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First and foremost, I want to thank the professor Rossetti, president of the jury, as well as, Professor Schwartz and Professor Schredl, members of the jury, for the interest you have shown in my work and for allowing me to defend this doctoral thesis today. I also want to thank doctor Perrine Ruby, my thesis advisor, for her great help over the past 4 years, and without whom none of the present work would have been possible. I also wish to thank everyone in this room for being here.

1. **Introduction**

I would like first to introduce dreaming. There is still no clear-cut definition for dreaming*.* During this presentation, I will use the working definition proposed by