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Nota di contenuto	Table of Contents; Title; Copyright; List of Figures; List of Tables; Introduction; I.1. The black box problem; I.2. A numerical tool to study a tribological problem; I.3. Why have we chosen a free license?; I.4. Discrete element methods; I.5. Application to tribological problems; I.6. A brief history of the workbench GranOO; I.7. A design to serve versatility; I.8. Choice of the programming language; I.9. Book organization; 1: Object Oriented Approach and UML; 1.1. Object Oriented (OO) paradigms; 1.2. OO analysis and design; 1.3. UML diagrams; 2: Operating Architecture 2.1. The GranOO package 2.2. Compilation process of the executable file; 2.3. Launching a GranOO executable; 2.4. The input files; 2.5. The magic world of the plugins; 2.6. The output files; 3: Focus on Libraries; 3.1. The geometrical library; 3.2. The DEM library; 3.3. The libMySandbox library; 3.4. Conclusion; 4: Tools and Practical Examples of Use of GranOO.; 4.1. Tool overview; 4.2. Granular simulation: the

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A1.3. Direction transformation A1.4. Quaternion definition; A1.5. Mathematical properties; A1.6. Quaternion and attitude; A1.7. Quaternion and angular velocity; A1.8. Application to dynamics; A1.9. Numerical integration; A1.10. Conclusion; Appendix 2: Pendulum Problem Complete Code; Bibliography; Index; End User License Agreement
