd locomotor dynamics for realistic simulations*. In the journal LNCS Transactions on Edutainment (Springer), 2011, 7145, 1-11.
- (2010) Stéphane Bonneaud and Pierre Chevallier. *Analyse expérimentale des biais dans les simulations à base de populations d'agents (Experimental analysis of biases in the simulations of agents populations)*. Revue d'Intelligence Artificielle, 2010, 24(5), 601-624.
- (2009) Gireg Desmeulles, Stéphane Bonneaud, Pascal Redou, Vincent Rodin, Jacques Tisseau. *In virtuo experiments based on the multi-interaction system framework : the RéISCOOP meta-model*. CMES, 2009, 47, 299-330.
- (2009) Pierre Chevallier, Stéphane Bonneaud, Gireg Desmeulles, Pascal Redou. *Experimental Study of Agent Population Models with a Specific Attention to the Discretization Biases*. In the proceedings of ESM'09, UK, October, 2009, 323-331.
- (2009) Mikael Bourhis, Gireg Desmeulles, Stéphane Bonneaud, François Guerrero, Vincent Rodin. *Data consistency in distributed virtual reality simulations applied to biology*. In the proceedings of ICAS'09, The 5th, Spain, April 20-25, 2009.
- (2009) Stéphane Bonneaud, Pascal Redou, Gireg Desmeulles, Pierre Chevallier. *Biais computationnels dans les modèles de peuplements d'agents*. In the proceedings of JFSMA'09, France, 2009, 145-154.
- (2007) Stéphane Bonneaud, Pierre Chevallier. *Oriented pattern agent-based multi-modeling of exploited ecosystems*. In the proceedings of the 6th EUROSIM congress on modelling and simulation, Slovenia, September 9-13, 2007, 7 pages.
- (2007) Stéphane Bonneaud, Fabian Blanchard, Damien Thébault, Pierre Chevallier, Pascal Redou. *A model of fish population dynamics based on spatially explicit trophic relationships*. In the proceedings of the ECEM'07, The 6th European Conference on Ecological Modelling, Italy, November 27-30, 2007.
- (2007) Stéphane Bonneaud, Pascal Redou, Damien Thébault, Pierre Chevallier. *Multi-modélisation agent orientée patterns : Application aux écosystèmes exploités*. In the proceedings of the JFSMA'07, France, 17-19 October 2007, 119-128. *Best Paper Award*.
- (2005) Stéphane Bonneaud, Gabriel Ripoche, Jean-Paul Sansonnet. *Toward an Empirical Schema-Based Model of Interaction for Embedded Conversational Agents*. In the proceedings of the Joint Symposium on Virtual Social Agents AISB 2005, UK, April 2005.
- (2005) Jean-Paul Sansonnet, Stéphane Bonneaud, Gabriel Ripoche. *Modélisation et extraction de schémas dialogiques dans les traces d'interactions langagières des forges logicielles*. Workshop JSM'05, Journées Sémantique et Modélisation, France, March 2005.
- (2004) Stéphane Bonneaud, Gabriel Ripoche, Jean-Paul Sansonnet. *A Socio-Cognitive Model for the characterization of schemes of Interaction in Distributed Collectives*. In "Distributed Collective Practice : Building new Directions for Infrastructural Studies", Workshop of the CSCW 2004 conference, USA, nov 2004.
- (2004) Daisuke Torii, Toru Ishida, Stéphane Bonneaud, Alexis Drogoul. *Layering Social Interaction Scenarios on Environmental Simulation*. 78-88, Joint Workshop on Multi-Agent and Multi-Agent-Based Simulation MABS 2004, USA, 2004.