FANG Nan

Assistant Researcher

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Research Interests

Algorithmic Information Theory , Computability Theory , Kolmogorov Complexity ,
Discrete Probability and Games , Algorithmic Game Theory , Mathematical Logic , ···

Employment

Sept. 2019–Present	Assistant researcher, State Key Laboratory of Computer Science, Institute of Software, Chinese Academy of Sciences, China

Education

Oct. 2015–Aug. 2019	Ph.D in Computer Science (magna cum laude), Heidelberg University, Germany
	Thesis: Restricted Coding and Betting
	Supervisors:
	Priv.-Doz. Wolfgang Merkle, Institut für Informatik, Universität Heidelberg
	Prof. George Barmpalias, Institute of Software, Chinese Academy of Sciences
Sept. 2012–Jul. 2015	M.Phil in Logic, Peking University, China
	Thesis: Solovay Functions and Algorithmic Randomness
	Supervisors:
	Assoc. Prof. Taotao Xing, Department of Philosophy, Peking University
	Priv.-Doz. Wolfgang Merkle, Institut für Informatik, Universität Heidelberg
Sept. 2008–Jun. 2012	B.Sc in Mathematics, Nanjing University, China
	Thesis: Computable Analysis of Differentiation and Integration
	Supervisor: Assoc. Prof. Hong Lu, Department of Mathematics, Nanjing University

Service

1. *Teaching Assistant* for the following courses:

   Universität Heidelberg, Mar. 2016 – Sept. 2019 | Computability and Complexity 1 | , | Computability and Complexity 2 | ,
   | Randomized Algorithms | , | Formal Languages and Automata Theory |

   Peking University, Sept. 2012– Feb. 2013 | Introduction to Modal Logic |

2. *Referee* of the following journal: | Studies in Logic |

Papers

1. *Generalizing cl-reducibility on left-c.e. reals*, Nan Fang and Wolfgang Merkle, in preparation.

2. *Granularity of wagers in games and the (im)possibility of savings*, George Barmpalias and Nan Fang, submitted.

3. *Monotonous betting strategies in warped casinos*, George Barmpalias, Nan Fang and Andy Lewis-Pye, Information and Computation, in press.

4. *Equivalences between learning of data and probability distributions, and their applications*, George Barmpalias, Nan Fang and Frank Stephan, Information and Computation 262 (2018) 123–140.

5. *Optimal asymptotic bounds on the oracle use in computations from Chaitin's Omega*, George Barmpalias, Nan Fang and Andy Lewis-Pye, Journal of Computer and System Sciences 82 (2016) 1283-1299.

Talks

1. *Betting with preference on outcomes*, Conference on Computability, Complexity and Randomness (CCR 2019), Nur-Sultan, Jun. 23 - 25, 2019.

2. *Granularity of wagers in games and the (im)possibility of savings*, Asian Logic Conference, Jun. 17 - 21, 2019.

3. *Granularity and timidness of betting strategies*, Randomness, Information, Complexity, Moscow, Jun. 12 - 14, 2019.

4. *Generalizing cl-reducibility on left-c.e. reals*, Delta 11 Workshop on Logic, Nanjing, Apr. 18, 2019.

5. *Monotonous betting strategies in warped casinos*, Journées du GT Calculabilités du GdR Informatique Mathématique, Paris, Jul. 2 - 3, 2018.

6. *A left-c.e. real not computable by any Omega number with low redundancy*, Conference on Computability, Complexity and Randomness (CCR 2017), Mysore, Jul. 3 - 7, 2017.

7. *Computing left-c.e. reals from Ω-numbers*, Montpellier - Heidelberg Workshop on Computability and Randomness, Maison de Heidelberg, Montpellier, Jun. 16 - 17, 2016.

8. *Solovay Functions and No-Gap Phenomena*, Conference on Computability, Complexity and Randomness (CCR 2015), Institut für Informatik, Universität Heidelberg, Heidelberg, Jun. 22 - 26, 2015.

Visiting, Summer Schools and Conferences (without talk)

1. "Russian Workshop on Complexity and Model Theory", Moscow Institute of Physics and Technology (MIPT), Jun. 9 - 11, 2019

2. Visiting Prof. George Barmpalias at Institute of Software, Chinese Academy of Science, Mar. 6 - Apr. 4, 2018.

3. "Aspects of Computation", Institute for Mathematical Sciences, National University of Singapore, Aug. 28 - Sept. 15, 2017.

4. "Computability, Randomness and Applications", Centre International de Rencontres Mathématiques (CIRM), Jun. 20 - 14 2016.

5. Visiting Dr. George Barmpalias at Institute of Software, Chinese Academy of Science, Sept. 1 -23, 2015.

6. "Focus Semester Computability and Randomness", Institut für Informatik, Universität Heidelberg, May. 3 - Jun. 30, 2015.

7. DAAD Exchange Student, Institut für Informatik, Universität Heidelberg, Nov. 3, 2014 - Jan. 30, 2015.

8. BASICS 2014 Summer School and Logic Summer School in China 2014, Shanghai Jiaotong University, Aug. 18 - 29, 2014.

9. Asian Initiative for Infinity (AII) Graduate Summer School, Institute for Mathematical Sciences, National University of Singapore, Jun. 23 - Jul. 4, 2014.

10. Conference on Computability, Complexity and Randomness (CCR 2014), Institute for Mathematical Sciences, National University of Singapore, Jun. 5 - 30, 2014.

11. Asian Initiative for Infinity (AII) Graduate Summer School, Institute for Mathematical Sciences, National University of Singapore, Jul. 15 - 26, 2013.

Honors and Awards

2015	CSC Scholarship for Doctoral Students, Chinese Scholarship Council
2014	DAAD Short-term Stipend for Master Students, DAAD
	Guanghua Scholarship, Peking University
2011	Outstanding Student, Nanjing University

Skills

Language: Chinese (native) , English (fluent) , German (medium)

Computer: C++ , Python , Latex