BENOIT MONIN

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Nationality :	French

PROFESSIONAL EXPERIENCE

Since Sept. 2015 **University Paris Créteil** *Créteil, France*
Associate professor

- Research in theoretical computer science and mathematical logic, resolution of several open questions.
- Many articles for journals and conferences.
- Teaching of computer science (C/C++, Java) and mathematics.
- Website for automatic programs correction : `https://syntaxerror.academy/`

Sept. 2014 to Sept. 2015 **University Victoria** *Wellington, New Zealand*
Post-doctorate

- Research in theoretical computer science.
- Teaching of mathematics.

Sept. 2007 to Sept. 2009 **Mitsubishi UFG** *London, UK*
Quantitative analyst, front office

- Development of a pricing software for exotic derivative products, C#, VBA.
- Financial mathematics, stochastic calculus, PDE, Monte Carlo.

Sept. 2006 to Sept. 2007 **Siemens Corporate Research** *Princeton, USA*
Research intern in medical imaging

- Development of a segmentation software for brain IRMs, C/C++.
- Image processing, Image registration, Hidden Markov process.

EDUCATION

TECHNICAL SKILLS

Jan. 2021 **University Paris-Est Créteil**
Accreditation to supervise research

- Accreditation thesis : Mathias Forcing and the Ramsey theorem for pairs.
- Direction of Paul-Elliot Angles d'Auriac's PhD thesis.

Sept. 2011 to Sept. 2014 **University Paris Diderot**
PhD student theoretical computer science

- Thesis : Algorithmic randomness and higher order computability.
- Teaching : Programming, algorithmic.

Sept. 2010 à Sept. 2011 **University Paris Diderot**
Master II degree in logic and theoretical computer science

- Theoretical computer science.
- Mathematical logic.

Sept. 2001 à Sept. 2006 **Engineering school EPITA**
Engineering degree in computer science

- Programming/Algorithmic.
- Artificial Intelligence and numerical learning.

Skill	Level
Dev Back / Front	● ● ● ● ○
C/C++	● ● ● ● ●
Java	● ● ● ● ●
C#	● ● ● ● ○
Javascript / ReactJS	● ● ● ● ○
Python / Django	● ● ● ● ○
Elixir / Phoenix	● ● ● ○ ○
HTML / CSS	● ● ● ○ ○
Postgres/MySql	● ● ● ● ○
Linux / Scripts bash	● ● ● ● ○
Docker	● ● ○ ○ ○
Latex	● ● ● ● ●
Git	● ● ● ○ ○

MAIN MATHEMATICAL CONTRIBUTIONS

Resolution of several open questions, opened for several years, and having received significant attention from the scientific community :

- Separation of the reverse mathematics principles RT_2^2 and SRT_2^2 in standard models. Question solved in "SRT_2^2 does not imply COH in ω-models", B. Monin, L. Patey

- Proof of a trichotomy in the Turing degrees, according to the asymptotic density of the ratio of theirs members' computable bits. Question solved in :
  "An answer to the Gamma question", B. Monin

- Characterization of lowness for Π_1^1-randomness. Question solved in
  "Higher randomness and genericity", N. Greenberg, B. Monin

- Separation of Π_1^1-randomness and weak Π_1^1-randomness. Question solved in
  "Continuous higher randomness", L. Bienvenu, N. Greenberg, B. Monin

SCIENTIFIC ANIMATION

Writing of a book (in French) :	Benoit Monin, Ludovic Patey *Calculabilité* `https://www.lacl.fr/~benoit.monin/ressources/misc/calculabilite.pdf`
PhD supervision :	Paul-Elliot Angles d'Auriac *Infinite computation in algorithmic randomness and reverse mathematics*, defended on the 22/11/2019
Other :	More than 20 talks and presentations of my work in peer-reviewed conferences, colloquiums and workshops.

GENERAL SKILLS

Research :	Mathematical logic, computability theory, algorithmic randomness, reverse mathematics, higher order computability, set theory.
Mathematics :	Algebra, calculus, probability, discrete mathematics.
Computer science :	Many programming languages, advanced algorithmic and data structures, full stack development.
Numerical learning :	The basics of linear regression, Support vector machine, classification, Neural network architecture and gradient back-propagation algorithm.

ADDITIONAL INFORMATION

Languages :	English, French
Leisures :	Game of go, tennis

Publication list :

Book Chapter :

[1] 2020   B. Monin   **Higher randomness**   *Lecture notes in logic : Algorithmic Randomness : Progress and Prospects*

Journal papers :

[1]	2021	L. Bienvenu, N. Greenberg, B. Monin	**Bad oracles in higher computability and randomness**	*Israel Journal of mathematics (to appear)*
[2]	2020	B. Monin, A. Nies	**Muchnik degrees and cardinal characteristics**	*Journal of Symbolic Logic*
[3]	2019	B. Monin, L. Patey	**Pigeons do not jump high**	*Advances in Mathematics*
[4]	2019	P.E. Angles d'Auriac, B. Monin	**Genericity and randomness with ITTMs**	*Journal of Symbolic Logic*
[5]	2018	L. Liu, B. Monin, L. Patey	**A computable analysis of variable word theorems**	*Transactions of the AMS*
[6]	2018	L. Bienvenu, S. Figueira, B. Monin, A. Shen	**Algorithmic identifiation of probabilities is hard**	*Journal of Computer and System Sciences*
[7]	2017	N. Greenberg, B. Monin	**Higher randomness and genericity**	*Forum of mathematics, Sigma*
[8]	2017	L. Bienvenu, N. Greenberg, B. Monin	**Continuous Higher randomness**	*Journal of Mathematical Logic*
[9]	2016	B. Monin	**Higher randomness and forcing with closed sets**	*Theory of computing system*
[10]	2016	B. Monin, L. Patey	**Π_1^0 encodability and omniscient reduction**	*Notre Dame Journal of Formal Logic*
[11]	2015	N. Greenberg, J. Miller, B. Monin, D. Turetsky	**Two More characterizations of K-triviality**	*Notre Dame Journal of Formal Logic*

Conference papers :

[1]	2018	B. Monin	**An answer to the Gamma question**	*LICS*
[2]	2017	P.E. Angles d'Auriac, B. Monin	**Another characterization of the higher K-Trivials**	*MFCS*
[3]	2015	B. Monin, A. Nies	**A unifying approach to the Gamma question**	*LICS*
[4]	2014	L. Bienvenu, B. Monin, A. Shen	**Algorithmic identifiation of probabilities is hard**	*ALT*
[5]	2014	B. Monin	**Higher randomness and forcing with closed sets**	*STACS*
[6]	2012	L. Bienvenu, B. Monin	**von Neumann's biased coin revisited**	*LICS*