Extending homeomorphisms of the real line (or how to connect quasiconformality, rotation numbers and your friends?)

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Consider the following questions:

1. Is it possible to characterize a homeomorphism of the real line being Bi-Lipschitz through the quasiconformality of an homeomorphism of the upper half-plane that extends it?

2. Given a homeomorphism of the real line such that it is conjugate to a rotation, is it possible to infer extra information on the conjugating homeomorphism based on the regularity of an homeomorphism of the upper half-plane that extends it?

In this talk I will provide some answers to both questions.

All this results come from collaboration with several friends: José Afonso Barrionuevo, Luna Lomonaco, Victor Medeiros and Miguel Ratis Laude.