João Ribeiro

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Current Positions

Aug 2024 - Instituto Superior Técnico – Universidade de Lisboa, Portugal
Professor Auxiliar (U.S. equivalent: Assistant Professor), Department of Mathematics

Aug 2024 - Instituto de Telecomunicações
Researcher

Education

2017-2021 **Imperial College London, UK**

Ph.D. in Computing
Thesis: Coding against synchronisation and related errors
Advisor: Mahdi Cheraghchi

2015-2017 **ETH Zurich, Switzerland**

M.Sc. in Computer Science *(with distinction)*
Track: Theoretical Computer Science
Thesis: Challenges in information-theoretic secret-key agreement
(awarded the ETH Medal for outstanding M.Sc. theses)
Advisors: Ueli Maurer and Daniel Jost

2012-2015 **Instituto Superior Técnico – Universidade de Lisboa, Portugal**

B.Sc. in Applied Mathematics and Computation *(excellent)*

Previous Positions

2024 Simons Institute for the Theory of Computing, University of California, Berkeley, CA, USA
Visiting Scientist

Invited long-term participant in the Error-Correcting Codes: Theory and Practice program.

Feb 2023 - July 2024 NOVA School of Science and Technology, Universidade Nova de Lisboa, Portugal
Professor Auxiliar (U.S. equivalent: Assistant Professor), Computer Science Department

Feb 2023 - July 2024 NOVA Laboratory for Computer Science and Informatics (NOVA LINCS)
Researcher

Aug 2021 - Jan 2023 Carnegie Mellon University, Pittsburgh, PA, USA
Post Doctoral Fellow, Computer Science Department

Hosted jointly by Vipul Goyal and Venkatesan Guruswami. Part of the Cryptography and Theory groups.

Selected publications

[J1] Huck Bennett, Mahdi Cheraghchi, Venkatesan Guruswami, and João Ribeiro. Parameterized inapproximability of the minimum distance problem over all fields and the shortest vector problem in all ℓ_p norms. *SIAM Journal on Computing*, 53(5):1439–1475, 2024. Preliminary version in STOC 2023. 10.1137/23M1573021.

[J2] Ryan Gabrys, Venkatesan Guruswami, João Ribeiro, and Ke Wu. Beyond single-deletion correcting codes: Substitutions and transpositions. *IEEE Transactions on Information Theory*, 69(1):169–186, 2023. Preliminary version in RANDOM 2022. 10.1109/TIT.2022.3202856.

[J3] Mahdi Cheraghchi, Joseph Downs, João Ribeiro, and Alexandra Veliche. Mean-based trace reconstruction over oblivious synchronization channels. *IEEE Transactions on Information Theory*, 68(7):4272–4281, 2022. Preliminary version in ISIT 2021. 10.1109/TIT.2022.3157383.

[J4] Mahdi Cheraghchi and João Ribeiro. Non-asymptotic capacity upper bounds for the discrete-time Poisson channel with positive dark current. *IEEE Communications Letters*, 25(12):3829–3832, 2021. 10.1109/LCOMM.2021.3120706.

[J5] Mahdi Cheraghchi, Ryan Gabrys, Olgica Milenkovic, and João Ribeiro. Coded trace reconstruction. *IEEE Transactions on Information Theory*, 66(10):6084–6103, 2020. Preliminary version in ITW 2019. 10.1109/TIT.2020.2996377.

[J6] Mahdi Cheraghchi and João Ribeiro. Sharp analytical capacity upper bounds for sticky and related channels. *IEEE Transactions on Information Theory*, 65(11):6950–6974, Nov 2019. Preliminary version in Allerton 2018. 10.1109/TIT.2019.2920375.

[J7] Mahdi Cheraghchi and João Ribeiro. Improved upper bounds and structural results on the capacity of the discrete-time Poisson channel. *IEEE Transactions on Information Theory*, 65(7):4052–4068, July 2019. Preliminary version in ISIT 2018. 10.1109/TIT.2019.2896931.